

ENVIROMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

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PARACEL

EUCALYPTUS PLANTATION

Departments of Concepción and Amambay – Paraguay

VOLUME II - BASELINE CONDITIONS

TOMO III - SOCIO-ECONOMIC ENVIRONMENT

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	II	Social Studies – Forestry Component
	III	Cultural and Nature Heritage Study

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6 BASELINE CONDITIONS

This document presents the results of the social studies corresponding to the forestry component of the project of the PARACEL firm, for the installation of a pulp manufacturing mill in the department of Concepción, Paraguay.

These studies contain the baseline and socioeconomic characterization of the Direct Influence Area (DIA) of said component, in addition to the social studies carried out on the industrial component (January 2021), taking the project as a whole, in order to contribute to the evaluation of possible impacts on the environment and the establishment of social management measures and programs that respond effectively to said impacts.

Taking into account the first stage of information gathering (industrial component), and the field work developed, it was again considered a priority to know the perception of the population regarding the project; and in the absence of data from secondary sources at the local level, valuable information could be collected for the elaboration of the characterization of the territories that make up the DIA in this second stage, in addition to the programs identification, implemented projects and a range of actors considered relevant in the area. Although this information is summarized in this report, it is advisable to review the attached documents, since they contain a detailed description of each of the districts and communities involved.

Regarding the characterization of the indigenous population of the area, although basic information is included in this document, considering the requirements of this population, a specific independent study was developed by specialists hired by Paracel S.A. The study was carried out by the Natán Foundation, it is presented in **ANNEX I**, and it complements also the Preliminary Environmental Impact Study (EIAP, 2020) carried out for Paracel industry component.

This present report is divided into descriptive sections, including the process carried out for its elaboration and the objectives set in each of them. It should be noted that both, national and international regulations, have constituted the guiding base for its development.

Among them we can consider the following:

- **Brief description of the project in its forestry component and the implications of its implementation**, its relationship with the industrial component, the planned stages, and the results to be achieved, among others. It also includes the presentation of the national and international regulatory framework involved in the process and the selection criteria of the project's Areas of influence (forestry component): Direct Influence Area (DIA) and Indirect Influence Area (IIA).
- **Methodology for the preparation of social studies**, both in relation to the office work and the search for information in secondary sources as well as everything concerning field work, the techniques used, the coordination with local referents among other aspects.
- **Social characterization of the project's areas of influence in its forestry component**, including initially a brief summary of the economic, social and cultural characteristics, etc. of the departments that make up the IIA; subsequently, the description of demographic, economic, employment, access to basic services, etc. in the districts and localities involved in DIA, including

variables such as land tenure, income, gender, among others. This section has been compiled with information from both secondary and primary sources.

- **Survey of social perception**, a section in which the results of part of the field work are presented through which the perception of the people involved in the survey of information regarding the initiative was accessed, including in the analysis of the results to the information obtained during the first stage of field work (industrial component).

It is important to mention that the work was developed in a different context from the first stage, taking the corresponding precautions given the complexity existing in the area covered, due to sanitary restrictions applied in the framework of the COVID-19 pandemic and socio-political events in the area.

Finally, as previously mentioned, in the annexes section, complementary and detailed information on the DIA is presented, as well as the information collection tools, the count of the activities carried out within the framework of social studies, an inventory of programs and projects implemented in the area, a list of reference institutions and community organizations, among others. **ANNEX II** presents more detailed information on all the communities Non IP that fall within the DIA.

Project Description

PARACEL, represented by national and international investment partners, is a Paraguayan company dedicated to the task of developing a project for the construction and operation of a pulp manufacturing mill, to be installed on the left bank of the Paraguay River; approximately 15 km (straight line) north of the city of Concepción, in the homonymous department.

The undertaking will use the best resources available in terms of technologies (BAT – Best Available Techniques) and environmental management (BPEM – Best Practices of Environmental Management).

The construction phase of the pulp mill is expected to begin in the first half of 2021, and that its operation will take place in the first half of 2023. During its operational phase, it will be supplied with eucalyptus wood from sustainable forest plantations with certification of the Forest Stewardship Council (FSC) and other global sustainability standards.

PARACEL project has acquired 19 estancias, or ranches for plantations, with a total area of approximately 190,000 ha, mostly located in the department of Concepción; approximately 130 km from the prospected industrial site, as illustrated in the Figure below.

Considering the overall project land area, 53% will be destined to eucalyptus plantations and 47% to protected areas. This will satisfy around 80% of the demand required for the operation of the plant; and the other 20% will be provided by external producers to the company (small local producers).

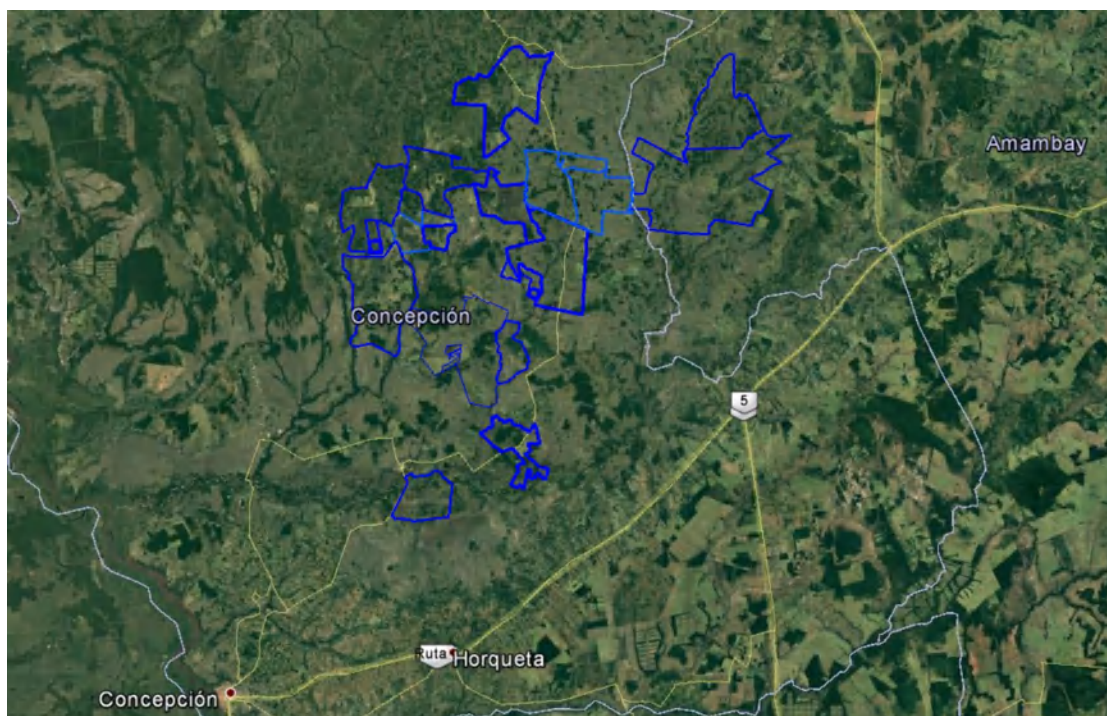


Figure 1 – Location of Forest Properties. Source: Google Earth, 2021.

During the first 6 years, a supply of wood from Brazil, Argentina and from forestations located in the country is foreseen, which will be transported by land and river to "Puerto PARACEL". It is worth mentioning that the mobilization of trucks with rolls from own plantations is estimated as of the fourth year of the project.

It is estimated that the forestry area will generate approximately 3 thousand jobs, between own contractions and outsourcing, during all the steps of the project – feasibility, construction/implementation, implementation and pre-operation, operation-learning curve and operation.

International and National Regulatory Framework

In the framework of the social researches for the forestry component of the project, the principles and legal instruments existing at the national and international level are considered that provide key elements for a sustainable socio-environmental management.

Next, the main existing laws, regulations and standards are presented with emphasis on the social aspects considered in the different stages of this study; from the definition of the areas of influence on the impact evaluation criteria and the development of programs.

Table 1 – National Normative

Topic	Legal Instrument
National Constitution	<ul style="list-style-type: none"> ▪ Main regulation of the Paraguayan State. It establishes the principles of the organization and administration of the country, guaranteeing the protection of fundamental rights. It establishes the principles that define the right to quality of life (Article 6), the right to a healthy environment (Article 7), among others.

Topic	Legal Instrument
Environmental Impact Evaluation	<ul style="list-style-type: none"> ▪ Law N° 294/1993. Environmental Impact Assessment and its Regulatory Decrees N° 453/13 and 954/13, which establish the Environmental Management Plan (PGA) or the Environmental and Social Management Plans (ESMP). ▪ Law N° 345/1993. That modifies article 5 of Law N° 294/93 on Environmental Impact Assessment.
Main International Treaties and Conventions	<ul style="list-style-type: none"> ▪ Law N° 1231/1986. That approves and ratifies the Convention on the Protection of the World Cultural and Natural Heritage. ▪ Law N° 2885/2006. Approving the convention on defense of the archaeological, historical and artistic heritage of the American Nations (San Salvador Convention). ▪ Law N° 234/93. That approves the agreement N° 169¹ on indigenous and tribal people in independent countries, adopted during the 76th International Labor Conference, held in Geneva on June 7, 1989.
Institutional Framework with emphasis in environmental, social and territorial	<ul style="list-style-type: none"> ▪ Law N° 1561/2000. Creates the National Environment System, the National Environment Council and the Environment Secretariat. ▪ Law N° 6123/2018. That raises the Ministry of the Environment to the rank of Ministry and is renamed as Ministry of the Environment and Sustainable Development. ▪ Law N° 436/1994. Departmental Organic Charter. ▪ Law N° 3001/06 "On valuation and compensation of environmental services". ▪ Law N° 3966/2010. Municipal Organic. ▪ The National Environmental Policy - PAN. ▪ Law N° 1183/1985 Civil Code. ▪ Ordinances of the Municipalities of the area of influence. ▪ Resolutions issued by MADES
Forestry Management	<ul style="list-style-type: none"> ▪ Law N° 3464/2008 that creates the National Forestry Institute (INFONA). ▪ Law N° 422/73 "Forestry". ▪ Law N° 4241/2010 on the Reestablishment of protective forests of water courses in the national territory. ▪ Law N° 4014/2010 "On fire prevention and control". Defines prescribed or controlled burning. ▪ Law N° 3742/2009 "On the control of phytosanitary products for agricultural use". Regulates issues related to aerial spraying, whose enforcement authority is SENAVE.

¹ Although OIT 169 and other regulations related to indigenous peoples are mentioned, these are evaluated in an independent document, developed by specialists hired by Paracel - Natan.

Topic	Legal Instrument
	<ul style="list-style-type: none"> ▪ Decree N° 98/2012 that regulates Law N° 4241/2010.
Health, hygiene and security	<ul style="list-style-type: none"> ▪ Law N° 836/80 Sanitary Code ▪ Law N° 213/93 Labor Code ▪ Decree N° 14,390/1992. General technical regulation of safety, hygiene and medicine at work.
Social and cultural and patrimonial	<ul style="list-style-type: none"> ▪ Law N° 3051/2005 "National of Culture". ▪ Law N° 5621/2016 for the Protection of Cultural Heritage. ▪ Law N° 904/1981 "Statute of Indigenous Communities". ▪ Decree N° 1039/2018 "By which the Protocol for the process of consultation and free, prior and informed consent with the indigenous peoples living in Paraguay is approved."
Other related regulations	<ul style="list-style-type: none"> ▪ Laws that govern the management of Solid Waste (Law N° 3956/2009), Water Resources (Law N° 3239/2007), air quality (Law N° 5211/2014), noise pollution (Law N° 1100/1997), others.

Table 2 – International Requirements

Topic	Legal Instrument
Equator Principles	<ul style="list-style-type: none"> • Principle 1: Review and categorization • Principle 2: Environmental and social assessment • Principle 3: Applicable environmental and social standards • Principle 4: Environmental and social management system and Action Plan • Principle 5: Participation of stakeholders • Principle 6: Grievance Mechanisms • Principle 7: Independent review • Principle 8: Contractual commitments • Principle 9: Independent monitoring and reporting • Principle 10: Reporting and transparency
IFC Performance Standards on Environmental and Social Sustainability	<ul style="list-style-type: none"> • Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts • Performance Standard 2: Labor and Working Conditions • Performance Standard 3: Resource Efficiency and Pollution Prevention • Performance Standard 4: Community Health, Safety, and Security

Topic	Legal Instrument
	<ul style="list-style-type: none"> • Performance Standard 5: Land Acquisition and Involuntary Resettlement • Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources • Performance Standard 7: Indigenous Peoples • Performance Standard 8: Cultural Heritage
Principles of FSC	<ul style="list-style-type: none"> • Principle 1: Compliance with FSC laws and principles • Principle 2: Rights and responsibilities of possession and use • Principle 3: Right of indigenous people • Principle 4: Relations with communities and workers' rights • Principle 5: Benefits of the forest • Principle 6: Environmental values and impacts • Principle 7: Management plan • Principle 8: Monitoring and evaluation • Principle 9: Maintenance of Forests with high conservation values • Principle 10: Plantations
Other regulations or related guides	<ul style="list-style-type: none"> • Sustainable Development Goals (SDG) • World Bank Guidelines about environment, health and security • Good practice manual. Assessment and Management of Cumulative Impacts: Guidance for the Private Sector in Emerging Markets (IFC, 2015)

The project will also be in line with IFC EHS Guidelines for Perennial Crop Production.

Description of Influence Areas of the Project

The scope of the areas of influence is described below:

- Indirect Influence Area (IIA): Includes the departments of Concepción, San Pedro and Amambay. As mentioned above, the IIA for both, the industrial component of the project; as for the forest component, corresponds to these three departments in the north of the country, thus integrating both components.
- Direct Influence Area (DIA): Includes 7 districts in which the areas of the forest plantations of the project and the main access roads to them are located, including 16 neighboring communities. These territories are the following:
 - Districts: Sargento José Félix López, Paso Barreto, Loreto, San Alfredo, Horqueta and Arroyito from the department of Concepción; District of Bella Vista Norte from the department of Amambay and their;

- Communities/localities: Isla Hermosa (Isla Tuyú), town of Paso Barreto, Colonia Jorge Sebastián Miranda (Jhugua Ñandu), Estribo del Plata, Puentesíño, Laguna Cristo Rey, Anderi, Islería, Virgen del Camino, Jhugua Guasu, Jhugua Po'i, Santísima Trinidad, Paso Mbutu, Calle 15, Dominguez Nigó, and Ayala Cué.
- The Directly Affected Area (DAA): corresponds to the areas destined for PARACEL Eucalyptus Plantation, named “estancias” or farms.

It is estimated that the company currently owns approximately 190,000 ha plantation farms; distributed in approximately 19 fields located mostly in the department of Concepción. These will be destined to sites for eucalyptus plantations in order to supply 80% of the raw material necessary for the operation of the pulp manufacturing industry.

According to project data, as already mentioned, nowadays the establishments have livestock as their main activity. For the present study, contact was made with administrators or other referents of said establishments, who provided information to have an approach to the following characteristics:

- They have permanent contract workers who work as foremen, laborers, tractor drivers, beach workers, people who perform jobs related to cleaning and cooking; in addition to administrators and veterinarians; most of them come from nearby towns and the department in general.
- Due to the work system that is implemented, rotating shifts are established as necessary and other workers are hired (per shift), in some cases using contractors, with their cleaning equipment, wiring work, maintenance, among others.
- Regarding the perception of the implementation of the project and the change of category in the area. On the one hand, it is seen as a positive change due to the promotion of other productions apart from livestock, which "will give a lot of work", which "will work on the reforestation of the area." On the other hand, it was pointed out that beyond the change of category, some people want to continue exercising their current economic activities (related to livestock), they stated that “people are used to working in livestock and it is very difficult for them to change their category, even if the payment is better, they will remain in the area”.

6.2 Social Economic Diagnosis

6.2.1 Geography and Administrative Structure

For the delimitation of the areas of influence, within the framework of social researches, as well as considered for the studies of the industrial component, the following criteria were considered:

- IFC Performance Standard # 1, on the delimitation of the project’s area of influence;
- The phases of the project (design, construction and operation) and its components (industrial and forestry), possible impacts; and
- The social and cultural aspects studied.

These criteria for delimiting the areas of influence considered the project in its entirety, therefore, there is an Indirect Influence Area (IIA) shared for both components (industrial and forestry), and two Direct Influence Areas (DIA) considering the specific zones of each component. Areas of influence for social studies shows the areas of influence corresponding to the forestry component, including the territories that comprise them.

In the case of the districts and localities that make up the DIA, they were identified through the first field activity that included an observation outing of:

- The zones destined to the forest area and the neighboring or near localities.
- The roads and accesses identified as the main connection routes between the two zones (forest-industrial) and between districts/localities; and the main communities located in these.

With these criteria it was possible to identify/confirm:

- Localities and/or districts considered relevant; according to criteria such as number of population and location of the same with respect to the forest plantations of the project and/or main access roads.
- Smaller towns/communities that are located in the areas surrounding the forest plantations and/or settled on the main access roads.
- Confirm the districts included in the DIA.

6.2.2 Traditional Political Structures and Decision Making

Stakeholder engagement and consultation is quite important in any project, because initiate and sustain a constructive external relationship over time. Companies that start the process early and take a long-term strategic view are, in essence, developing their local “social license to operate.”

In order to access the necessary information for social studies prior to the implementation of the project, it is of special interest to know some elements for the characterization of the area of influence and the perception regarding the project. For this purpose, PARACEL conducted interviews with key actors at the community and institutional level, such as: health, education, social organizations, productive committees and those responsible or in charge of the establishments that will be assigned to forest plantations.

These social researches, in addition to being complementary (industrial and forestry component) were developed sequentially, each stage began with the formation of an interdisciplinary team in charge of the survey and analysis of information obtained through secondary and primary sources. This process required the use of various data collection techniques; and, despite the complications arising from the sociopolitical context and sanitary restrictions, it was sought at all times to generate participatory spaces and direct contact with the population, especially, referents of the institutional and community environment of the areas involved in the project.

6.2.3 Demographics

For the preparation of this section, official sources were consulted, both at the national and local levels regarding the social, demographic, economic and cultural characteristics of each of the districts that make up the ADI of the project in its forestry component. Also, since there was no information of this nature at the local level, qualitative data resulting from the field survey (primary sources) were used.

The information was organized into sub-chapters by topics of interest, grouped by districts and in order to present the data resulting from the fieldwork, descriptive files of the localities involved in the survey were prepared.

Therefore, the characterization presented here is based entirely on data from:

- Official information provided by national institutions such as the DGEEC, MAG and INFONA, as well as information resulting from the search in sources generated by the MEC, MOPC, MSPyBS, among others.
- Local level information identified in local health plans and municipal development plans.

Regarding the statistical data used, it should be considered that:

- Although certain types of information could only be obtained from the different Censuses carried out: National Census (2012), Agricultural Census (2008), Economic Census (2011), this information could be supplemented through the Permanent Household Survey.
- The department of Concepción has undergone several dismemberments in recent years, for which certain types of information could show variations according to the period of its preparation, especially in the case of the Horqueta and San Alfredo districts.
- In terms of population projections and related data, the use of the information provided by the DGEEC corresponding to the period 2020-2025 was prioritized.

For the reading and interpretation of the data provided by the DGEEC, the following clarifications are made:

- The National Population and Housing Census 2012 had an approximate population coverage of 74.4% at the country level; resulting from comparing the census population with the estimated population for 2012.
- The department of Concepción had a coverage of 80.8%; and its districts: Horqueta 80.6%; Loreto 80.4%; Sergeant José Félix López 80.6%; San Alfredo 68.4% and Paso Barreto 95.2%.
- In terms of housing, coverage was 87.1% nationwide; This results from the ratio of the number of homes registered in 2012 to the number of pre-registered homes (1,223,165 and 1,404,121 homes, respectively). The department of Concepción had a coverage of 93.3%; and its districts: Horqueta 92.5%; Loreto 92.5% and Sergeant José Félix López 89.5%.

Regarding Unsatisfied Basic Needs (UBN), the following explanations are presented:

- UBN in quality of housing: 1. The material used in the construction is: Urban area: Earthen floor and wooden wall, parking lot, adobe, palm tree trunk, cardboard,

rubber, packing wood, others, or it does not have a wall, and thatch roof, palm trunk, cardboard, rubber, packing wood or other. Rural area: dirt floor and stacking wall, adobe, palm tree trunk, cardboard, rubber, packing wood, others, or it has no wall, and thatch roof, palm tree trunk, cardboard, rubber, packing wood or other. 2. Overcrowding: If they register more than 3 people per bedroom.

- UBN in sanitary infrastructure: 3. Water availability: Urban area: If the water comes from ESSAP (ex CORPOSANA), Sanitation Board (SENASA), community network, private network, artesian well or well with curb and cover, and it arrives to the home through public tap, neighbor, mobile water tank or other means, or if it comes from a well without a curb and / or cover, spring / ycuá, cistern, mobile water tank, surface water (river, dam, lake, pond, stream , tajamar, canal, etc.) or another source. Rural area: If the water comes from ESSAP (ex CORPOSANA), Sanitation Board (SENASA), community network, private network, artesian well or well with curb and cover, and reaches the home through a public tap, neighbor, water carrier mobile or other means, or if it comes from a well without curb and / or lid, spring / ycuá, cistern, mobile water tank, surface water (river, dam, lake, pond, stream, cutwater, canal, etc.) or other source. 4. Disposal of excreta: Urban area: If it has a common latrine, toilet drain on the surface of the earth, stream, river, etc., or does not have a sanitary service. Rural area: If you have a bathroom with a drain on the surface of the land, stream, river, etc., or you do not have a toilet.
- UBN access to education: 5. School attendance of children: If there is a child between 6 and 14 years old, related to the head of the household, who does not attend an educational establishment (domestic service and / or family members of these). 6. Illiteracy: If there is any illiterate person (aged 15 or over who at the time of the 2012 Census did not have the second grade approved) related to the head of the household (the domestic service and / or their relatives are excluded).
- UBN in subsistence capacity: 7. Subsistence capacity: If he lacks a recipient (employed person, retired, pensioner or rentier) or if the head has an education of less than 3 years of primary education, and with more than 3 people in average for each recipient.

6.2.4 Areas of Influence of the Project

As can be seen in map bellow, although localities/communities corresponding to 7 districts are included, only the district capitals of Sargento José Félix López and Paso Barreto are properly found in the DIA. However, it was also considered important to characterize the territories as a whole, both those that contain the areas destined for forest plantations and those that have access roads to these.

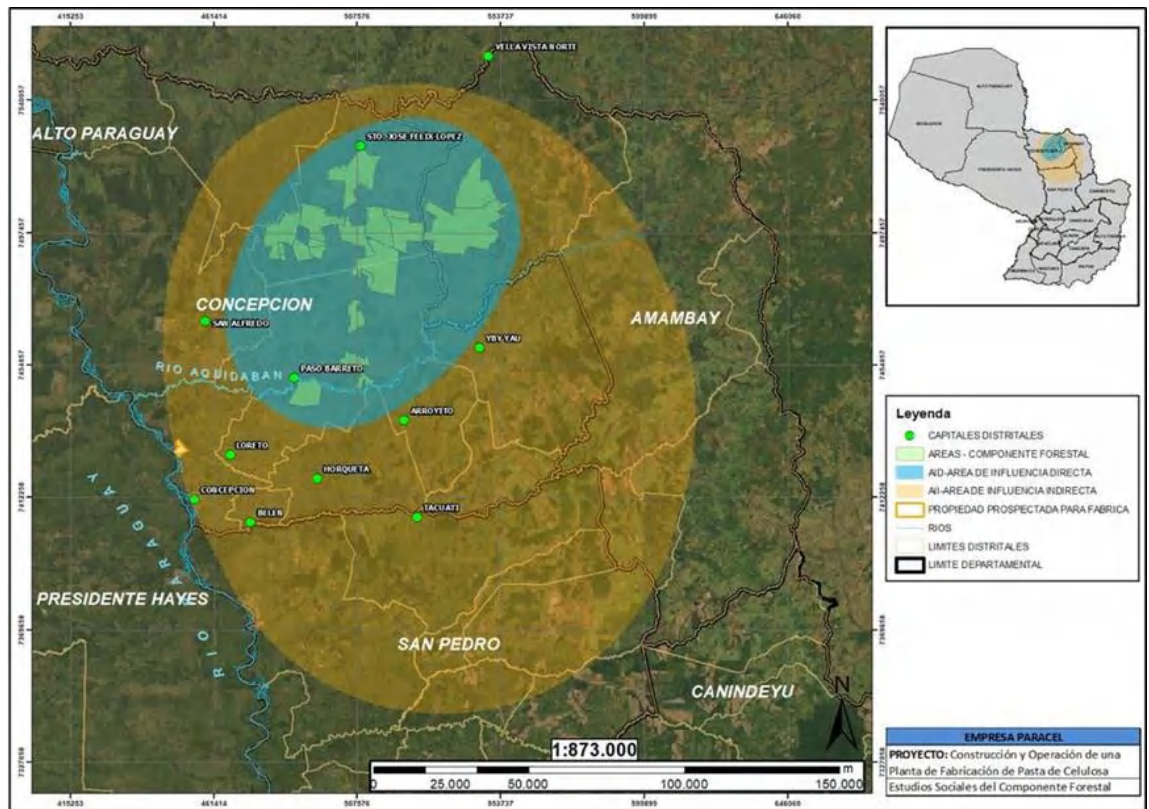


Figure 2 – Areas of Influence for Social Researches

SOURCE: PARACEL

The social researches of the project, in addition to being complementary (industrial and forestry component) were developed sequentially, each stage began with the formation of an interdisciplinary team in charge of the survey and analysis of information obtained through secondary and primary sources. This process required the use of various data collection techniques; and, despite the complications arising from the sociopolitical context and sanitary restrictions, it was always sought to generate participatory spaces and direct contact with the population, especially, referents of the institutional and community environment of the areas involved in the project.

For the definition of the methodological scheme, particularities of the forestry component, its relationship with the industrial component and the context in general were considered, these particularities are described below:

- **Complementarity between the industrial component and the forestry component:** It is important to highlight that, although the social researches prepared within the framework of the preliminary Environmental Impact Study (EIAP) were focused on the industrial component of the enterprise, both for the relationship with the community and actors involved, as for the social characterization carried out, the project was considered as a whole, also taking into account the forestry component. This has allowed that the results obtained for the social researches of the forestry component to represent a complementarity with the social works already developed previously.
- **Little information from secondary sources at the local/community level and disparity in statistical data:** The elaboration of the characterization of DIA districts, in relation to secondary sources, is based mainly and initially on information provided by official institutions such as the General Directorate of

Statistics, Surveys and Censuses (DGEEC), the Ministry of Agriculture and Livestock (MAG) and the National Forest Institute (INFONA). This was complemented by a documentary search in databases of education, health, municipal development plans, local health plans and official web pages of each municipality. However, with regard to the localities, information resulting from the field work carried out was used², for which it was important to develop data collection instruments according to the need for information, so that the actors included in said process participate in directly, contributing with their perspective regarding the characteristics of their community and about the project.

On the other hand, variations in figures and data were observed because the department of Concepción from 2013 to the present has had new districts such as the districts of San Alfredo, Paso Barreto and Arroyito.

- **Safety aspects for field work:** The DIA made up of the 7 districts mentioned above, for field work, was divided into two areas for better study and travel, considering the geographical location of each one, peculiarities of the territory; in addition to aspects related to the security of the team responsible for collecting information in the field. Taking this into account, a change was made in the methodology of arrival in the communities in relation to the first stage of the work (industrial component), with visits to reference institutions such as the First Departmental Health Region in the city of Concepción. Through this instance, we had access to a list of key informants with whom we contacted previously, by telephone, this especially for the work carried out in the districts and localities of the northern zone.
- **Health protocol in the context of COVID-19:** As the field work was carried out during the context of COVID-19, the infectious disease caused by the coronavirus (in a pandemic context), health protocols and measures were taken into account of biosafety according to the quarantine and confinement phases indicated by the Ministry of Public Health and Social Welfare (MSPyBS), the Ministry of the Interior (MI) and the Public Ministry (MP), for the prevention of its spread, and considering the number of known cases globally and nationally, which continues to increase today.

6.2.4.1 Indirect Influence Area

All the information regarding the characterization of the IIA can be found in chapter of the social researches of the industrial component. This section presents; in principle, the sources of statistical data used in said characterization, a matrix of the sub-chapters and topics developed in said study, and finally a summary of content considered relevant due to its link with the forestry component.

The document mentions that the characterization of the IIA was prepared using a variety of information sources but considering the differences in the periods in which such information was available, performing, where possible, a comparative analysis between the departments involved.

Likewise, regarding the statistical data used, the following observations should be mentioned:

² The COVID-19 context made it difficult to collect information from secondary sources, requested from Central Government institutions due to delays generated by biosafety protocols (rotating shifts).

- The use of the most recent publications and databases that were delivered by the General Directorate of Statistics, Surveys and Censuses (DGEEC) was privileged.
- Although certain types of information could only be obtained from the different Censuses carried out: National Census (2012), Agricultural Census (2008), Economic Census (2011), a valuable amount of information could be collected from the Permanent Household Survey 2017 (and earlier).
- For uniformity of criteria, in population projections and related data those corresponding to the year 2017 were used.
- On December 2019, the DGEEC presented departmental results of the Continuous Permanent Household Survey (EPHC) 2017 and 2018, a publication that presents average annual estimates at the departmental level.

Subchapters and topics included in the characterization of the IIA

In Table 3, subchapters and topics included in the IIA characterization, the subchapters and topics developed in each of them are presented, in order to present a general and synthetic outline of the content developed in said study.

Table 3 – Subchapters and topics included in the characterization of the IIA

Subchapter	Topic
Demographic dimension	Population Indigenous population Main demographic indicators Households, housing Poverty, income distribution, Unsatisfied Basic Needs Migration - Pendulum migration
Employment	Summary of the main indicators of the labor market Formality in employment
Economy	Primary sector Secondary and tertiary sectors Evolution of the economic-productive activity and services in the department of Concepción
Services	Basic Services Education Health Security, Justice Infrastructure and Accessibility Means of Transportation Information and Communication Technologies (TIC) Means of Communication Tourist services and accommodation State presence

Subchapter	Topic
Land use	
Use of water resources	

SOURCE: ELABORATION BASED ON THE CHAPTER OF CHARACTERIZATION OF IIA-SOCIAL RESEARCHES- RESEARCH OF PRELIMINARY ENVIRONMENTAL IMPACT

Likewise, an attached document was presented with complementary information to the topics set out in Table 4. It is worth noting from these documents the following items extracted, as mentioned, due to their link with the forestry component, considered of interest for the purposes of the characterization of the IIA.

Table 4 – Summary of topics developed of the IIA about Concepción – Industrial/forestry Components

Concepción Department	
Geographic Location	Located north of the Eastern Region of the country. To the north, it borders the Apa River, to the South with San Pedro, to the West with the Paraguay River and to the East with Amambay. The main river communication route is the Paraguay River.
Area	18,051 km² and ranks second in the region in terms of area.
Population	244,071 inhabitants of which 48.58% are women, with a population density of 13.51 people per km ² . In this department the population is young, with a large majority under 35 years of age (72%); and with an average of 7.61 years of studies.
Constitution	It is divided into twelve districts : Concepción, Belén, Horqueta, Loreto, San Carlos del Apa, San Lázaro, Yby Yaú, Azotey, Sargento José Félix López, San Alfredo, Paso Barreto and Arroyito ³ ; and the city of Concepción is the capital of the department.

SOURCE: ELABORATION BASED ON THE CHAPTER OF CHARACTERIZATION OF IIA-SOCIAL RESEARCHES- RESEARCH OF PRELIMINARY ENVIRONMENTAL IMPACT

Although the main economic activity historically was agriculture and extensive livestock⁴, in recent years, large companies such as refrigerators and cement plants have been installed, with cutting-edge technology. Likewise, important service provider companies have developed; and, in the district of Azotey there is a milk processing plant (Lácteos Norte) that has developed the milk basin in the districts of Azotey, Tacuati, Yby Yaú and Horqueta⁵. These companies generated new sources of work for qualified and unskilled people and fueled economic growth in the department.

³ The municipality of Arroyito was created by Law No. 5742/16 "Which creates the municipality of Arroyito in the department of Concepción and a municipality based in the town of Arroyito", disaffecting the district of Horqueta. For this report, although the most recent information was sought, it was relieved from the official reports that still do not include this disaffectation; that is, in all the mentions of Horqueta, Arroyito is included.

⁴ Departmental Diagnosis and Development Plan. I Concepción Department. STP. 2011.

⁵ Available at: <https://www.abc.com.py/edicion-impresa/economia/fomentan-produccion-lechera-en-districtos-del-dpto-de-Concepcion-1594334.html>

Table 5 – Summary of topics developed from the IIA about San Pedro – Industrial/forestry Components

San Pedro Department	
Geographic Location	Adjacent to the South with Concepción
Area	20,002 km²
Population	419,629 inhabitants (2017 projection data) and has a population density of 21 inhabitants/km ² . A little more than half of the population is made up of men and they are predominantly young: 70% of the inhabitants are under 35 years old; with an average of 7.21 years of studies.
Constitution	21 districts: Antequera, Capiibary, Choré, General Aquino, General Resquín, Guayaibi, Itacurubí del Rosario, Liberación, Lima, Nueva Germania, San Estanislao, San Pablo, San Pedro, Santa Rosa del Aguaray, San Vicente, Tacuatí, Unión, 25 de Diciembre, Yataity del Norte, Yrybycuá y Villa del Rosario. The department capital is the city of San Pedro del Ykuamandiyú.

SOURCE: ELABORATION BASED ON THE CHAPTER OF CHARACTERIZATION OF IIA-SOCIAL RESEARCHES- RESEARCH OF PRELIMINARY ENVIRONMENTAL IMPACT

Table 6 – Summary of topics developed from the IIA about Amambay – Industrial/forestry Components

Amambay Department	
Geographic Location	Adjacent to the West with Concepción
Area	12,933 km²
Population	164,462 inhabitants (2017 data) and the population density is 12.7 inhabitants/km ² . In this department, there are almost equal numbers of men and women and most of the population is under 35 years old (68%); and with an average of 8.48 years of studies.
Constitution	5 districts: Pedro Juan Caballero, Bella Vista, Capitán Bado, Zanja Pyta y Karapai; the capital city is Pedro Juan Caballero.

SOURCE: ELABORATION BASED ON THE CHAPTER OF CHARACTERIZATION OF IIA-SOCIAL RESEARCHES- RESEARCH OF PRELIMINARY ENVIRONMENTAL IMPACT

6.2.4.1.1 Population

The total population of the three IIA departments totals 828,162 inhabitants, which is estimated to represent 11.91% of the country's population, and of which 400,989 are women (48.41%).

With respect to the population that lives in rural and urban areas, figure 2 presents estimates made for each department⁶.

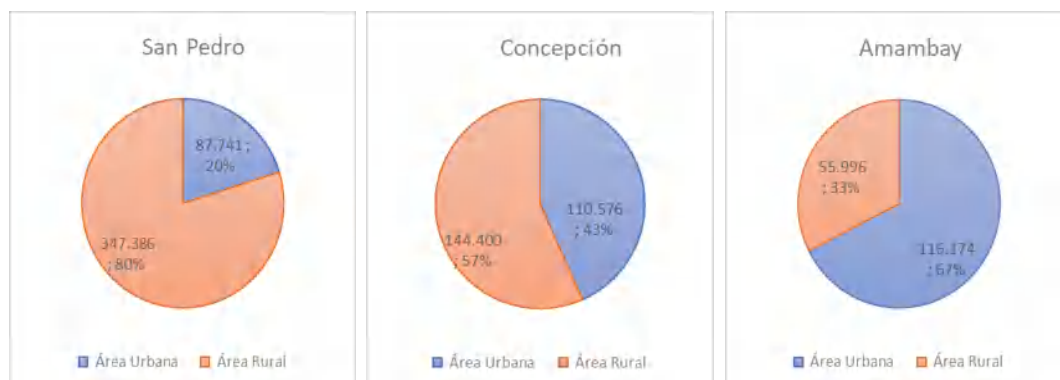


Figure 3 – Rural urban population projected according to each department year 2020, considering 2012 projections

SOURCE: OWN ELABORATION ABOUT DATA BASE PROVIDED BY STP/DGEEC. FEBRUARY 2020

52% of the country's indigenous population lives in the Eastern Region, where the three departments of the IIA are located. In the department of Concepción, 91.3% (103,396), which means that the majority lives in rural areas and 8.7% (9,858) lives in urban areas.

In the IIA, the population is eminently young: in Concepción 72% of the total population is under 35 years old, while in San Pedro and Amambay, the data is 70% and 68% respectively.

6.2.4.1.2 Poverty, Income Distribution and NBI

According to data from the Permanent Household Survey⁷, 43.97% of the population of Concepción is in a situation of poverty, around 107,097 people have a per capita income lower than the cost of a basic consumption basket (LPT). Of these people, 15,911 (6.53%) have a per capita monthly income lower than a minimum food consumption basket. This percentage is similar in San Pedro; being higher in the case of people living in extreme poverty. Amambay is the department with the lowest poverty rates in the IIA

According to available data, in 2017, the average per capita income in Concepción reached approximately Gs. 896,026⁸. The average income in this department is almost 40% lower than in Amambay and 7.45% higher than in the department of San Pedro.

Regarding NBI, as mentioned in the report on the industrial component, in the three departments the highest percentage of these occurs in relation to access to health infrastructure. It is also indicated that both the departments and the districts are in worse conditions than the national average.

6.2.4.1.3 Employment

In 2017, the open unemployment rate in Concepción was 6.66% and that of Amambay was 5.48%. In other words, some 7,247 people from Concepción and another 4,490

6 For the estimates, according to the methodology indicated by the DGEEC, the data from a report specifically prepared by said institution were used; for each department, the projected population for the year 2020 was used and the proportions were applied according to observations from the 2012 National Census.

7 DGEEC. Permanent Household Survey 2017.

8 DGEEC. Permanent Household Survey 2017.

from Amambay were unemployed⁹. The country's unemployment rate was 5.20%, a figure lower than any of those mentioned.

In the three departments, the highest proportion of the people who work do so in MiPymes/Establishments with 1 to 5 employees (Concepción: 70.54%; San Pedro: 81.34%; Amambay: 45.14%). On the other hand, analyzing the data provided by occupation category, it is possible to conclude that, both in Concepción and San Pedro, the population works mainly independently (Concepción: 57.02%; San Pedro: 72.46%) while that in Amambay most of the population works as employees of private companies (43.93%) compared to 39.12% of independent workers.

6.2.4.1.4 Economy

Next, information regarding IIA economic data is presented, specifically related to the different existing sectors.

Regarding the primary sector, in the three departments, 68,047 farms are registered with a total area of 4,575,72510 hectares dedicated to the sector. The area dedicated to livestock reaches 2,935,287 hectares (65.2% of the total), while that used for agriculture is 527,512 hectares (11.5%), and the area with cultivated natural and forested forests is 734,741 hectares (16.1%).

Approximately 25% of the country's cattle heads are concentrated in the IIA, with the highest production in San Pedro. Table 7 provides data in this regard.

Table 7 – Existence of cattle per year, according to department. Term 2014-2017

Department	2014	2015	2016	2017
Total Country	14,465,600	14,216,200	13,858,600	13,821,500
Total IIA (estimated)	3,762,500	3,663,600	3,555,700	3,448,500
Concepción	1,239,800	1,226,100	1,209,900	1,158,600
San Pedro	1,491,400	1,419,300	1,354,800	1,319,800
Amambay	1,031,300	1,018,200	991,000	970,100

SOURCE: DGEEC. STATISTIC YEARBOOK 2017. OWN ELABORATION

The department of Concepción is the one that dedicates a notorious higher percentage of its surface to livestock activity in relation to agriculture, compared to the other departments of the IIA.

The cultivated area reaches 464,267 ha, the composition of the labor force is dominated by the national with 16,512 national producers and the international labor is dominated by the Brazilian with 261, and only 36 from other nationalities.

9 DGEEC. EPH 2017. Without data for San Pedro.

10 DGEEC. Agricultural Census.

Table 8 – Information about cultivated area distribution

Department	Total Area (Ha)	Area with permanent temporary crops and vegetables	Area with natural and cultivated pasture	Area with natural and forestall cultivated mounts	Fallow and resting area	Area under other uses
Concepción	1,619,416	71,431	1,218,911	233,300	50,394	4,538
San Pedro	1,739,232	321,156	909,500	276,656	81,091	150,828
Amambay	1,217,077	134,925	806,876	224,785	28,567	21,924
Total, IIA estimated	4,575,725	527,512	2,935,287	734,741	160,052	177,290

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008.

Regarding the existing forest plantations in the three departments, it is also possible to see a clear leadership of the department of San Pedro in number of trees. However, Amambay has fewer farms containing more trees per unit area. The department of Concepción presents a lower efficiency among the three, per unit area. This could be due to less efficient or less aggressive planting and management techniques. The corresponding information is included in Table 9.

Table 9 – Forest Plantations (Eucalyptus and Pine crops), by department as of 2008

Department	Compact plantation of forestry		Eucalyptus crops			Pine crops		
	No. of farms	Total area	Number of farms	Cultivated area	Number of trees	Number of farms	Cultivated area	Number of trees
Concepción	1,451	4,209	573	1,269	2,254,095	19	60	113,387
San Pedro	2,994	11,022	740	4,431	6,315,778	29	332	556,676
Amambay	222	6,716	87	3,126	5,986,820	6	7	12,787

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008.

6.2.4.1.5 Secondary and Tertiary Sector

According to the 2011 Economic Census, in Concepción, there are 5,242 economic units that occupy 13,682 people (44.55% are women) and generate income of Gs. 1,444,284,575,000. San Pedro presents data of high similarity with Concepción, while there is less coincidence with Amambay, where all the registered data are of greater magnitude; for example, income that reaches Gs. 5,112,545,870,000. This is due to the exposure situation of the Amambay department to Brazil, where trade with the neighboring country is one of the highest in the country after Alto Paraná.

In fact, the Commerce subsector is the most developed, of the three subsectors in the IIA, it is the one that occupies the largest number of Economic Units and people and generates the most income.

The dominance of a single producer is verified in all the farm management strata, this gives indications of the degree of efficiency in the use of family labor and hired as day laborers.

Regarding its use, Table 10 summarizes the distribution of land according to the type of use in number of farms in 2008.

Table 10 – Land according its use in number of farms. Department of Concepción on 2008

Number of farms with land	Farms with temporary and permanent harvests and crops	Farms with natural and cultivated pasture	Farms with natural mounts or forest plantation	Farms for Fallow and resting	Farms with lands intended for other uses
17,377	15,285	10,071	6,414	7,485	15,583

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008

Regarding its use, but in terms of surface, the distribution of the land is presented according to the last national agricultural census.

Table 11 – Land according to its number in terms of Surface. Department of Concepción on 2008

Total area (Ha).	Area with temporary and permanent harvests and crops	Area with natural and cultivated pasture	Area with natural and forest cultivated mounts	Fallow and resting areas	Area under other uses
1,619,416	71,431	1,218,911	233,300	50,394	45,380

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008

On the other hand, it is evident that there is little specialization in the use of land. Of the more than 17 thousand farms existing in 2008, the number of farms with technical inputs only reached about 12 thousand, of which only 1,034 applied agricultural lime. This provides an image of the degree of degradation of the soils and the level of acidification in which they could be found, judging by the type of extractive agriculture and with little application of conservation technology.

Table 12 – Soil Management and Conservation, number of farms according to management

Number of farms with soil management	Soil management and conservation					
	Level curve	Crop rotation	Green manure	Parcels with organic production certification	Direct seeding	Others
10,390	232	9,176	178	273	596	1,196

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008

Regarding the level of production of leading items in production area, in Table 13, the corresponding values can be observed.

Table 13 – Crops and other uses, Agricultural Campaign 2013-2014

Districts ⁽¹⁾	Crops and Other Uses									
	Soy	Sunflower	Rice	Soy (Z)	Corn (Z)	Chia	Wheat	Canola	Green manure (Oats)	Plowed Soil
Horqueta	4,583	-	-	-	783	-	-	-	543	-
Yby Yaú	341	-	-	-	-	-	-	-	-	-
Azotey	11,758	-	-	73	2,582	-	-	210	1,506	21
Total	16,682	-	-	73	3,365	-	-	210	2,049	21

SOURCE: STATISTIC SYNTHESIS 2013 – 2014. MAG/DEA

(1) DATA FOR THE DISTRICTS OF BELÉN, CONCEPCIÓN AND LORETO ARE NOT PRESENTED BECAUSE THE DETERMINATIONS ARE THE RESULT OF A SAMPLE ANALYSIS THAT DOES NOT NECESSARILY INCLUDE ALL EXISTING DISTRICTS, HENCE THE LACK OF DATA.

In addition, studies carried out identify that in recent years the plantation of chia and sesame had an important take-off¹¹. The cultivation of spurge has decreased in the last decade, probably due to the fact that the yield has dropped considerably and this, in turn, caused by poor soil management, taking into account the high demand for nutrients that this crop has. Another important factor may be due to the informality of the markets for this product. Manioc had an important upswing in 2003, possibly this was the result of the possibility of commercialization generated from the installation of a processing plant in San Pedro and another in Brazil on the border with Amambay. This situation changed after the drop of prices in market.

Cotton was declining until it practically disappeared from agricultural farms. In recent years the government has launched timid campaigns to reactivate the crop, without much success among small-farm farmers.

Sesame began to be cultivated in the Yby Yaú district and later spread to various districts of the department. The peak of production was in the 2009/2010 harvest, after an unprecedented rise in the price. In the year of the massive cultivation of sesame (about 60,000 ha) this had a historically low price, which again decreased the cultivation the following year.

Synthesizing what has been said, the most relevant crops in the department of Concepción are corn, sesame and soybeans. Sesame and soybeans are income items for small producers and business agriculture, while corn is produced by both large producers and small producers with less than 20 hectares of land. Other historical crops of family farming are cotton, manioc and beans.

Regarding forest production, specifically eucalyptus and pine, as of 2008 the available information is presented below.

11 See the report prepared by Lesmo, et.al, 2018 based on data from MAG (2010).

Table 14 – Forest Plantations (Eucalyptus and Pine Crops)

Compact plantation of forestry		Eucalyptus crops			Pine crops		
Number of farms	Total Area	Number of farms	Cultivated area	Number of trees	Number of farms	Cultivated area	Number of trees
1,451	4,209	573	1,269	2,254,095	19	60	113,387

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008

Regarding the distribution of land by district, the department of Concepción, according to data from the agricultural census, until 2008, was made up of 7 districts, indicated in Table 15. For the characterization of the districts included in the DIA of the forest component of the project, updated data were obtained, considering that in 2020, this territory is made up of 13 districts¹².

Table 15 – Land Distribution by district. Department of Concepción

Districts Concepción Department	Number of farms	Total area	Farm management				
			Only one producer	Two or more de facto associate producers	A legally constituted company or society	The State	Others
Concepción	4,214	924,385	4,083	61	59	2	9
Belén	1,479	16,080	1,421	57	1	-	-
Horqueta	7,075	19,727	6,870	183	17	1	4
Loreto	2,062	41,560	2,032	28	2	-	-
San Carlos del Apa	86	62,146	77	9	-	-	-
San Lázaro	219	56,161	199	19	1	-	-
Yby Yaú	2,242	323,357	2,127	74	35	1	5

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008

6.2.4.1.6 Access to Basic Services

In general terms, a significant percentage of the IIA population has access to two basic services:

Electric power (99.92%): Supplied by the National Electricity Administration (ANDE), reaching 97.79% of households in Concepción, 99.24% in San Pedro and 98.54 in Amambay (2017 data)¹³.

Improved water: According to the sector study carried out by the Pan American Health Organization¹⁴, in 2010, the Regulatory Entity for Sanitary Services (ERSSAN) had registered the number of providers in the Project's IIA presented in Table 16.

12 See table 42 of this document.

13 Source: DGEEC. Permanent Household Survey period 2003-2004-2015-2016-2017

14 MOPC-OPS/OMS. Update of the Sectorial Analysis of Drinking Water and Sanitation of Paraguay. 2010.

Table 16 – Number of water systems and connections according to supplier, by department

Department	ESSAP		Sanitation Boards		Neighborhood Commissions		Private Operating Organizations		Others	
	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections
Concepción	1	5,183	127	11,104	65	3,628	2	1,056	1	100
San Pedro	1	1,311	261	32,196	64	4,376	1	100	0	0
Amambay	1	6,630	13	3,034	35	8,876	3	457	0	0

SOURCE: MOPC-OPS/OMS

Regarding improved sanitation, the access percentages are much lower, as in the entire national territory. With respect to waste collection, the service is registered in some municipalities and a small proportion of the population has access to it.

6.2.4.1.7 Education

The school-age population of the department of Concepción that attends an educational center represented 97.18% in 2017, with a gradual increase both in percentage terms and in average years of studies.

With reference to the department of San Pedro, a situation with similar characteristics is presented: 88,204 people of school age attended educational centers in 2017; which represents 97.33% of the school population.

In Amambay, although the absolute number of students attending an educational center is much lower (31,889 in 2017), the trend in percentage terms is maintained (97.48%) and the average number of years of studies increases to 8.48 (DGEEC, EPH 2017).

6.2.4.1.8 Health

In Concepción and San Pedro, in 2018, a little more than 50% of women showed up for a medical consultation, while the average drops to 46.5% in Amambay. With respect to men, the averages remain below 50% in the three IIA departments, with the lowest average being in Amambay and the highest in San Pedro.

According to data from the DGEEC, only a small proportion of the population of the department of Concepción has medical insurance, either private or from the IPS. Thus, although the records indicate a slight increase to 16.52% of coverage in 2015, in the last years for which data are available, the trend remains below 15% of the population.

6.2.4.1.9 Road Network

Paraguay's road network is currently made up of 22 national routes. According to information published by the MOPC¹⁵, the road network of the Concepción department totals 3,213 km of national, departmental and neighborhood roads and routes, of which

15 Available at: <https://www.mopc.gov.py/mopcweb/index.php?cID=769> consulted on 01.23.2020.

19% are paved. In San Pedro, the road network reaches 5,806 km, of which 18% are paved. In Amambay there are 2,666 km of road network, of which 12% are paved.

Several routes and neighborhood roads link the localities of the Project IIA, some of which are currently undergoing improvement processes within the framework of the National Program for Neighborhood Roads and Bridges, executed by the MOPC in most of the country's departments. In the IIA, this program proposes interventions to improve bridges and roads according to the summary provided in the following Table¹⁶:

Table 17 – Bridges and roads under improvement in the IIA

Department	Bridges		Roads
	Bridges (Amount)	Length (M.L.)	Sections
Concepción	11	119	-
San Pedro	11	200	4
Amambay	8	86	-

SOURCE: MOPC

6.2.4.1.10 Information and Communication Technologies (ICT)

According to data from the Permanent Household Survey, in Concepción, less than half of the population aged 10 years or more had access to the internet in 2017, the percentage is even lower in San Pedro (almost 38%). The Amambay population was the one with the highest access, with approximately 65%. However, it is clarified that almost all internet accesses were made from a cell phone.

On the other hand, topics such as land use and use of water resources were developed in the areas of influence of the project (industrial component). These have served as input for the characterization of the DIA (forestry component) on these issues.

The studies of the industrial component of the project also included a "Cultural Heritage Report¹⁷" that included the elaboration of an evaluation of the state of the cultural heritage of the area, in order to recognize cultural assets (archaeological, architectural, historical, ethnographic, etc.) present in that area.

As a result, possible impacts were identified and measures designed to suppress or mitigate them, seeking to reconcile the conservation of cultural heritage and the execution of the project involved in it.

6.2.4.2 Direct Influence Area

This section presents the main characteristics of the districts and localities that make up the DIA as a whole. For its preparation, the need to link both the information obtained from the consultation to secondary sources, as well as the results of the field work (primary source) was considered. Annex contains the detailed characterization district by district; since the information resulting from the integration of both sources stands out in breadth and specificity. As mentioned before **ANNEX I and II** presents more detailed information on all the communities IP and Non IP that fall within the DIA.

16 MOPC/DGSA-BID. Preliminary Environmental Impact Study. Neighborhood Roads Improvement Program - Eastern Region (PRL-1084). 2015.

17 Bragayrac, 2020. Social researches of the industrial component. PARACEL.

In order to understand the dynamics and interrelation of the territory, the use of a methodology that incorporates quantitative and qualitative techniques was considered essential, both for the process of bibliographic review of studies, research, statistical synthesis, reports, plans, programs, among others; as well as the field survey process, in order to establish with greater clarity and depth the current characteristics of the communities involved.

At the beginning, the field work process is presented, the description of the study areas, the techniques selected to carry out the survey, the type of tools used, the population involved in the consultations and the implications of the subsequent processing and analysis.

It is important to mention that the approach to the community sphere provided key elements for the analysis and interpretation of data related to the reality of the historical, economic, social and cultural conditions of the communities that are part of the study area.

Regarding secondary sources, it is necessary to clarify that data provided by the DGEEC were used for the present study, with the exception that there are variations in relation to previously published data; due, among other things, to districts subsequent to the official information gathering processes such as the 2012 census.

Therefore, these pages contain the contributions resulting from the experiences shared with leaders and representatives of organizations and institutions that agreed to participate in the process. Subsequently, the set of issues that make up the characterization of DIA is developed.

Description of the study zones – Identified Communities

Depending on the characterization of the territory, it can be seen that there are districts and communities located in the North and South areas of the department of Concepción and Amambay.

The districts of Loreto, Arroyito, Horqueta and San Alfredo are territories where the main accesses to the projected forest plantations are located. Each of them has communities linked to DIA based on two central aspects:

- Be located on the roads (accesses) that must be crossed to reach those fields; and/or
- Be communities adjacent to the identified forest plantations.

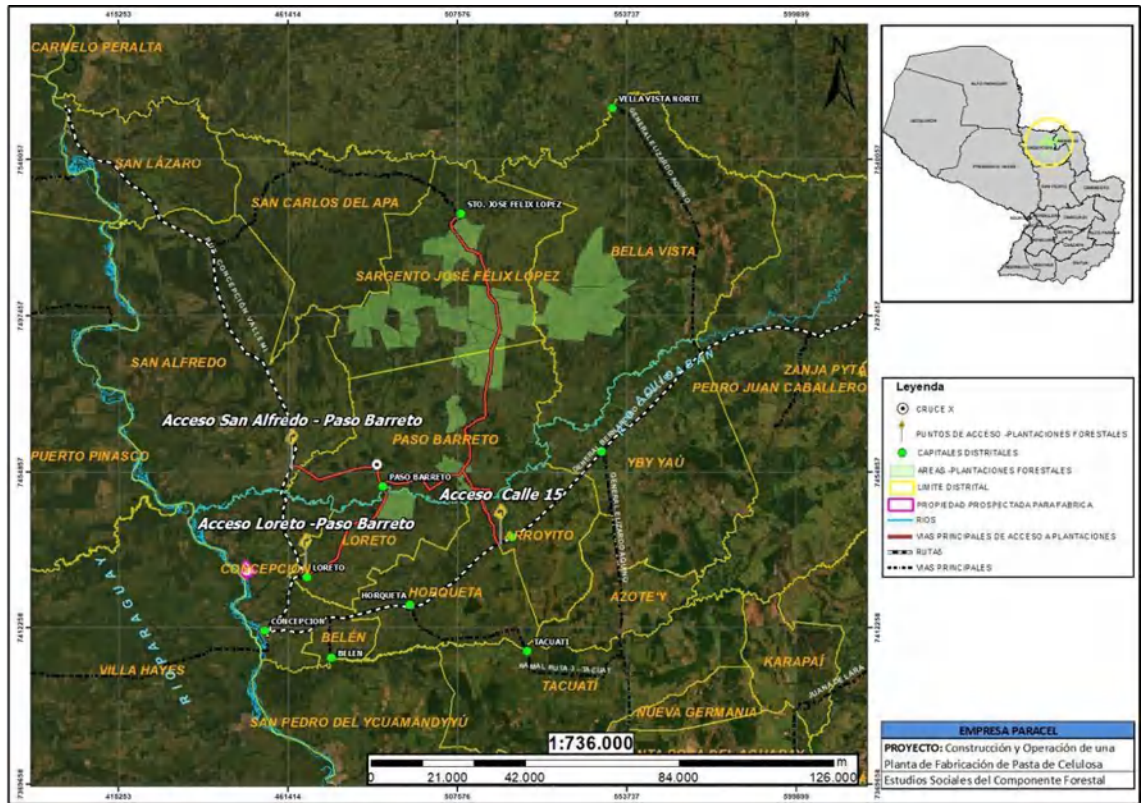


Figure 4 – Main Access routes linked to the project

Considering these distinctions, a total of 16 communities¹⁸ have been identified in the study area. They are presented below.

The communities identified in the Loreto-Paso Barreto access route, highlighted in yellow on the map, are: Virgen del Camino, Santísima Trinidad, Huguá Po'i, Jhuguá Guazú, Islería, Laguna Cristo Rey, Anderi and the community of Paso Barreto.

18 For more information, consult Annex 4 of Social Study in Annex II, where you can access files that contain representative aspects that contribute to the characterization of each of the mentioned communities

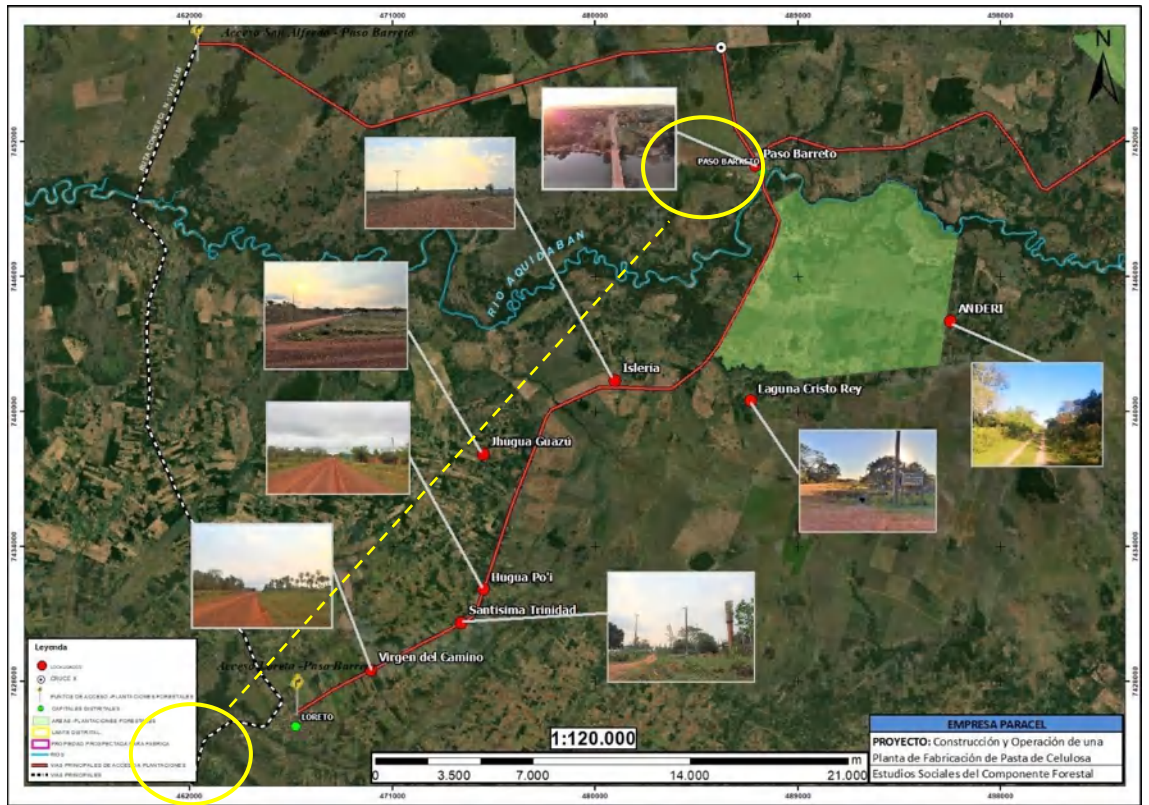


Figure 5 – Access to Loreto-Paso Barreto

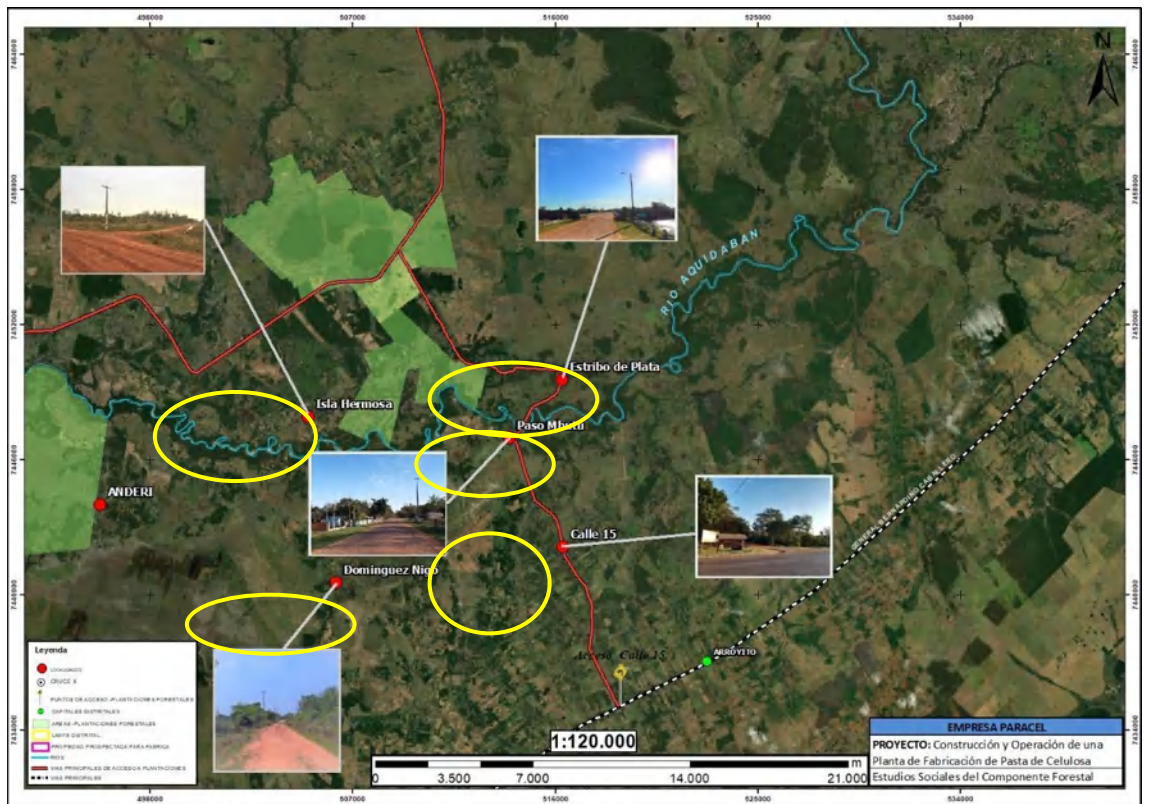


Figure 6 – Access to Calle 15 (South Zone)

At the access located on the border of the Horqueta and Arroyito district, called Calle 15, are the communities of: Calle 15, Domínguez Nigó, Isla Hermosa, Paso Mbutu and Estribo de Plata.

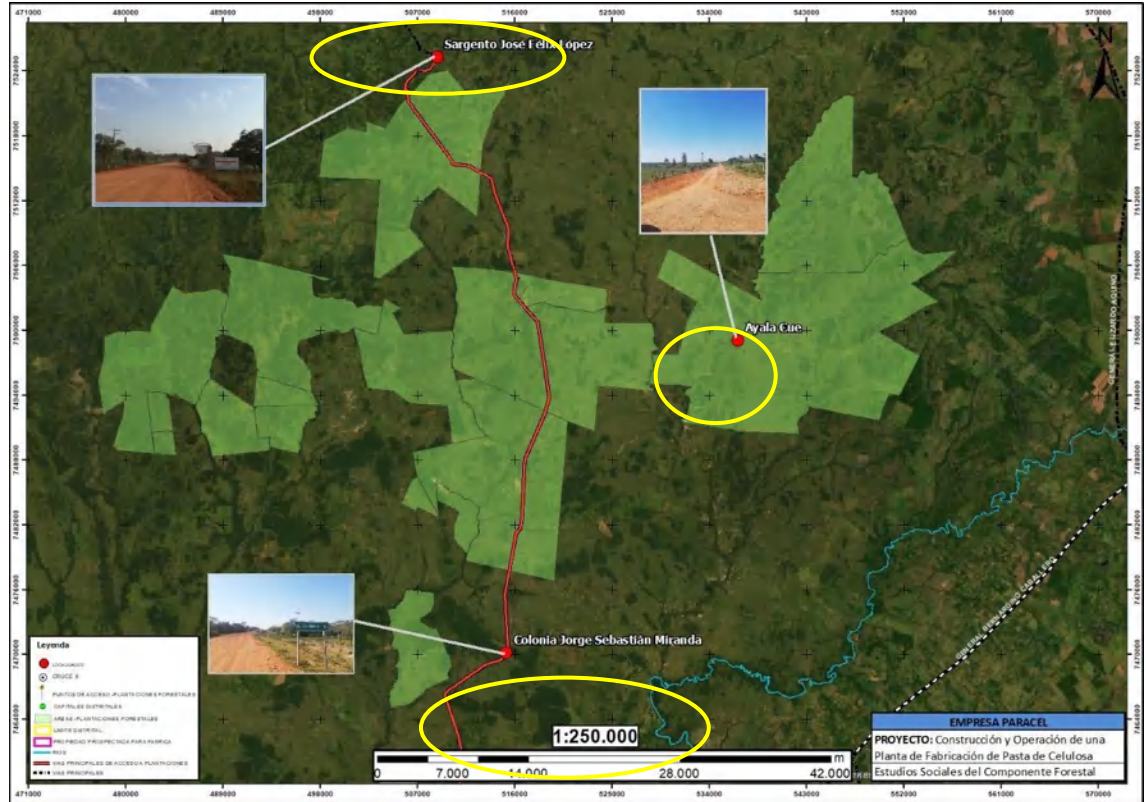


Figure 7 – Access to Calle 15 (North Zone)

Continuing along the aforementioned path (access to Calle 15) heading north are the communities of Colonia Jorge Sebastián Miranda, Sargento José Félix López and Ayala Cue.

In the case of the community located in the Bella Vista Norte district of the Amambay department, it can be accessed through a right-of-way road located in a farm area in the Sargento José Félix López district; entering approximately 20 km to the community of Ayala Cue.

As for properties for forest plantations, according to information provided by the project, these amount to 20 in the entire DIA area; in their entirety they constitute livestock establishments.

For international ground transportation from AR and BR to PY, there are some points related to truck specifications that it is important to clarify. The Ministry of Public Works and Communications (MOPC), Resolution No. 2043 established that tractor and semi-trailer set allowed maximum 56.5 t, truck and trailer 77 with 7 axles is different from the equipment used in BR (which are 54 t bitrain (truck (6x4) 3 axles + 6 axle bitrain trailer) are prohibited in PY and AR.

The people consulted in the field recently (2020), in some cases, expressed the need for investment in infrastructure in order to improve neighborhood roads, and also in the consultation process in the industrial component, had indicated concern about the possible alteration of the existing roads due to increased traffic, highlighting that the project foresees improvements and adaptation of these; thus bringing positive impacts

to the localities settled on the road, and indirectly to the entire area. However, the increase in vehicular traffic due to the project (cargo, personnel, waste, harvested wood) – especially in the stage of transporting wood to the industrial plant, at a rate of 1 truck every 4 minutes approximately – may affect tranquility and comfort of the people in the area of influence; and, above all, the DIA since this will cause higher levels of noise, vibrations and alteration of air quality due to dust and combustion gases, with an impact on people who live or carry out daily activities in the immediate vicinity of the roads that will be used by the project vehicles, within a minimum radius of 100 meters from the tracks. Likewise, the increase in vehicular traffic, especially heavy traffic, may generate uneasiness regarding the potential impact on the structural condition of the homes or buildings located on the roads to be used.

From the point of view of improving the infrastructure conditions of and for the communities, as well as the development of the quality of life in the area, the project will determine an incremental benefit over time in the structural improvement and of paving of all public routes to be used for the transport of wood, which would have a positive impact, through: i) decrease in travel times (note that traveling the 70 km between Jhugua Ñandu and Puentesíño takes today 1,5 hours), ii) improvement of road safety; iii) reduction of the emission of rolling dust, with its consequent benefits to the environment and public health in general, iv) facilitation of access to/from emergency services (ambulances, police, firefighters). In relation to potential cumulative negative impacts, the impact on infrastructure and road safety is mentioned, since in the operational stage of the forest fields (during the harvest season and transportation of wood to the industrial plant), the movement of vehicles at the rate of one truck every 4 minutes approximately from years 6 - 7 after the installation of the plantations in each forest field. If to this we add the development of new similar ventures, this rate could increase. Although better roads lead to drivers going faster, therefore PARACEL will inform and raise awareness among vehicle drivers about defensive driving through the Road Safety Program, other than that priorities the river transport.

6.2.4.2.1 San Pedro District

6.2.4.2.1.1 General Characteristics

San Alfredo is a municipality in the department of Concepción, located 494 km from the country's capital and 78 km north of the departmental capital. It has an area of 2392 km². It limits to the north with the district of San Lázaro, to the south with the district of Concepción, to the east with the districts of Paso Barreto and San Carlos; and to the West with the Department of Presidente Hayes of the Western Region (Chaco). Its district dates from the year 2013, previously it was part of the Concepción district and was called “Colonia San Alfredo”.

In the Local Health Plan, it is stated that ancient inhabitants commented that 100 years ago the territory was made up only of cattle establishments belonging to the State and private forest exploitation establishments whose products were transferred to Argentina by the Paraguay River. As for the first settlers, it is argued that they occupied a fraction of the Estancia San Fernando, being later evicted, which forced them to live in temporary huts in this area (fiscal forest), later creating the Colonia San Alfredo, with lots of 7 to 22 hectares.

At that time, in San Alfredo they were dedicated to the production of corn, cassava, starch, tobacco, citrus fruits, onion, spurge and sugar cane. “These products were

transported in cars and sold in the district of Concepción; with the income they acquired clothes and work tools”.

Other data presented in the source of consultation regarding its history are:

- In 1936 the first school was built with the collaboration of the residents.
- The first authorities were called Company Sergeants, appointed by the Government Delegation of the Department of Concepción. In 1968 the Local Police Station was built.
- In 1980 the construction of the current Laguna Ybycua School began and later the School of the same name.

6.2.4.2.1.2 Population

According to data from the General Directorate of Statistics, Surveys and Census (DGEEC), the total population of the department of Concepción is 254,976 inhabitants, belonging to the District of San Alfredo 5,799 inhabitants. This total represents 2.27% of the department. San Alfredo is made up of 3,275 men and 2,524 women (2020 projection) 3. As can be seen in the following table, the majority, that is, 56.48% of the district's population is made up of men and 43.52% of women.

Table 18 – Projection of the total population by sex, according to district. Year 2020

San Alfredo District	Population	Percentage
Men	3.275	56,48
Women	2.524	43,52
Total (both genders)	5.799	100
% Total Population of the District according to the total of the department.	254.976	2,27

SOURCE: PARACEL ELABORATION BASED ON DATA FROM THE DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

As can be seen in the following table on population evolution / growth projections, the difference in the ratio of men / women (mostly men) has been maintained in the last 5 years.

Table 19 – Evolution of the population in the last 5 years (2016-2020)

San Alfredo District - Population by Gender	Year				
	2016	2017	2018	2019	2020
Men	2.918	3.005	3.093	3.183	3.275
Women	2.361	2.401	2.441	2.482	2.524
Total Population	5.279	5.405	5.534	5.665	5.799

SOURCE: DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

The following population projection data were provided by the DGEEC, within the framework of the preparation of this report. It must be noted that there is variation with respect to the published data, due to the districts that were carried out after the census

was performed. As can be seen in the following table, there is a decrease in the population for the San Alfredo District in relation to what is projected in the previous table for the year 2020.

Table 20 – Evolution of the population in the following 5 years (2020-2025)

Department and District	Year					
	2020	2021	2022	2023	2024	2025
Concepción Department	254.976	258.653	62.360	266.072	269.805	273.579
San Alfredo District	4.989	5.070	5.151	5.233	5.315	5.398

SOURCE: STP / DGEEC. PARAGUAY. PROJECTION OF THE POPULATION BY GENDER AND AGE, ACCORDING TO DISTRICT, 2000-2025. REVISION 2015

The district of San Alfredo, according to data indicated in the Local Health Plan, is divided as follows:

- Urban area that includes 10 neighborhoods such as: Centro Norte, Costa Florida, Santa Teresita, Chaco’i, Mangoty, La Amistad, San Ramón, Centro Sur, María Auxiliadora and Santa Lucia; and
- Rural area made up of 6 companies such as: Tres Cerros, Itakua, Puerto Fonciere, Guyrati, Peña Hermosa and Itapucumí.
- In the Guyrati Company there is an indigenous community belonging to the Anga’ite Original People, made up of 13 families and 2 settlements (8 de Noviembre and Paz y Alegría).



Figure 8 – Guyrati School - San Alfredo

SOURCE: REGIONAL RADIO 660 AM (2020)

6.2.4.2.1.3 Households

About the condition of home ownership, according to data provided by the DGEEC4, in the district of San Alfredo, the highest percentage corresponds to own houses, with other property conditions such as "rented", "in condominium" occurring to a lesser extent and "Borrowed", among others. This is noted in the following table.

Table 21 – Property Ownership

House Ownership	Concepción Department	San Alfredo District
Occupied private homes	42.402	966
% Own	85,2	82,0
% Mortgage	0,9	-
% Condominium	0,4	0,4
% Rented	5,1	1,7
% Borrowed	7,5	15,3
% Occupied	0,8	0,5
% Not informed	0,1	0,1

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.4.2.1.4 Unmet Basic Needs (UBN)

Regarding the UBN in the area of direct influence of the project, information provided by the DGEEC was accessed, referring to the San Alfredo district in relation to the situation both at the country and department level, indicating that in 49.1% of the households there is at least one UBN, 24.5% corresponds to Households with UBN in access to education, 21.5% to households with UBN in health infrastructure, 19.0% to households with UBN in housing quality and 12.5% to households with UBN in subsistence capacity, as can be seen in Table 22.

Table 22 – Households with UBN, by Department and District

Indicators of Unsatisfied Basic Needs (UBN) (%)	Country Total	Concepción Department	San Alfredo District
Private households occupied	1.232.496	42.638	967
% Households with at least one UBN	43,0	56,2	49,1
% Households with UBN in quality of housing	12,6	19,0	19,0
% Households with UBN in health infrastructure	20,8	29,7	21,5
% Households with UBN in access to education	15,7	20,3	24,5
% Households with UBN in subsistence capacity	14,9	19,8	12,5

SOURCE: STP / DGEEC. NATIONAL CENSUS OF POPULATION AND HOUSING, 2012 AND UNSATISFIED BASIC NEEDS (UBN) 2012. PARAGUAY BASED ON STP-DGEEC. NATIONAL CENSUS OF POPULATION AND HOUSING 2012.

6.2.4.2.1.5 Access to Services

This section presents content related to access to services in the Project ADI. It was possible to have up-to-date district information on basic services, education, professional and technical training, health, information and communication technologies (ICTs) and comfort goods in each of the involved districts and from the perception of the people consulted.

According to the data provided by the DGEEC, in terms of electrical energy it can be observed that 92.3% of the homes have access to this service; Regarding access to running water, 78.7% of the homes have this service; 33.1% are homes with improved

sanitation. As can be seen in the following table, the number of homes that have garbage collection service is low or null.

Table 23 – Homes with Access to Basic Services

Data on Private Homes Basic Services	Concepción Department	San Alfredo District
Occupied private homes	42.402	966,0
% Homes with electricity	93,1	92,3
% Homes with running water	74,4	78,7
% Homes with sewage drainage	6,3	-
% Homes with garbage collection	22,8	0,7
% Homes with improved sanitation	46,9	33,1

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

Regarding the disposal of solid waste, according to data from the San Alfredo Local Health Plan, the Municipality lacks a landfill for the disposal and treatment of solid waste. The means of elimination frequently used by the population are burning and bury.

In relation to sanitation services, as indicated in the same source, it is estimated that 20% of the population in the urban area have a modern bathroom, while in rural areas the use of sanitary latrines predominates.

6.2.4.2.1.6 Education

On access to education in the district, data from the Local Health Plan and official documentation from the Ministry of Education and Indian Science that children and children in their majority have access to basic school education services, there are also educational institutions media, in the higher education institutions.

According to the updated data of MEC (Open data, School establishments - 2019), in the district there are 19 educational institutions, of which 3 are located in the urban area and 16 in the rural area. These schools are basic school and middle level education as showed below.

Table 24 – Educational Level by Zone

Level of Education	Zone		
	Total	Urban	Rural
Initial education	6	1	5
Basic school	8	1	7
Public basic school	1	-	1
Middle education	4	1	3
Total	19	3	16

SOURCE: ELABORATION BASED ON UPDATED DATA FROM THE MEC - OPEN DATA, SCHOOL ESTABLISHMENTS 2019

It is important to clarify that there are establishments that have more than one institution and that more than one modality could be taught in the institutions.

Information related to the services available to the institutions could also be extracted from the consultation materials, such as the case of two schools that have school lunch during the school year, through the support of the Municipality; while students from another institution receive this same service through the Government of Concepción.

Regarding access to electricity, all of them have this service from ANDE and there are different means by which these institutions have water (SENASA, artesian well, common well and mostly river).

In terms of problems related to education, it is mentioned that the young population does not complete middle school studies, because the vast majority need to do paid work to contribute to family support; as well as a low access to university studies is identified, taking into account that those who can move to the district of Concepción where there are universities, this with the support of the Municipality that facilitates the transfer of young people to the urban center of Concepción in a minibus. There are also cases in which they migrate to other cities in the country in search of educational services and sources of work. Most of the adult population can read and write, although there are people without literacy.

6.2.4.2.1.7 Health

The Local Health Plan refers to the fact that respiratory diseases, hypertension disorders, diabetes, lung diseases, smoking, parasitosis, among others are frequent in the area and there are the following health centers in the district:

- Family Health Unit (USF) of San Alfredo and
- Family Health Unit (USF) of Itakua / Calería Ita Cua
- Two medical dispensaries were set up for the acquisition of medicines.

Through the USFs, the population accesses the services of clinical and dental office, provision of milk to pregnant women and children with low weight, prenatal control, newborn tests, early detection of STIs, control of infectious contagious diseases. in general, among others. Regarding access to vaccinations, assistance is provided only at the San Alfredo USF.

The Plan also alludes to the fact that the residents, faced with needs for assistance, initially go to naturalist doctors and empirical midwives (a practice rooted in the area) and if they do not find improvement, they later go to be cared for by health professionals. In the community there are 6 naturalist doctors, 3 empirical midwives and the professionals that make up the USF of San Alfredo: 1 doctor, 1 graduate in Nursing, 1 graduate in Obstetrics, 1 Dentist who provides services on a voluntary basis, 2 nursing assistants, 3 community agents and 1 service personnel (paid by unit officials); At the USF of Itakua they have 1 doctor, 1 obstetrics graduate, 1 nursing graduate, 1 technical assistant and 1 service personnel (paid by the Health Council).

6.2.4.2.1.8 Access to information and communication technologies (ICT) and comfort goods

Through the data provided by the DGEEC, in relation to the population's access to ICTs, it can be stated that the vast majority of homes in the San Alfredo District have a radio, also cell phones and television; The same does not happen with parabolic antennas, computers, cable TV, internet and landlines, which, as can be seen in the following table, obtained much lower percentages than the technologies mentioned initially.

Table 25 – Household equipment and ICTs

Access to ICTs	Concepción Department	San Alfredo District
Occupied private homes	42.402	966
% Homes with radio	80,6	90,4
% Homes with television	79,8	81,3
% Homes with landline phone	8,0	0,8
% Homes with cell phone	83,3	86,2
% Homes with computer	11,9	2,2
% Homes with a computer connected to the internet	9,2	1,2
% Homes with satellite dish	10,8	9,0
% Homes with cable TV	13,4	1,6

SOURCE: STP/DGEEC. NATIONAL CENSUS OF POPULATION AND HOUSING, 2012.

The DGEEC also provided information on the access of the population of the San Alfredo district to comfort goods in homes, stating that the vast majority have motorcycles, followed by homes that have a refrigerator and washing machine. Finally, and by far, homes that have video / DVD; microwave oven, car, electric shower and thermo-heater.

Table 26 – Household Equipment and Comfort Goods

Comfort Goods	Concepción Department	San Alfredo District
Occupied private homes	42.402	966
% Homes with refrigerator	68,1	65,0
% Homes with laundry machines	50,9	30,1
% Homes with video / DVD	21,2	15,0
% Homes with water heater	4,0	1,4
% Homes with electric shower	25,7	3,6
% Homes with air conditioner	15,2	3,7
% Homes with microwave oven	14,4	6,9
% Homes with car / truck	9,9	4,1
% Homes with motorcycles	74,3	74,2

SOURCE: STP/DGEEC. NATIONAL CENSUS OF POPULATION AND HOUSING, 2012.

6.2.4.2.2 Sargento José Félix López District

6.2.4.2.2.1 General Characteristics

According to the data of the Sustainable Development Plan, the municipality of Sargento José Félix López was officially formed on September 7, 2011 by Law No. 4,418, separating its territory from the district of Concepción. It covers an area of 224,428 hectares, with 8,544 square meters. It is located to the northeast, 200 km from the departmental capital and 700 km north of the city of Asunción. To the north it borders Brazil, having as its border the Apa River, which is 20 km away; to the east it borders the district of Bella Vista north from the department of Amambay, approximately 75 km; to the west it limits with the district of San Carlos del Apa, about 50 km.

Access to the municipality is by land via Route V up to km. 70, and then continue along the 15th street section to Colonia Jorge Sebastián Miranda (Hugua Ñandu), in the Paso Barreto district, and you must travel about 70 km. more by gravel road until arriving at the urban area of the district. Dirt roads tend to remain in poor condition during rainy days.

The people interviewed during the fieldwork highlighted that "there is tranquility", that people "are supportive and know each other in the community", that there is a lot of nature and native forests in the area, that there is no pollution and there is a stream called Amambay. Also, that it is an area in which there is agricultural production for self-consumption and that they have what is necessary for local consumption.

The traditional festivities in Sargento José Félix López, mentioned during the information survey in the field are the anniversary party of the district, student parade, festivals, among them the main one called "Paso Bravo" (fourteenth edition) which generally has the participation of artists from other cities. Regarding recreational and leisure activities, horse racing and jockey were named, food fairs, men's and women's soccer championships, and other sports, activities of the parish organized by young people in the area.

Also, sports championships, educational Olympics, and inter-school exchanges are organized in schools. From the USF talks are held with older adults, pregnant women club and reverends.

6.2.4.2.2.2 Population

The data were obtained from the DGEEC, the Local Health Plan and the Municipal Sustainable Development Plan; these last ones elaborated by the Municipality of Sergeant José Félix López.

According to data from the DGEEC, the population of the Department of Concepción is 254,976 inhabitants, of which 7,242 inhabitants belong to the District of Sargento José Félix López, that is, 2.84% of said population.

As can be seen in the following table, the population is made up of 3,784 men (52.25%) and 3,459 women (47.76%) (2020 projection), an amount that corresponds to 2.84% of the population of the department of Concepción.

Table 27 – Projection of the population of the District of Sargento José Félix López by gender. Year 2020

Sargento José Félix López	Population	Percentages
Men	3.784	52,25
Women	3.459	47,76
Total (both genders)	7.242	100
% Total Population of the department	254.976	2,84

SOURCE: OWN ELABORATION BASED ON DATA FROM THE DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

Also, considering the figures regarding the evolution / growth of the population, it can be noted that the difference in the ratio of men / women is maintained and that in the last 5 years there was not a very important variation in terms of population growth in the district, according to projections prepared by the DGEEC.

Table 28 – Evolution of the population of Sergeant José Félix López in the last 5 years (2016-2020)

Evolution of the District Population by Gender	2016	2017	2018	2019	2020
Men	3.665	3.695	3.725	3.755	3.784
Women	3.259	3.308	3.358	3.408	3.459
Total Population	6.924	7.003	7.083	7.163	7.242

SOURCE: DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, GENDER AND AGE GROUPS, 2000-2025

In the following table it can be observed that there is a decrease in the population of the District of Sargento José Félix López in relation to what is projected in the previous table for the year 2020 (according to data provided by the DGEEC).

Table 29 – Evolution of the population in the following 5 years (2020-2025)

Department and District	Year					
	2020	2021	2022	2023	2024	2025
Concepción Department	254.976	258.653	62.360	266.072	269.805	273.579
Sargento José Félix López	7.087	7.144	7.202	7.258	7.314	7.369

SOURCE: STP / DGEEC. PARAGUAY. PROJECTION OF THE POPULATION BY SEX AND AGE, ACCORDING TO DISTRICT, 2000-2025. REVISION 2015

The Local Health Plan document indicates that the total population is approximately 10,000 inhabitants according to the records of the Municipality, with a population density of 22 people per hectare; 30% of the population resides in urban areas and 70% resides in rural areas.

Table 30 – Population by Urban and Rural Area

Sargento José Félix López	Population	Percentage
Urban Area	3.000	30%
Rural Area	7.000	70%
Total	10.000	100%

SOURCE: OWN ELABORATION WITH DATA FROM THE LOCAL HEALTH PLAN 2015/2018

The district territory has 9 neighborhoods in the urban area: Santa Ana, San Clemente, La Suerte, Piri Poty, Unión, Yvype, Porvenir, Ara Poty, Loma Pyta and 4 settlements in the rural area, which in turn is divided into neighborhoods, streets, lines, and zones. The Settlements are: Norte Pyahú (which is again divided into the following neighborhoods: Cerrito, Hermosa, Vya Renda, Kurusu Eva, Calle 1, Calle 13 and Calle 14), Yvy Maraney (divided into San Francisco, San Antonio, 3 Lomas, San Roque, San Cayetano), June 29 (divided into streets: Calle 2, 3, 4, 6, 7, 8, 11, 12; Basement, 1st Line, 2nd Line, 3rd Line, Ruta San Carlos, Arroyo Mborevikua) and Calle 4 (divided into 1st Zone, 2nd Zone and Curupayty).

6.2.4.2.2.3 Indigenous Population

In the district of Sargento José Félix López, according to data from the DGEEC, obtained in the III National Census of Population and Housing for Indigenous Peoples 2012, there is 1 indigenous community called Takuarita, belonging to the Mbya Guaraní People, made up of 142 inhabitants, 72 men and 70 women, distributed in 30 private and collective dwellings, in the rural area²¹. Of the total population of the district (7.242), 1.96% corresponds to the aforementioned indigenous community, the majority being men with 50.70% and women with 49.30%.

Table 31 – Indigenous population of Sargento José Félix López, by sex. Year 2012

Sargento José Félix López	Indigenous Population	Percentages
Men	72	50,70
Women	70	49,30
Total (both gender)	142	1,96
% Population in the District	7.242	2,84
% Total Population of Department	254.976	100,00

SOURCE: OWN ELABORATION BASED ON DATA FROM THE DGEEC. III NATIONAL CENSUS OF POPULATION AND HOUSING FOR INDIGENOUS PEOPLES BY DEPARTMENT 2012.

It is worth noting that for the present study there was field work conducted in 2021 in that community, from which it could be found that current population of Takuarita indigenous community sums 235 people, distributed in 42 families.

Deeper information about this community can be found in **ANNEX I**, where Takaurita indigenous community is described in greater detail.

6.2.4.2.2.4 Housing

Other data provided by the DGEEC in relation to the condition of home ownership in the district indicate that there are 1,221 previously occupied private dwellings in this district, with the majority being the population that has their own home, followed by the condition of "borrowed" or those who inhabit them as "managers" 22, and to a lesser

extent, rented homes, de facto occupation status or in condominiums. The percentages can be seen in the following table.

Table 32 – Home Ownership Condition

Home Ownership Condition	Concepción Department	Sargento José Félix López District
Occupied private homes	42.402	1.221
% Own	85,2	82,0
% Mortgage	0,9	-
% Condominium	0,4	0,4
% Rented	5,1	1,7
% Borrowed	7,5	15,3
% Occupied	0,8	0,5
% Not informed	0,1	0,1

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.4.2.2.5 Unmet Basic Needs (UBN)

In the District of Sargento Félix López, according to data from the DGEEC, both in the UBN and in the data provided by it in the framework of preparing this study on Measurement of UBN from the National Population and Housing Census 2012, it is indicated that 89.4% of the households in the district have at least one UBN; Being in the ADI the district with the highest percentage in this matter, as can be seen in the following table, especially in relation to households with UBN in health infrastructure, in subsistence capacity, in access to education and in quality of living place.

Table 33 – Households with UBN, by Department and District

Indicators of Unsatisfied Basic Needs (UBN) (%)	Total households	Concepción Department	Sargento Félix López District
Private households occupied	1.232.496	42.638	1.221
% Households with at least one UBN	43,0	56,2	89,4
% Households with UBN in quality of housing	12,6	19,0	24,5
% Households with UBN in sanitary infrastructure	20,8	29,7	82,9
% Households with UBN in access to education	15,7	20,3	26,3
% Households with UBN in subsistence capacity	14,9	19,8	37,5

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012 AND TRIPTYCH UNSATISFIED BASIC NEEDS (NBI) 2012. PARAGUAY BASED ON STP-DGEEC. NATIONAL POPULATION AND HOUSING CENSUS 2012.

6.2.4.2.2.6 Access to Services

Regarding access to basic services, in the District of Sargento José Félix López, according to data provided by the DGEEC²⁹, there is electricity, running water and improved sanitation. Next, the information is presented in percentages, and its relationship with the departmental level figures.

Table 34 – Homes with Access to Basic Services

Data on private homes Basic services	Concepción Department	Sargento José Félix López District
Occupied private homes	42.402,0	1.221,0
% Homes with electricity	93,1	73,1
% Homes with running water	74,4	59,9
% Homes with sewage drainage	6,3	-
% Homes with garbage collection	22,8	0,1
% Homes with improved sanitation	46,9	6,8

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

In the district's Local Health Plan, it is mentioned that there is access to basic services, a large part of the urban and rural area has electricity service, except the communities of: June 29, Basement, 1st Zone, 2nd Zone and Curupayty, who are waiting for the expansion of the power lines. In the companies, most of the population has access to drinking water service, others use well water (Most of the residents use artesian well water), streams and cutwaters for their supply.

The Sanitation Boards are operating in the communities of La Suerte, San Clemente, Unión, Loma Pyta, Yvype Santa Ana, Yvy Maraney, Sótano, Calle 4, Calle 3, 29 de Junio and Norte Pyahú. The people interviewed in the framework of this study affirmed that there are water systems via SENASA, cutwaters, the stream, common wells and even rainwater are also used. It was also commented on areas where there is no water, as in the case of Calle 7, Norte Pyahu and Calle 3, "three wells with more than 100 meters were dug and no water was found." They also spoke of the existence of at least 10 water and sanitation boards in the area.

On the other hand, in the Indigenous community of Takuarita there is an electric power service in the community, but it is distributed without official authorization from the National Electricity Association (ANDE), therefore, families do not pay for the service.

Concerning water and sanitation, it was detected that there is a group of families that do not have access to drinking water so they depends on the quality of the water in springs and streams. The houses are made of wood and have latrine toilets. They have an artesian font located in the area near the school of the indigenous community, but water distribution does not reach all families.

Regarding the disposal of solid waste, the Municipality has arranged a place to deposit it, but the collection service is not yet available. Villagers currently burn or bury their household waste.

Another important aspect for health is the use of toilets. Most of the houses have sanitary latrines, therefore, few have modern bathrooms.

6.2.4.2.2.7 Education

Regarding the issue of access to education, the district's Local Health Plan states that in the school-age population there is high enrollment, most children access basic school education, receive lunch and school meals in their respective schools.

According to data from the Ministry of Education and Sciences³⁵, in the Sargento José Félix López District there are 27 educational institutions, of which 19 are located in the rural area (1 in the Estancia Buenaventura, private subsidized and 1 in the Takurita

Indigenous Community), and 8 in the urban area, one is the headquarters of the Administrative and Pedagogical Supervision Region in which teaching is also given. Of the totality of institutions in the rural area, all have Basic School Education modality and in urban areas 7 are with Basic School Education modality and 3 with Secondary Education modality.



Figure 9 – School n°. 1800 Puentesño

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK.
CONSULTING TEAM. CONCEPCIÓN AUGUST-SEPTEMBER
2020.

Table 35 – Educational level according to location area

Teaching Level	Total	Zone	
		Urban	Rural
Basic School	26	7	19
Middle School	3	3	-
Total	29	10	19

SOURCE: ELABORATION BASED ON UPDATED DATA FROM THE
MEC - OPEN DATA, SCHOOL ESTABLISHMENTS 2019

It is important to clarify that there are establishments that have more than one institution and that more than one modality could be taught in the institutions.

Regarding access to basic services of these institutions, 17 of them have electricity through ANDE and 14 have access to water service by SENASA, 4 through a cutwater and 2 are supplied from streams.

In relation to higher education, the district does not have universities, however, for some young people it is possible to attend them, through the Municipality of Sargento José Félix López, which grants them study scholarships.

6.2.4.2.2.8 Professional and Technical Training

The municipality of Sargento José Félix López, as indicated in the sources consulted, also makes available to the population training in trades, such as carpentry, masonry, electricity, plumbing, plumbing, cooking, hairdressing, among others, in order to improve the income and quality of life of their families.

According to this source, most adults know how to read and write. Adult literacy centers operate in the district. Some are benefited with the non-contributory pension offered by the Ministry of Finance³⁷.

According to publications of the National Professional Promotion Service (SNPP), in Sgt. José Félix López, more than 100 youth and adults from the district completed their training in Home Electricity (60) and Masonry Assistant (50) in the North Pyahu Settlement, through one of its mobile classrooms, with the support of the National Housing Secretariat and the Habitat (SENAVITAT).

6.2.4.2.2.9 Health

Regarding aspects related to access to health, initially reference is made to the most frequent diseases in the area. In the Local Health Plan of Sargento José Félix López, respiratory, gastrointestinal and dermatological diseases, parasitosis, chronic non-communicable diseases (diabetes, hypertension, tumors, arteriosclerosis) and oral problems are mentioned.

It also refers to the fact that both the Municipality and the USF support technicians from the National Malaria Eradication Service (SENEPA) to carry out work in the communities, consisting of house-to-house visits and radio dissemination of information, fumigation, search and elimination of breeding sites, identification of symptoms related to the surveillance of chagas, dengue and leishmaniasis and prevention campaigns.

Likewise, other activities are developed at the community level: educational talks in schools and colleges, dissemination of information through radio programs, home visits for vaccination and monitoring of pregnant women, the elderly, people with diabetes, among other groups that require specific care.

The existing public health service institutions in the municipality, according to the data of the Local Health Plan are those mentioned below, there are also 2 private pharmacies.

- USF of Puentesíño
- Yvype Satellite Post
- Yvy Maraney Satellite Post
- Satellite Station June 29 and
- North Satellite Post Pyahu

In the indigenous community of Takuarita they do not have health service institutions.

Regarding the professionals who are available, according to the Local Health Plan, the USF of Puentesíño (the district's main establishment) offers assistance through: 1 doctor (Director), 3 nursing graduates, 1 auxiliary, 2 personal administrative and 1 service personnel (cleaner), does not have a laboratory, the reference center is the Regional Hospital of Concepción.

6.2.4.2.2.10 Access to information and communication technologies (ICT) and comfort goods

In relation to access to ICTs, according to the data provided by the DGEEC, in the District of Sargento José Félix López, a large majority of homes have a radio; followed by cell phones and television; and to a lesser extent, homes that have satellite dishes, cable TV, computer, landline and internet. The percentages are presented in the following table, relating these to those at the departmental level.

Table 36 – Household Equipment and ICT

Access to ICTs	Concepción Department	Sargento José Félix López District
Occupied Private Homes	42.402	1.221
% Homes with radio	80,6	86,2
% Homes with television	79,8	48,2
% Homes with landline phone	8,0	1,1
% Homes with cell phone	83,3	79,4
% Homes with a computer	11,9	1,2
% Homes with a computer connected to the internet	9,2	0,6
% Homes with satellite dish	10,8	11,8
% Homes with cable TV	13,4	2,4

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

Also, in the field, people commented on the existence of radio stations; Evangelical radios, community radios (Radio Itaky FM 98.8, Radio Activa and Radio Más), television channels, cable channels, internet (poor connection in some cases) and cell phones.

In relation to comfort goods, according to data provided by the DGEEC in the framework of this study, it can be stated that most homes have motorcycles, likewise, but to a lesser extent, refrigerators, washing machines and video / DVD. With low percentages in access, homes with electric shower, car / truck, microwave oven, air conditioning and water heater. The linked figures are presented in the following matrix, as well as percentages of access to said goods at the departmental level.

Table 37 – Household Equipment and Comfort Goods

Comfort Goods	Concepción Department	Sargento José Félix López District
Occupied Private Homes	42.402	1.221
% Homes with refrigerator	68,1	48,2
% Homes with washing machines	50,9	29,6
% Homes with video / DVD	21,2	10,8
% Homes with water heater	4,0	1,1
% Homes with electric shower	25,7	4,2
% Homes with air conditioner	15,2	2,0
% Homes with microwave oven	14,4	3,2
% Homes with car / truck	9,9	4,4
% Homes with motorcycle	74,3	80,7

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.4.2.3 Bella Vista Norte District

6.2.4.2.3.1 General Characteristics

The Bella Vista Norte District has an area of 3,901 km, it is located in the extreme northeast of the Eastern Region, 469 km from Asunción and 150 km from Pedro Juan Caballero, its main access is National Route No. 3 Gral. Elizardo Aquino. To the north

and east it limits with the Federative Republic of Brazil, separated by the Apa River and the Amambay Mountain Range; it borders Canindeyú to the south and Concepción and San Pedro to the west.

According to data from the Municipal Development Plan (2016) 45, in the year 1,851 the town of Villa Bella was founded. Since the year 1860 the area where it is located today began to be populated and during the government of Héctor Carvallo, it took the name Bella Vista Norte and was elevated to the category of Municipality. But it was not until 1901 that the municipality of Bella Vista Norte was created, by virtue of a decree of President Emilio Aceval. According to historians, it would be the oldest town in the Department.

In addition, the name of Bella Vista has its origin in a cattle crossing that existed on the Apa River, which due to its great natural beauty attracted attention, it is worth mentioning that it is also called Bella Vista Norte, as a way to differentiate it from the another Bella Vista that is located in the south of the country.



Figure 10 – Apa Bella Vista Norte River

SOURCE: WELCOME PARAGUAY

6.2.4.2.3.2 Population

According to data from the General Directorate of Statistics, Surveys and Census (DGEEC), the total population of the Department of Amambay is 172,169, with 17,765 inhabitants belonging to the Bella Vista District. This total represents 10.32% of the department's population. Bella Vista is made up of 8,982 men and 8,783 women (2020 projection). As can be seen in the following table, the majority, that is, 50.56% of the district's population is made up of men and 49.44% of women.

Table 38 – Total population of Bella Vista by Gender. Year 2020

Bella Vista	Population	Percentage
Men	8.982	50,56%
Women	8.783	49,44%
Total (both sexes)	17.765	100
% Total Population of the District according to the total of the Department.	172.169	10,32

SOURCE: OWN ELABORATION BASED ON DATA FROM THE DGEEC. AMAMBAY DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, GENDER AND AGE GROUPS, 2000-2025

Also, the following table shows the estimated and projected population figures for the Bella Vista District, the difference in the ratio of men / women (mostly men) has been maintained in the last 5 years.

Table 39 – Evolution of the population of Bella Vista in the last 5 years (2016-2020)

Bella Vista District	2016	2017	2018	2019	2020
Men	8.077	8.300	8.525	8.752	8.982
Women	7.895	8.113	8.334	8.557	8.783
Total Population	15.972	16.413	16.859	17.309	17.765

SOURCE: DGEEC. AMAMBAY DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

Also, the DGEEC presents data on the projection of the population of Bella Vista in the following 5 years, from 2020 to 2025, in table 28 it is observed that the number of inhabitants increases gradually.

Table 40 – Proyección de la población en los siguientes 5 años (2020-2025)

Department and District	Year					
	2020	2021	2022	2023	2024	2025
Amambay Department	172.169	174.721	177.252	179.773	182.281	184.772
Bella Vista Norte	17.765	18.226	18.690	19.160	19.634	20.111

SOURCE: DGEEC. AMAMBAY DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

The Municipal Development Plan presents the territorial division of the Bella Vista District, stating that it is divided into:

- 8 neighborhoods (Inmaculada Concepción, San Antonio, Aviación, Yvy Pyta, María Auxiliadora, Perpetuo Socorro, in Obrero and Apa) and,
- 11 colonies such as Sargento Dure, San Isidro, Santa Ana del Apa, Nueva Esperanza, Rinconada, Mandyju Poty, Casualidad, Ayala Cue, Colonias Unidas, San Roque and Agropastoril San Pedro, with their respective daily peculiarities that are part of the daily social environment and historical the community.

6.2.4.2.3.3 Indigenous Population

With respect to the indigenous population, according to data from the DGEEC: from the III National Census of Population and Housing for Indigenous Peoples by Department 2012, in the Bella Vista district, there are 9 indigenous communities, made up of 1818 inhabitants, of which 949 They are men and 869 are women, corresponding to 3 indigenous peoples (Pañ Tavyterã, Maká and Ava Guaraní) 48, distributed in 442 private and collective dwellings, all settled in the rural area of the district.

Table 41 – Distribution of the Indigenous Population of Bella Vista. Year 2012

District	Community, Village or Neighborhood and Family Nucleus	Population	Number of Private and Collective Homes	Population		
				Total	Men	Women
Bella Vista	Apyka Jegua	Paĩ Tavyterã	18	65	35	30
Bella Vista	Cerro Akãngue	Paĩ Tavyterã / Maká	88	421	224	197
Bella Vista	Ita Jeguaka	Paĩ Tavyterã / Ava Guaraní	126	574	296	278
Bella Vista	Apyka Rendy'i	Paĩ Tavyterã	6	32	20	12
Bella Vista	Yvyty Rovi Cerro Amambay	Paĩ Tavyterã	46	167	85	82
Bella Vista	Guyra Ñe'êngatu Amba	Paĩ Tavyterã	25	123	66	57
Bella Vista	Satĩ	Paĩ Tavyterã	32	109	51	58
Bella Vista	Arroyo Ka'a	Paĩ Tavyterã	46	176	92	84
Bella Vista	Yvy Oka	Paĩ Tavyterã	35	151	80	71
Total			422	1818	949	869

SOURCE: DGEEC: III NATIONAL CENSUS OF POPULATION AND HOUSING FOR INDIGENOUS PEOPLES BY DEPARTMENT 2012.

It is specified that, of the total population of the Bella Vista district, 10.23% corresponds to indigenous communities, made up mostly of men with 52.20% and to a lesser extent woman with 47.80 %, as can be seen in the following table.

Table 42 – Indigenous population of Bella Vista, by sex. Year 2012

Bella Vista District	Indigenous Population	Percentage
Men	949	52,20
Women	869	47,80
Total (both sexes)	1818	100
% District Population	17.765	10,23
% Total Population of the Department	172.169	1,06

6.2.4.2.3.4 Housing

In relation to this issue, according to data extracted from the DGEEC-Census 2012, 75.51% of the total population of the Bella Vista district has their own home.

6.2.4.2.3.5 Unmet Basic Needs (UBN)

Taking into account the DGEEC data on Unsatisfied Basic Needs (UBN) 50 in the Bella Vista district, they indicate that 64% of the homes in this district have at least one UBN; 46.5% of homes with UBN in sanitary infrastructure; 32.2% of Households with UBN in access to education; 23.5% of households with UBN in quality of housing and 16.2% of Households with UBN in subsistence capacity. The data are indicated in the following table.

Table 43 – Households with UBN, by Department and District

Indicators of Unsatisfied Basic Needs (UBN) (%)	Country Total	Amambay Department	Bella Vista District
Private households occupied	1.232.496	27.047	2.675
% Households with at least one UBN	43,0	48,3	64,0
% Households with UBN in quality of housing	12,6	18,6	23,5
% Households with UBN in health infrastructure	20,8	26,5	46,5
% Households with UBN in access to education	15,7	25,9	32,2
% Households with UBN in subsistence capacity	14,9	14,7	16,2

SOURCE: DGEEC. TRIPTYCH UNSATISFIED BASIC NEEDS (NBI) 2012. PARAGUAY BASED ON STP-DGEEC. NATIONAL POPULATION AND HOUSING CENSUS 2012.

6.2.4.2.3.6 Access to Services

According to data extracted from the Municipal Development Plan, the inhabitants of the Bella Vista district have access to basic services such as; garbage disposal system; sewage waste (absorbing cesspools), access to running water in rural areas is done through sanitation boards and in urban areas through ESSAP.

Along these lines, according to district indicators from the DEGEEC 2012 census, in the Bella Vista district, 78.62% of the population has access to electricity; 61.76% of the population has access to running water; 20.34% access to solid waste disposal.

According to the Municipal Development Plan, the social services available in Bella Vista Norte are:

- Assistance to early childhood through the ALMA GUARANI nursery, reform, expansion, equipment, operation and maintenance of the same through the parallel efforts of the municipality and the parents of the beneficiaries of said service.
- Assistance service to low-income people through the provision of medicines, medical studies, and transfer of the sick.
- Constant support for educational institutions.
- University support with scholarship and procedures for usufruct of university scholarship with ITAIPU, National Secretary of Youth and National Council of Scholarships.
- Campaign for the collection and distribution of coats in cold seasons.
- Accompaniment and help to families affected by the floods.
- Financial support to the neediest Educational Institutions.

- School transportation for the students of the Santa Ana and San Isidro Schools.
- Support through the government program of the Secretariat of Social Action, specifically, with Tekoporã.

6.2.4.2.3.7 Education

In relation to access to education, according to data from the Ministry of Education and Sciences (MEC), in the Bella Vista District there are 30 educational institutions, of which 8 are located in urban areas and 22 in rural areas. Of the total number of institutions, 13 have Initial Education Modality (4 in urban areas and 9 in rural areas); 27 institutions with Basic School Education Modality (5 in urban areas and 22 in rural areas); 3 institutions with Secondary Education Modality (2 in urban areas and 1 in rural areas); 2 institutions with Permanent Education Modality, both in the urban area. The data are indicated in the following table.

Table 44 – Educational Level by Zone

Level of Education	Zone		
	Total	Urban	Rural
Initial education	13	4	9
Basic school	27	5	22
Middle education	3	2	1
Permanent education	2	2	-
Total	45	13	32

SOURCE: ELABORATION BASED ON DATA FROM THE MEC- OPEN DATA, SCHOOL ESTABLISHMENTS 2019 AND THE COMPLETE GUIDE TO EDUCATION IN PARAGUAY.

6.2.4.2.3.8 Health

According to data from the Ministries of Public Health and Social Welfare, the inhabitants of the Bella Vista District have 1 Regional Hospital; 3 Family Health Units (USF Urbano Bella Vista, USF San Isidro and USF San Roque) and 1 Health Center (CS San Isidro).

6.2.4.2.4 Passo Barreto District

6.2.4.2.4.1 General Characteristics

On May 31, 2013, the City of Paso Barreto was distributed by Law No. 4,926, located 56 km away from the capital of Concepción, linked by a gravel road. The district has an area of 215,824 hectares. The distance from Paso Barreto to the capital of the country is 445 km along the Horqueta Route.

It limits to the North with Sergeant José Félix López, to the East with Yby Yau, to the South with Horqueta and Loreto, to the South West with Concepción and to the West with San Alfredo.

From what was pointed out by referents of the municipality, the exact date of the founding of the City of Paso Barreto is unknown, although they assure it has a very ancient foundational origin, mid 1800 (approximately) according to the first settlers. It is known that the name is related to a man with the last name Barreto who lived in the

area working as a raft rider on the Aquidabán River, he was recognized for his friendly and hospitable character.

Likewise, the Paso Barreto Local Health Plan indicates that the population was very small at that time, approximately 15 homes. The first families that populated were surnames De León, Ferreira and Blanco. In 1870, on February 9 or 10, the army passed through the place for the capture and death of Marshal Francisco Solano López in Cerro Cora, and on March 3 or 4 of the same year Alicia Elisa Lynch was a prisoner of war, Mariscal López's wife.

In the consultation carried out in the field, the residents of the district (town of Paso Barreto, Isla Hermosa, Estribo del Plata and Jorge Sebastián Miranda), have stated that “good coexistence” stands out, that they are “very quiet communities”, that there are "Unity among the settlers", with "people who want to work and excel", with "a lot of nature and a low level of pollution".

They have also commented that the important festive activities for the area are related to the religious and foundational environment (district), during the months of June, August, September and December.

Also, activities such as karu guazú (shared/community food), bingo halls and inter-neighborhood tournaments are carried out; sports activities, lacing, fishing and visits to the Aquidabán River; likewise, activities for the day of the child and youth, with intercollegiate championships, festivals, among others.

The USF Activities include walks with elderly, diabetic and hypertensive adults where children also accompany, talks and games, activities with the mothers and pregnant club, among others.

6.2.4.2.4.2 Population

According to data from the General Directorate of Statistics, Surveys and Census (DGEEC) 55, the projection of the population of the Department of Concepción is 254,976, belonging to the District of Paso Barreto 4,185 inhabitants. This total represents 1.64% of the department's population. Paso Barreto is made up of 1,944 men and 2,241 women (2020 projection). As can be seen in the following table, the majority, that is, 53.55% of the district's population is made up of women and 46.45% of men.

Table 45 – Estimated and projected population of Paso Barreto, by Gender. Year 2020

Paso Barreto	Population	Percentages
Men	1.944	46,45
Women	2.241	53,55
Total (both genders)	4.185	100
% Total Population by Department	254.976	1,64

SOURCE: OWN ELABORATION BASED ON DATA FROM THE DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

With respect to the projection data of the DGEEC56 for the Paso Barreto District, it can be observed in the following table that the total population in the last 5 years has increased slowly, considering that the number of men decreases and that of women increases.

Table 46 – Evolution of the population in the last 5 years (2016-2020)

Paso Barreto District	2016	2017	2018	2019	2020
Men	1.990	1.979	1.967	1.956	1.944
Women	2.146	2.169	2.193	2.217	2.241
Total Population	4.136	4.148	4.161	4.173	4.185

SOURCE: DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025.

According to this same source, the projected data for the next 5 years from 2020 show a small population decline in the Paso Barreto district, as can be seen in the following table.

Table 47 – Population Projection in the Next 6 Years (2020-2025)

Department and District	Year					
	2020	2021	2022	2023	2024	2025
Concepción	254.976	258.653	262.360	266.072	269.805	273.579
Paso Barreto	3.885	3.858	3.831	3.803	3.775	3.747

SOURCE: STP / DGEEC. PARAGUAY. PROJECTION OF THE POPULATION BY SEX AND AGE, ACCORDING TO DISTRICT, 2000-2025. REVISION 2015.

The official data of the municipality are presented below, which, as can be seen in the following table, show variations in the population figures, with a total of 4,830 inhabitants.

Table 48 – Total Population of the Paso Barreto District Year 2020

Paso Barreto District	Population
Paso Barreto	2.600
Colonia Jorge S. Miranda	1.250
Isla Tuyú	550
Jaguareté Potrero	40
Estribo de Plata	50
Colonias Indígenas (Boquerón y Jeguahaty)	340
Población Total del Distrito	4.830

SOURCE: OWN ELABORATION WITH POPULATION DATA FROM THE MUNICIPALITY OF PASO BARRETO 2020.

According to the Paso Barreto Health Council, the territory is divided into 6 neighborhoods (San Salvador, María Auxiliadora, Inmaculada Concepción, 6 de Agosto, Santo Domingo and Carbonería); the rural area in 6 companies (Isla Tuyu, Cañada, Jaguarete, Peguahó, Colonia Jorge S. Miranda and Estribo de Plata) and 3 Indigenous communities (settled on land located towards Hugua Ñandu and Puentesíño).

Table 49 – Distribution of the Population of Paso Barreto

POPULATION	Paso Barreto		
	Neighborhoods	Companies	Indigenous People
	San Salvador	Isla Tuyu	Jeguahaty
	María Auxiliadora	Cañada	Vy'arenda
	Inmaculada Concepción	Jaguarete	Takuarendihu
	6 de Agosto	Peguahó	-
	Santo Domingo	Colonia Jorge S. Miranda (Jhugua Ñandu)	-
	Carbonería	Estribo de Plata	-
Total	6	6	3

SOURCE: OWN ELABORATION WITH DATA FROM THE PASO BARRETO LOCAL HEALTH PLAN 2015/2018.

6.2.4.2.4.3 Housing

In relation to the condition of home ownership, according to data provided by the DGEEC, in the District of Paso Barreto, there are 838 pre-census occupied private dwellings, the highest percentage corresponds to "own dwellings" and to a lesser extent to other conditions of property such as "loaned or cared for", "rented", "they are paying it in installments" and finally "actually occupied". The data in percentage is detailed in the following table.

Table 50 – Home Ownership Condition

Home Ownership Condition	Concepción Department	Paso Barreto District
Private Home Occupied	42.402	838
% Own	85,2	87,6
% Mortgage	0,9	0,5
% Condominium	0,4	-
% Rented	5,1	1,3
% Borrowed	7,5	9,9
% Occupied	0,8	0,2
% Not informed	0,1	0,5

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.4.2.4.4 Unmet Basic Needs (UBN)

In the Paso Barreto District, according to published data from the DGEEC on Unsatisfied Basic Needs (NBI) and the data provided by the DGEEC in the framework of this study, on Measurement of UBN from the 2012 National Population and Housing Census, indicate that 65.1% of the households in the district register at least one UBN; 31.1% of households with UBN in access to education; 28.8% of households with UBN in sanitary infrastructure; 24.2% of households with UBN in subsistence capacity; finally, as can be seen in the following table, 22.3% of households with UBN in quality of housing.

Table 51 – Households with UBN, by Department and District

Indicators of Unsatisfied Basic Needs (UBN) (%)	Total Households	Concepción Department	Paso Barreto District
Private households occupied	1.232.496	42.638	839
% Households with at least one UBN	43,0	56,2	65,1
% Households with UBN in quality of housing	12,6	19,0	22,3
% Households with UBN in health infrastructure	20,8	29,7	28,8
% Households with UBN in access to education	15,7	20,3	31,1
% Households with UBN in subsistence capacity	14,9	19,8	24,2

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012 AND TRIPTYCH UNSATISFIED BASIC NEEDS (NBI) 2012. PARAGUAY BASED ON STP-DGEEC. NATIONAL POPULATION AND HOUSING CENSUS 2012.

6.2.4.2.4.5 Access to Services

In relation to access to basic services in the Paso Barreto district, there are data provided by the DGEEC. The following table shows that in terms of electricity, 85.2% of the homes have this service; 70.3% of the homes have access to running water; 22.1% of homes with improved sanitation; to a lesser extent, 0.1% of the homes have a garbage collection service.

Table 52 – Homes with Access to Basic Services

Data on Private Homes Basic Services	Departamento de Concepción	Distrito de Paso Barreto
Private homes occupied	42.402	838
% Homes with electricity	93,1	85,2
% Homes with running water	74,4	70,3
% Homes with sewage drainage	6,3	-
% Homes with garbage collection	22,8	0,1
% Homes with improved sanitation	46,9	22,1

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

Likewise, according to data from the Local Health Plan⁶⁵ in the same district, it is observed that in the urban area they have running water and electricity. However, indigenous communities do not have access to these services, they are supplied with water from streams, ponds, cisterns and wells.

Regarding solid waste management, data from the Paso Barreto Local Health Plan show that the Municipality does not have a landfill for their disposal and treatment and the most common practice is burning. Regarding basic sanitation, the majority of the population uses common latrines, to a lesser extent there are homes that have modern bathrooms.

Residents of the towns that have participated in the consultation for this study, Paso Barreto, Isla Hermosa and J.S. Miranda, have mentioned that they have a drinking water network through the sanitation boards, some through the government, but maintenance

is through the commissions, with the exception of Estribo de Plata, which does not have a water commission and they mostly use wells.

The indigenous communities in the area have tanks, one has a water system, another does not because they do not have electricity, but they draw from the Aquidaban River, as well or nearby streams.

Regarding access to storm sewers, the only town that has this service is Paso Barreto and they are currently working on a sanitary sewer project in the city.

Regarding the use of a septic tank / Latrine / Other, they have mentioned that in Paso Barreto 40% have a latrine, due to the vulnerability and scarce resources, in the urban area a cesspool and a septic chamber are used. In Isla Hermosa, only 2% have a modern bathroom, the majority have a latrine. In Estribo de Plata only 5 houses have a cesspool, most of them a latrine and in J. S. Miranda most have a common bathroom, less than 45% have a modern bathroom (beneficiaries of the housing project).

They have also mentioned that in the District they do not have a garbage treatment plant or a collection service, they still go to the burning or burial; in the City of Paso Barreto it is burned weekly in a specific place (in the Municipality).

Likewise, in the consulted localities it was confirmed that there are homes that do not have an ANDE connection, as in the case of J.S. Miranda and Silver Stirrup. They also mentioned that they have outages very often and that the facilities are very precarious.



SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM. CONCEPTION. AUGUST-SEPTEMBER 2020.



PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM. CONCEPTION. AUGUST-SEPTEMBER 2020.

Figure 11 – Paso Barreto Water System and Garbage Incineration Oven

6.2.4.2.4.6 Education

Regarding access to education in the Paso Barreto district, there is data from the Local Health Plan, which reflects that the majority of boys and girls access basic school education and a very low percentage do not go to centers. education, there is a large percentage of young people who study and play sports and at the end of high school they migrate for university studies because there are no universities in the district.

Likewise, data from the Ministry of Education and Sciences (MEC) reveal that in the Paso Barreto District, there are 10 educational institutions in total, 3 located in urban areas and 7 in rural areas, of which 4 are located in settlements and 2 in indigenous communities. It is also specified that, of this totality of institutions, 7 have Initial Modality and Basic School Education (2 in urban areas and 5 in rural areas), as for the

Middle Education modality, there are 2 institutions (1 in urban area and 1 in rural area). Details are outlined in the table below.

Table 53 – Educational Level by Zone

Level of Education	Zone		
	Total	Urban	Rural
Initial education	7	2	5
Basic school	7	2	5
Middle education	2	1	1
Total	16	5	11

SOURCE: ELABORATION BASED ON DATA FROM THE MEC- OPEN DATA, SCHOOL ESTABLISHMENTS 2019 AND THE COMPLETE GUIDE TO EDUCATION IN PARAGUAY.



GRAL. MARCIAL SAMANIEGO COLLEGE



ISABEL PAREDES CHÁVEZ SCHOOL



MARIA AUXILIADORA SCHOOL

Figure 12 – Passo Barreto’s Schools

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN, AUGUST-SEPTEMBER 2020

It is important to clarify that there are institutions that have more than one institution and that more than one modality could be taught in the institutions.

6.2.4.2.4.7 Professional and Technical Training

With regard to access to professional and technical training, within the Department of Concepción there are several offers in public and private institutions. According to data taken from the SINAFOCAL official website, in the Paso Barreto district, courses on Basic Computer Operation are planned.

6.2.4.2.4.8 Health

The Paso Barreto Local Health Plan indicates that the most frequent diseases in adults are hypertension and diabetes; diseases such as anemia, parasitosis, respiratory diseases and oral diseases are observed in boys and girls.

The activities of the health professional consist of making home visits, monitoring patients with chronic diseases, early detection of pregnancies in the community, developing educational talks, vaccination and provision of services in mobile clinics. In Paso Barreto there are:

- 1 Family Health Unit in Paso Barreto
- 1 Family Health Unit in Jorge Sebastián Miranda
- 1 Tuyu Island Health Post
- 1 private pharmacy
- In the Municipality there is a free medicine dispensary
- 2 Empirical Midwives: perform baby deliveries in the community
- 6 Naturalist Doctors: perform care and prescribe home remedies based on herbs.



Figure 13 – USF Paso Barreto

USF PASO BARRETO - SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN. AUGUST-SEPTEMBER 2020

Regarding the availability of health professionals and others, there are:

- 2 Doctors
- 2 Obstetricians
- 3 Graduates in Nursing
- 6 Nursing Assistants
- 1 Dentist
- 1 Ambulance Driver
- 3 Cleaning staff.

6.2.4.2.4.9 Access to information and communication technologies (ICT) and comfort goods

According to the data provided by the DGEEC, in relation to access to ICTs, it can be identified that most homes in the Paso Barreto District have a radio, cell phone and television; to a lesser extent they have a satellite dish, cable TV, computers, among others. The data is detailed in percentages in the following table.

Table 54 – Household Equipment and ICT

ICT Access	Concepción Department	Paso Barreto District
Occupied Private Homes	42.402	838
% Homes with radio	80,6	79,5
% Homes with television	79,8	70,8
% Homes with landline phone	8,0	0,5
% Homes with cell phone	83,3	77,7
% Homes with a computer	11,9	2,0
% Homes with a computer connected to the internet	9,2	1,2
% Homes with satellite dish	10,8	19,3
% Homes with cable TV	13,4	2,0

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

The aforementioned data coincide with the information provided by the inhabitants of the consulted localities (Paso Barreto, Isla Hermosa, Estribo de Plata and JS Miranda),

who have indicated that the most used means of communication are: Radio, Television, Cell phones and Social Networks .

Likewise, the following radio stations were named: Regional Radio AM from Concepción, 89.9 from Horqueta, Radio Aquidabán and Santa Cecilia, Lira FM, Cristal FM 96.5 from Arroyito, Radio Loreto; television channels: Channel 9 SNT, Telefuturo and cable channels and Cell phones with internet: through messaging, calls and WhatsApp groups (in some communities there is poor internet connection), and with the pandemic the use for homework has increased schoolchildren.

With regard to comfort goods in homes, according to data provided by the DGEEC, they indicate that a high percentage of homes have a motorcycle, refrigerator and washing machine, and to a lesser percentage with video / DVD, electric shower, air conditioning, oven microwave, car / truck and water heater.

Table 55 – Household Equipment and Comfort Goods

Comfort Goods	Concepción Department	Passo Barreto District
Occupied Private Homes	42.402	838
% Homes with refrigerator	68,1	61,8
% Homes with washing machines	50,9	38,4
% Homes with video / DVD	21,2	8,9
% Homes with thermo-heating	4,0	1,4
% Homes with electric shower	25,7	7,2
% Homes with air conditioner	15,2	4,4
% Homes with microwave oven	14,4	4,4
% Homes with car / truck	9,9	3,9
% Homes with motorcycle	74,3	80,7

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.4.2.5 Loreto District

6.2.4.2.5.1 General Characteristics

The City of Loreto is located on a high hill in the Department of Concepción, at a distance of 20 km from the Capital City and 440 km from Asunción. It limits with the districts of Horqueta, Belén and Concepción. The city can be accessed by routes III Elizardo Aquino, V Bernardino Caballero and Coronel Franco-Chaco. It has an area of 996 km², organized into 31 rural companies and 4 urban neighborhoods⁷¹. From 1964 to 1981, 11 colonies were created, corresponding to 1969 lots and 46,323 hectares⁷². 80% live in rural areas.



Figure 14 – City of Loreto

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM.
CONCEPCIÓN. AUGUST-SEPTEMBER 2020

It was commented on outdoor recreation spaces and traditional festivals in the district; patron saint festivals, most of them related to the religious sphere, festivals, traditional games, mechanical lacing, sports tournaments, horse races, bingo, horse riding, among others. In the town of Jhugua Po'i, USF organizes activities such as educational talks with the club for pregnant women and the club for the elderly, and celebrations for Children's Day are held in all schools. In the town of Virgen del Camino, they mentioned the Asociación Cooperadora Escolar (ACE), which organizes activities to raise funds for the needs of the institution and the community.

6.2.4.2.5.2 Population

According to data from the DGEEC3, the total population of the Concepción department is 254,976 inhabitants, of which 18,879 belong to the Loreto district, that is, 7.40% of the departmental total.

The Loreto district is made up of 10,034 men and 8,846 women (2020 projection) 75 as can be seen in the following table.

Table 56 – Projection of the Total Population by Gender, by District. Year 2020

District of Loreto	Population	Percentage
Men	10.034	53,15
Women	8.846	46,86
Total (both genders)	18.879	100
% Total population of the district by the total of the department	254.976	7,40

SOURCE: OWN ELABORATION BASED ON DATA FROM THE DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

The projected figures for the evolution of the population of the Loreto district in the last 5 years are presented below, where it is observed that the difference in terms of the number of men and women has been sustained in said period, that is, until 2020 there are more men in the district.

Table 57 – Evolution of the Loreto population in the last 5 years (2016-2020)

Distrito de Loreto Población por sexo	Year				
	2016	2017	2018	2019	2020
Men	9.782	9.847	9.911	9.973	10.034
Women	8.732	8.761	8.790	8.818	8.846
Total Population	18.514	18.608	18.701	18.791	18.879

SOURCE: DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

The data presented below, on the projection of the evolution of the population in the following 5 years, were provided by the DGEEC, where it is identified that there are differences in the projection figures of the population to 2020 (previous table), due to the districts that occurred after the application of the 2012 census.

The following table indicates that by 2025 the population of Loreto would grow 1.29%, from 17,312 to 17,538 inhabitants.

Table 58 – Evolution of the population in the following 5 years (2020-2025)

Department and District	Year					
	2020	2021	2022	2023	2024	2025
Concepción	254.976	258.653	62.360	266.072	269.805	273.579
Loreto	17.312	17.362	17.411	17.456	17.497	17.538

SOURCE: STP / DGEEC. PARAGUAY. PROJECTION OF THE POPULATION BY SEX AND AGE, ACCORDING TO DISTRICT, 2000-2025. REVISION 2015.

6.2.4.2.5.3 Housing

Regarding the condition of home ownership, in the area of direct influence of the project, data provided by the DGEEC indicate that in the District of Loreto there is a total of 3,063 occupied private dwellings, of this amount, the highest percentage of condition property belongs to "own homes", then the property status "loaned or cared for", "rented" and finally to a lesser percentage, "paying in installments", "in condominium" and "actually occupied". The data is detailed in the following table.

Table 59 – Home Ownership Condition

Home Ownership Condition	Concepción Department	Loreto District
Occupied Private Homes	42.402	3.063
% Own	85,2	92,0
% Mortgage	0,9	0,1
% Condominium	0,4	0,2
% Rented	5,1	1,6
% Borrowed	7,5	5,6
% Occupied	0,8	0,5
% Not Informed	0,1	-

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

According to the Loreto 2014/2016 local Health Plan, the urban area is made up of the following neighborhoods: San Francisco, Santo Domingo, Barrio Centro, Nazareth, San Antonio, Fátima, Conavi. And the rural area made up of the following companies: Costa Florida, Loma Florida, San José me, Zanja Cue San Miguel, Zanja Cue Virgen de Fátima, Zanja Cue Virgen del Rosario, Ycua Pora, Cañada Lourdes, Cañada La Paz,

Villa Don Bosco , Costa Pucu, Costa Ferreira, Torales San Marcos, Torales San Roque, Torales Santo Tomas, Ditch Cue Agaigo, Santísima Trinidad, Virgen del Camino, Jhugua Rivas La Asunción, Jhugua Poi, Jhugua Guazú, Isleria, Cristo Rey Lagoon, Anderi, Jhugua Rivas San Pablo, Jhugua Bonete, San Isidro, Boquerón, Virgen del Carmen.

6.2.4.2.5.4 Unmet Basic Needs (UBN)

With regard to UBN, it is noted that 59.5% of homes in Loreto have at least one UBN, 33.1% of homes with UBN in sanitary infrastructure, followed by 21.3% of households with UBN in quality of housing, 20.7% correspond to households with UBN in subsistence capacity and lastly 15.8% to households with UBN in access to education. The data is detailed in the following table.

Table 60 – Households with UBN, by Department and District

Indicators of Unsatisfied Basic Needs (UBN) (%)	Country Total	Concepción Department	Loreto District
Private Households Occupied	1.232.496	42.638	3.063
% Households with at least one UBN	43,0	56,2	59,5
% Households with UBN in quality of housing	12,6	19,0	21,3
% Households with UBN in sanitary infrastructure	20,8	29,7	33,1
% Households with UBN in access to education	15,7	20,3	15,8
% Households with UBN in subsistence capacity	14,9	19,8	20,7

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012 AND TRIPTYCH UNSATISFIED BASIC NEEDS (NBI) 2012. PARAGUAY BASED ON STP-DGEEC. NATIONAL POPULATION AND HOUSING CENSUS 2012.

6.2.4.2.5.5 Access to Services

In the District of Loreto, according to the data provided by the DGEEC, regarding electrical energy it can be observed that 91.3% of the homes have this service; 72.2% of the homes have running water; only 25.8% of homes with improved sanitation; 9.2% have a garbage collection service, as can be seen in the following table.

Table 61 – Homes with Access to Basic Services

Homes with Access to Basic Services	Concepción Department	Loreto District
Private homes occupied	42.402	3.063
% Homes with electricity	93,1	91,3
% Homes with running water	74,4	72,2
% Homes with sewage drainage	6,3	-
% Homes with garbage collection	22,8	9,2
% Homes with improved sanitation	46,9	25,8

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

Other data extracted from the Local Health Plan are related to information regarding access to running water services, it is pointed out that the inhabitants of the urban and rural areas of the Loreto district access this service through the Sanitation Boards.



Figure 15 – Water Systems in Loreto

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM, CONCEPCIÓN, AUGUST-SEPTEMBER 2020.

Regarding the sanitary service, it is indicated that the common latrine predominates in the homes of the rural area, as well as in some areas of the urban area. It is estimated that a low percentage of homes have a modern bathroom, however, there is no sewer drain.

Regarding waste disposal, some homes in the urban area have access to the collection service that is provided by the Municipality, while in rural areas the predominant practice to eliminate solid waste is burning.

Most of the information presented coincided with what was mentioned by residents involved in the field work in the framework of preparation of this study, of which the following aspects are mentioned:

- In the localities linked to the information survey work, it was confirmed that there is an ANDE connection in its entirety, but not with a garbage collection service. Waste is burned or dumped in pits. In the town of Jhugua Guazú, in some houses they classify garbage, since they have fields and use them for compost.
- The 7 localities involved have internet and cell phones. In the case of the Anderí community, they commented that the connection has many shortcomings.
- No locality visited has a sewer drain.
- In all the localities latrines are still used (Anderí, Jhugua Guazú, and Santísima Trinidad), however, in several of them they mentioned having modern or semi-modern toilets, including the use of a cesspool. Such is the case of Laguna Cristo Rey where 70% of families already use a modern toilet / manhole.
- In the localities, they mentioned supplying water through wells for self-consumption in some cases and for domestic use (also for animal consumption) in general, in the case of Virgen del Camino, approximately 18 families depend on 1 well. Only in one locality was it mentioned not having a water commission or board and it was stated that they did not have assistance from SENASA (Islería).

6.2.4.2.5.6 Education

Based on the data extracted from the Local Health Plan and documentation from the Ministry of Education and Sciences, in relation to access to education in the Loreto district, it is identified that the majority of children and adolescents access education elementary school and secondary education in public institutions located in the same district.

According to data obtained from the Ministry of Education and Sciences (MEC) 82, in the Loreto District there are 38 educational establishments, of the total, 25 have Initial Education modality (4 in urban areas and 21 in rural areas), 33 establishments have Basic School Education modality (5 in urban areas and 28 in rural areas), 11

establishments with Secondary Education modality (2 in urban areas and 9 in rural areas) and one establishment with Open Secondary Education modality in rural areas.

Table 62 – Educational Level by Area

Educational Level	Area		
	Total	Urban	Rural
Initial education	25	4	21
Basic education	33	5	28
Medium education	11	2	9
Open secondary education	1	-	1
Total	70	11	59

SOURCE: ELABORATION BASED ON DATA FROM THE MEC- OPEN DATA, SCHOOL ESTABLISHMENTS 2019 AND THE COMPLETE GUIDE TO EDUCATION IN PARAGUAY.

It is important to clarify that there are establishments that have more than one institution and that more than one modality could be taught in the institutions.

About higher education, in the Department of Concepción there are various institutions that offer professional training, public and private, with a great concentration in the departmental capital. Most of the universities offer careers in the humanities, with a deficit in the offer of careers in the exact sciences.

On the other hand, it should be noted that the Loreto district has a Literacy Center for youth and adults who did not complete primary education. Thus, schools of dance, guitar, among others are also enabled.



VIRGEN DEL ROSARIO SCHOOL- ANDERI



SANTÍSIMA TRINIDAD SCHOOL – SANTÍSIMA TRINIDAD



BASIC SCHOOL Nº 1723 - LAGUNA CRISTO REY



NACIONAL SAGRADO CORAZÓN DE JESÚS SCHOOL - JHUGUA GUAZÚ

Figure 16 – Schools in Loreto

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM. CONCEPCION. AUGUST-SEPTEMBER 2020.

Regarding access to basic services such as electricity in educational establishments, 29 of the total have this service from ANDE. There are different means by which these institutions access water, mostly through SENASA, to a lesser extent through an artesian well, sanitation board, and community network.

Among the problems in access to education are indicated, high dropouts in the basic and secondary school modality, attending the economic need of the young people of this district and the lack of local employment that generates the migration of young people to the capital of Concepción or other cities like Asunción. On the other hand,

although there are public and private universities, their educational quality is questioned. Faced with this situation, there is a registry of accredited careers in the Department of Concepción, by the National Agency for Evaluation and Accreditation of Higher Education (ANEAES).

6.2.4.2.5.7 Professional and Technical Training

Regarding access to professional and technical training, within the Department of Concepción there are several teaching offers, according to data extracted from the Complementary Information in the framework of social studies (Industrial Component-Page 18) which are specified in the following table.

Table 63 – Technical Career Training Institutions

Institutions	Districts	Technical Careers
Infoservice	Concepción	Basic operator
	Loreto	IT assistant
	San Pedro del Ykuamandyju	Administration and finance
		Supermarket assistant and cashier
		Advertising graphic design
		Digital marketing
		Excel
		Word
		English

SOURCE: SUPPLEMENTARY INFORMATION IN THE FRAMEWORK OF SOCIAL STUDIES

6.2.4.2.5.8 Professional and Technical Health

According to data published by the Ministry of Public Health and Social Welfare, the Loreto district has 5 public health care centers, distributed in the area, which are mentioned below.

- Loreto Health Center
- USF Hugua Guazu
- USF Jhugua Poi
- USF Trench Cue
- USF Cañada la Paz



USF-JHUGUA GUASU



HEALTH UNIT - HUGUA PO'Í



USF- HUGUA PO'Í

Figure 17 – Health Units in Loreto

The Local Health Plan indicates that the district also has other types of services aimed at caring for the health of its inhabitants, such as:

- 1 Health Center
- 2 Health Posts: Sanja Cue and Jhugua Guazu

- 1 USF in Jhugua Poi
- 1 Medical dispensary in Hugua Rivas
- 1 Social Pharmacy administered by the Local Health Council
- 6 private pharmacies
- 15 Empirical Midwives

In addition, the Local Health Plan indicates that the Health Center has 38 officials, 34 correspond to white personnel and 4 administrative, of which 14 are hired by the Local Health Council (41%). Type of health personnel: 3 physicians, 8 nursing graduates, 5 obstetrics graduates, 2 midwifery assistants, 10 technical assistants, 3 nursing technicians, 1 pharmacy graduate, 1 pharmacy technician, 2 clerks, 1 yard laborer, 1 electrician, 1 security guard.

According to this source, community education activities are developed in the district with the support of health personnel, in health centers, mothers' clubs, chapels and radio auditions, this in order to promote the general population go to the health units and lead a healthy life.

According to data provided by the inhabitants of the localities visited in the framework of the field work, the following services are currently provided:

- All non-respiratory consultations such as hypertensive and chronic patients.
- Minor emergencies and is derived according to the case.
- Prenatal control
- Rapid testing of HIV, AIDS, Hepatitis B, Chagas disease (voluntary) but for pregnant women and their partners they are mandatory.
- Vaccination of children, the elderly and adults,
- Home visits
- Test for newborns.

As indicated, primary care is carried out in the community, seeking comprehensive care ("we see everything, if there is domestic violence, those who smoke or those who are alcoholics").

6.2.4.2.5.9 Access to information and communication technologies (ICT) and comfort goods

Regarding access to ICT, according to the data provided by the DGEEC, in the Loreto District, 83.2% of the homes have a radio; Of the 80.0% of homes that have a television, 8.2% have cable TV; 4.4% of the dwellings have a fixed telephone; 84.1% of households with a cell phone; and of the 5.4% of homes with a computer, 4.3% have an internet connection; 5.4% of the homes have a satellite dish.

Table 64 – Household equipment and ICT

Access to ICT	Concepción Department	Loreto District
Occupied Private Homes	42.402	3.063
% Homes with radio	80,6	83,2
% Homes with television	79,8	80,0
% Homes with landline phone	8,0	4,4
% Homes with cell phone	83,3	84,1
% Homes with a computer	11,9	5,4
% Homes with a computer connected to the internet	9,2	4,3
% Homes with satellite dish	10,8	4,8

Access to ICT	Concepción Department	Loreto District
% Homes with cable TV	13,4	8,2

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

Through field work, information was accessible regarding the following communication media such as:

- Type of communication media used: Radio, Television, Cell Phones, Social Networks.
- Radio stations: Radio Cristiana 107.5 Mission of God, Tekopyahu of Loreto, Regional AM of Concepción, Ypané de Concepción, Radios of Paso Barreto and Arroyito, 89.9 of Horqueta, Radio Aquidabán
- Television channels: Channel 9 SNT, Telefuturo and cable channels and satellite antenna.
- Cell phones with internet: through messaging, calls and WhatsApp groups (in some communities there is a poor internet connection).

In relation to comfort goods in homes in the Loreto District, according to data provided by the DGEEC, 64.2% of homes have refrigerators; 44.8% with a washing machine; 16.3% with video / DVD; 2.2% with thermo-heater; 16.0% with electric shower; 6.4% with air conditioning; 11.7% with microwave oven; 5.0% with a car / truck and 73.8% with a motorcycle.

Table 65 – Household equipment and comfort goods

Comfort Goods	Concepción Department	Loreto District
Occupied Private Homes	42.402	3.063
% Homes with refrigerator	68,1	64,2
% Homes with washing machines	50,9	44,8
% Homes with video / DVD	21,2	16,3
% Homes with thermo-heating	4,0	2,2
% Homes with electric shower	25,7	16,0
% Homes with air conditioner	15,2	6,4
% Homes with microwave oven	14,4	11,7
% Homes with car / truck	9,9	5,0
% Homes with motorcycle	74,3	73,8

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.4.2.6 Arroyito District

6.2.4.2.6.1 General Characteristics

Arroyito is a district located in the eastern part of the department of Concepción, 78 kilometers from the departmental capital. On November 22, 2016, it was declared a district, separating from Horqueta, by Law No. 5,742. It is located to the north of the country's capital, Asunción, 390 kilometers away and the main land communication routes that connect both cities are routes 3 “General Elizardo Aquino” and 5 “General Bernardino Caballero”.

As indicated in one of the consultation sources, "Since 2013 its population began the crusade to achieve district autonomy, alleging the notorious population growth⁸⁴" which later implied the disaffection of an area of approximately 88,000 hectares that

depended on the Horqueta district. (880 km²). As for the municipal government, the mayor and municipal councilors were elected in March 2017, as established by the Superior Court of Electoral Justice (TSJE).



Figure 18 – Municipality of Arroyito

SOURCE: LA NACIÓN

6.2.4.2.6.2 Population

According to data from the DGEEC, the population projection of the Department of Concepción is 254,976, with 13,181 inhabitants belonging to the District of Arroyito. This total represents 5.16% of the department's population.

From these published data, it is possible to notice a small increase in the projection of the population of the Arroyito district in the following 5 years, presented in the following table.

Table 66 – Evolution of the Population in the Following 5 years (2020-2025)

Department and District	Year					
	2020	2021	2022	2023	2024	2025
Concepción	254.976	258.653	62.360	266.072	269.805	273.579
Arroyito	13.181	13.398	13.617	13.836	14.057	14.280

SOURCE: STP / DGEEC. PARAGUAY. PROJECTION OF THE POPULATION BY SEX AND AGE, ACCORDING TO DISTRICT, 2000-2025. REVISION 2015.

6.2.4.2.6.3 Housing

In relation to the condition of home ownership, according to data provided by the DGEEC85, in the District of Arroyito, there are 2,011 occupied private dwellings, of which 91.8% correspond to own condition, 7% to loan condition or cared for, 0.5% actually occupied, 0.5% rented and with the lowest percentage, 0.1% in a condominium. All of these presented in the following table.

Table 67 – Home Ownership Condition

Home Ownership Condition	Concepción Department	Arroyito District
Occupied Private Homes	42.402	2.011
% Own	85,2	91,8
% Mortgage	0,9	0,0
% Condominium	0,4	0,1
% Rented	5,1	0,5

% Borrowed	7,5	7,0
% Occupied	0,8	0,5
% Not Informed	0,1	-

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

According to one of the sources consulted, the urban sector of the district is underdeveloped. It has 2 peasant settlements that represent more than half of its population, such as the Arroyito settlement with its 6 nuclei (neighborhoods). This district has the following companies: Calle 13 Mata Burro, Calle 14-Zona Norte (San Antonio, Zona Sur (San Agustín), Calle 15, Calle 16, Calle 17, Calle 18, Arroyito, Acapitigo, Tacuara, Cuero Fesco, Arroyo de Oro and Primavera.

6.2.4.2.6.4 Unmet Basic Needs (UBN)

Taking the DGEEC as a source, both in the triptych of Unsatisfied Basic Needs (NBI) 86, and in the data on Measurement of UBN from the National Population and Housing Census 201287, it is indicated that in the District of Arroyito 68.6% of households have at least one UBN; 40.5% of households with UBN in sanitary infrastructure; 33% of households with UBN in access to education; 17.5% of Households with UBN in subsistence capacity and 17.4% of households with UBN in quality of housing. Next, the figures can be seen in the following table.

Table 68 – Households with UBN, by Department and District

Indicators of Unsatisfied Basic Needs (UBN) (%)	Total Households	Concepción Department	Arroyito District
Private Households Occupied	1.232.496	42.638	2.012
% Households with at least one UBN	43,0	56,2	68,6
% Households with UBN in quality of housing	12,6	19,0	17,4
% Households with UBN in sanitary infrastructure	20,8	29,7	40,5
% Households with UBN in access to education	15,7	20,3	33,6
% Households with UBN in subsistence capacity	14,9	19,8	17,5

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012 AND TRIPTYCH UNSATISFIED BASIC NEEDS (NBI) 2012. PARAGUAY BASED ON STP-DGEEC. NATIONAL POPULATION AND HOUSING CENSUS 2012.

6.2.4.2.6.5 Access to Services

In relation to access to basic services, in the District of Arroyito, Table 69 shows the data provided by the DGEEC, in which it can be observed that in most of the homes there is electricity service (94.6 %); followed by homes that have running water (58.2%); and to a lesser extent, homes with improved sanitation. Only 0.1% have a garbage collection service.

Table 69 – Homes with Access to Basic Services

Homes with Access to Basic Services	Concepción Department	Arroyito District
Private homes occupied	42.402	2.011

Homes with Access to Basic Services	Concepción Department	Arroyito District
% Homes with electricity	93,1	94,6
% Homes with running water	74,4	58,2
% Homes with sewage drainage	6,3	-
% Homes with garbage collection	22,8	0,1
% Homes with improved sanitation	46,9	19,0

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

As indicated in the Municipal Development Plan, there are deficiencies related to housing and habitat in the district. Also, high levels of poverty. According to the Poverty Map by Locality, published by the STP, Arroyito has a poverty level higher than 40%.

6.2.4.2.6.6 Education

With regard to access to education for the population of the Arroyito district, according to official data from the MEC, there are 32 educational institutions, of which 24 have an Initial Education modality; 27 institutions have a Basic School Education modality, all located in the rural area and 6 institutions with a Secondary Education modality, of these institutions 1 is specialized in Agricultural Technical, the same institutions are based in 1 urban area and 5 rural area. These data can be seen in the following table.

Table 70 – Educational Level by Area

Educational Level	Area		
	Total	Urban	Rural
Initial education	24	-	24
Basic School	27	-	27
Middle School	6	1	5
Total	57	1	56

SOURCE: ELABORATION BASED ON DATA FROM THE MEC- OPEN DATA, SCHOOL ESTABLISHMENTS 2019

It is important to clarify that there are establishments that have more than one institution and that more than one modality could be taught in the institutions.



Figure 19 – Graduate School in Arroyito

GRADUATE SCHOOL No. 2475 SANTA MARÍA DE CUERO FRESCO-
SOURCE: CONCEPCIÓN AL DÍA 92

6.2.4.2.6.7 Professional and Technical Training

Regarding professional and technical training, the SNPP enabled two courses of Training and Job Training, Computer Science and Electrician Assistant, training for

young people and adults; Pitsco Robotics specialty course with the intention of promoting Science, Technology, Engineering and Mathematics (STEM) in the area and courses of Executive Secretariat, Producer of income crops, Computer operator, Kitchen assistant, Basic kitchen, Cultivation of cassava and corn cultivation.

6.2.4.2.6.8 Health

According to data extracted from the official page of the MSPyBS, the District of Arroyito has 4 Family Health Units and 1 Health Post, they are cited below:

- USF - Arroyito (Route 5)
- USF - Fresh Leather
- USF - Arroyito Núcleo 3 Settlement
- USF - Arroyito Núcleo 6 Settlement
- Health Post - Arroyito Núcleo 7 Settlement

Itaipú Binacional financed the construction of 1 USF in the Arroyito district, which was inaugurated in August 2020. Its infrastructure has clinical, pediatric and gynecological offices, delivery room, x-ray room, kitchen, dining room and completely renovated and adequate health services for people with disabilities, it has medical equipment for minor surgeries and cures, a sterilization stove, otoscope, stethoscope, ophthalmoscope, gynecological stretcher, oxygen balloon, among other instruments and has access for ambulances to In order to facilitate the transfer of patients to other centers of greater complexity, seeking to cover the preventive health of at least 5,000 residents.

6.2.4.2.6.9 Access to Information and Communication Technologies (ICT) and comfort goods

In relation to access to ICTs, the data provided by the DGEEC indicate that in the Arroyito District, most of the homes have cell phones, a radio and a television; and to a lesser extent they have parabolic antennas, with computers; with internet, cable TV and landlines, as can be seen in the following table:

Table 71 – Household equipment and access to ICT

Access to ICT	Concepción Department	Arroyito District
Occupied Private Homes	42.402	2.011
% Homes with radio	80,6	80,3
% Homes with television	79,8	68,9
% Homes with landline phone	8,0	0,7
% Homes with cell phone	83,3	83,1
% Homes with a computer	11,9	2,7
% Homes with a computer connected to the internet	9,2	1,1
% Homes with satellite dish	10,8	11,8
% Homes with cable TV	13,4	0,9

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

As indicated in the Municipal Development Plan (draft) there are two FM radio stations; Cristal FM and Arroyito communications 102.5.

Regarding access to comfort goods in the District's homes, the information provided by the DGEEC indicates that a high percentage of the homes have motorcycles; followed by refrigerators and washing machines; to a lesser extent, these are homes that have

video / DVD; Electric shower; car / truck; microwave oven; and very few homes have air conditioning and heating, as can be seen in the following table.

Table 72 – Household Equipment and Comfort Goods

Comfort Goods	Concepción Department	Arroyito District
Occupied Private Homes	42.402	2.011
% Homes with refrigerator	68,1	63,0
% Homes with washing machines	50,9	44,2
% Homes with video / DVD	21,2	15,9
% Homes with thermo-heating	4,0	1,1
% Homes with electric shower	25,7	8,9
% Homes with air conditioner	15,2	1,8
% Homes with microwave oven	14,4	4,1
% Homes with car / truck	9,9	4,6
% Homes with motorcycle	74,3	76,7

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.4.2.7 Horqueta District

6.2.4.2.7.1 General Characteristics

Horqueta is located 50 km from the City of Concepción and 434 km from Asunción, 172 km from Punta Porá (Brazil). It limits to the north with the districts of Loreto, Concepción and the Aquidaban River, to the south with the Ypané River, to the east with the Yby Yaú district and to the west with the districts of Concepción and Belén. It had an area of 2,925 km² (before the Arroyito district), distributed in urban and rural areas. From 1917 to 2001, 22 colonies were created, corresponding to 6,957 lots and 124,391 hectares. Currently, it has an area of 1,386 km².

Most of the population (75%) lives in rural areas and 98% is dedicated to agriculture and livestock. There are settlements and an indigenous community in the district and the access roads to the communities are mostly dirt and are in poor condition, with great distances to reach the urban area.

The city of Horqueta was founded on May 10, 1793, by Juan Manuel Gamarra with the help of the Priest Andrés Salinas.

According to data from the municipality, the city had its origin as a chapel, in the 18th century, officially founded in 1793. It was the first city with a pedestrian street in the country. The city bears the name of Horqueta, because it is located at the fork of the roads, hence its name.

Toponymy: The name of the city is due to the fact that it was born from the crossroads, called “Tape Horqueta”, a place where wagons camped after long trips.

The inhabitants of the towns of Paso Mbutu, Calle 15 and Domínguez Nigó, dependent on the district, who have participated in the consultation, have mentioned that the place is very quiet and safe, that there is unity and solidarity and that everyone knows each other in the zone. The river and nature are highly valued.

Among the festivities of the district they have mentioned those linked to the religious sphere, such as festivities, processions and masses. Likewise, foundational dates and specific dates such as children's and youth days. As mentioned in Paso Mbutú, in the

summer season, especially at Christmas and New Years, the main attraction is the beach. This is managed and administered by the neighborhood commission.

Other activities are developed in clubs for people with diabetes and hypertension and mothers, organized by the USF.

Likewise, women's and men's soccer tournaments, lacerated, men's races, volleyball, plain, known as “carrera yvyrupi” (running on foot), activities of the school cooperator to raise funds in the case of Calle 15 and in Domínguez Nigó Among other recreational activities, fishing in the Aquidabán River was mentioned.



Figure 20 – City of Orqueta Access

6.2.4.2.7.2 Population

According to data from the DGEEC, the population projection of the Department of Concepción is 254,976, with 62,664 inhabitants belonging to the Horqueta District. This total represents 24.58% of the department's population. Horqueta is made up of 32,477 men and 30,187 women (2020 projection). As can be seen in the following table, the majority, that is, 51.83% of the district's population is made up of men and 48.17% is made up of women.

Table 73 – Estimated Projection of the Population of Horqueta, by Gender. Year 2020

Distrito de Horqueta	Population	Percentage
Men	32.477	51,83
Women	30.187	48,17
Total (both genders)	62.664	100
% Total population of the department	254.976	24,58

SOURCE: OWN ELABORATION BASED ON DATA FROM THE DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, SEX AND AGE GROUPS, 2000-2025

As can be seen in the following table on population evolution / growth projections, the difference in the number of men / women, a sign that the majority are men and has been maintained in the last 5 years.

Table 74 – Evolution of the population of Horqueta in the last 5 years (2016-2020)

Horqueta	2016	2017	2018	2019	2020
Men	31.157	31.492	31.823	32.152	32.477
Women	28.874	29.199	29.526	29.856	30.187
Total population	60.031	60.691	61.349	62.008	62.664

SOURCE: DGEEC. CONCEPCIÓN DEPARTMENT. ESTIMATED AND PROJECTED POPULATION, BY DISTRICT, GENDER AND AGE GROUPS, 2000-2025.

From the data provided by DEGEEC on the projection of the Horqueta District population, it can be observed that there is a variation with the published data due to the districts that were carried out after the census was carried out. As can be seen in the following table, there is a decrease in the population for the Horqueta District, although it increases gradually per year.

Table 75 – Evolution of the population in the following 5 years (2020-2025)

Department and District	Year					
	2020	2021	2022	2023	2024	2025
Concepción	254.976	258.653	62.360	266.072	269.805	273.579
Horqueta	50.205	50.738	51.270	51.796	52.320	52.845

SOURCE: STP / DGEEC. PARAGUAY. PROJECTION OF THE POPULATION BY SEX AND AGE, ACCORDING TO DISTRICT, 2000-2025. REVISION 2015.

6.2.4.2.7.3 Indigenous Population

Taking into account the data published by the DGEEC, in the Horqueta district, there are 4 indigenous communities, with a total of 339 inhabitants settled in this district. Made up of 162 men and 177 women, they belong to 2 indigenous peoples, Mbya Guaraní and Tavyterã / Sanapaná. They are distributed in 75 private and collective homes, all in rural areas.

Table 76 – Distribution of the Indigenous Population of Horqueta 2012

District	Community, Village or Neighborhood and Family	People	Number of Private and Collective Houses	People		
				Total	Men	Women
Horqueta	Isla Sakã Yaka 'i	Mbya Guaraní	8	33	18	15
Horqueta	Korai Pun taSuerte	Mbya Guaraní	31	152	65	87
Horqueta	Ñande Yvy Pavẽ	Paĩ Tavyterã/Sana paná	9	32	17	15
Horqueta	Paso Ita	Mbya Guaraní	27	122	62	60
Total	4	2	75	339	162	177

SOURCE: DGEEC. CONCEPCIÓN: INDIGENOUS POPULATION BY SEX AND NUMBER OF PRIVATE AND COLLECTIVE DWELLINGS ACCORDING TO AREA, DISTRICT, COMMUNITY, VILLAGE OR NEIGHBORHOOD AND NUCLEUS OF FAMILY AND TOWN, 2012.

As specified in the following table, of the total population of the Horqueta District, 0.54% corresponds to the indigenous community, the majority being women and to a lesser extent men.

Table 77 – Horqueta Indigenous Population, by Gender. Year 2012

Horqueta District	Indigenous Population	Percentage
Men	162	47,49
Women	177	52,21
Total (both genders)	339	100
% District population	62.664	0,54
% Department population	254.976	0,13

SOURCE: OWN ELABORATION BASED ON DATA FROM THE DGEEC. CONCEPCIÓN: INDIGENOUS POPULATION BY SEX AND NUMBER OF PRIVATE AND COLLECTIVE DWELLINGS ACCORDING TO AREA, DISTRICT, COMMUNITY, VILLAGE OR NEIGHBORHOOD AND NUCLEUS OF FAMILY AND TOWN, 2012.

According to data from the Local Health Plan, the Horqueta District has 12 neighborhoods and 101 companies.

6.2.4.2.7.4 Housing

In relation to the condition of home ownership, according to data provided by DEGEEC, in the Horqueta District, there are 8,761 pre-census occupied private homes, it does not contemplate the new dismemberments that the districts have had; of these dwellings, the highest percentage corresponds to own dwellings; other property conditions such as borrowed or cared for, paying in installments, rented, actually occupied and in a condominium are given to a lesser extent. The data in percentages are observed in the following table.

Table 78 – Home Ownership Condition

Home Ownership Condition	Concepción Department	Horqueta District
Occupied Private Homes	42.402	8.761
% Own	85,2	88,8
% Mortgage	0,9	1,7
% Condominium	0,4	0,6
% Rented	5,1	1,6
% Borrowed	7,5	5,9
% Occupied	0,8	1,3
% Not informed	0,1	0,1

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.4.2.7.5 Unmet Basic Needs (UBN)

In relation to Unsatisfied Basic Needs (NBI) in the Horqueta District, according to data provided by the DGEEC in relation to the situation both at the country and department level, they reflect that; 58.2% of the households in the same district have at least one UBN; 31.3% of homes with UBN in sanitary infrastructure; 21.0% of Households with UBN in subsistence capacity; 19.5% of Households with UBN in access to education and 18.0% of households with UBN in quality of housing, as can be seen in the following table.

Table 79 – Households with UBN, by Department and District

Indicators of Unsatisfied Basic Needs (UBN) (%)	Total Households	Concepción Department	Horqueta District
Private Households Occupied	1.232.496	42.638	8.772
% Households with at least one UBN	43,0	56,2	58,2
% Households with UBN in quality of housing	12,6	19,0	18,0
% Households with UBN in sanitary infrastructure	20,8	29,7	31,3
% Households with UBN in access to education	15,7	20,3	19,5
% Households with UBN in subsistence capacity	14,9	19,8	21,0

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012 AND TRIPTYCH UNSATISFIED BASIC NEEDS (NBI) 2012. PARAGUAY BASED ON STP-DGEEC. NATIONAL POPULATION AND HOUSING CENSUS 2012.

6.2.4.2.7.6 Access to Services

Regarding access to basic services in the Horqueta District, the data provided by the DGEEC show that 93.0% of the homes have electricity; 72% have running water; 34.8% of homes with improved sanitation; 10.5% have garbage collection service and none of the dwellings access the sewer in the district, as can be seen in the following table:

Table 80 – Homes with Access to Basic Services

Homes with Access to Basic Services	Concepción Department	Horqueta District
Private homes occupied	42.402	8.761
% Homes with electricity	93,1	93,0
% Homes with running water	74,4	72,0
% Homes with sewage drainage	6,3	-
% Homes with garbage collection	22,8	10,5
% Homes with improved sanitation	46,9	34,8

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

Regarding the disposal of solid waste, the Horqueta Local Health Plan indicates that the district has a municipal landfill for the disposal and treatment of garbage; However, only a part of the urban area accesses the collection service, in the rural area the means of waste disposal commonly practiced by the population are burning and burial.

This could be confirmed during the field work, since the residents involved responded that the service is not available and that the burning or burial is being carried out in holes. Likewise, it was confirmed that the use of latrines in the area is still the majority, as is also stated in the Local Health Plan, which states that only 16% of the population in the urban area of Horqueta has modern toilets, while, in a higher proportion, 72% corresponding to rural areas use sanitary latrines.

Regarding access to drinking water, the three localities consulted have different forms of access.

In the town of Paso Mbutu, residents indicated that they do not have running water. The vast majority of the community uses well water for irrigation and washing of cutlery since it comes out salty and for consumption they bring from a spring, which they call

chorro or yvu, another alternative is to accumulate rainwater in drums 100 or 200 liters; or pay 20 thousand per drum for supply.

In the town of Calle 15, people have said that access is through private wells, in some cases they share.



Figure 21 – Water Resource - Calle 15 - Horqueta

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN. AUGUST-SEPTEMBER 2020.

In the town of Domínguez Nigó they indicated that they access the water through an artesian well managed through the Government. The water is treated with chlorine and the vast majority of families access it.

None of the communities consulted access the sewage network.



Figure 22 – Final Waste Disposal - Calle 15 - Horqueta

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN. AUGUST-SEPTEMBER 2020.

Regarding the use of a septic tank / Latrine / Other, in the communities more than half of the population still uses a latrine.

Regarding the treatment of garbage, they have mentioned that none of the localities has garbage collection services, these are burned or thrown in holes, thus confirming the data mentioned by the DGEEC / STP of the 2012 census.

According to the data published in the Horqueta Municipal Development Plan, access to electricity is provided by the Costa Romero Sub-Static located 3km from Horqueta and processes the energy from the Itaipú Hydroelectric Power Plant, although from the Horqueta towns involved. Upon consultation, the residents have indicated that the entire population has electricity through the ANDE.

6.2.4.2.7.7 Education

In relation to education in the Horqueta District, according to data from the Ministry of Education and Sciences (MEC) and the Complete Guide to Education in Paraguay, there are 86 educational establishments, of which 17 are in urban areas and 69 in the rural area. Of the total, 40 institutions with an Initial Education modality (32 in rural areas and 8 in urban areas); 83 institutions with a Basic School Education modality (11 in urban areas and 72 in rural areas); 20 institutions with a Secondary Education modality (3 in urban areas and 17 in rural areas). They can also be seen in the following table.

Table 81 – Educational Level According to Area

Educational Level District of Horqueta	Area		
	Total	Urban	Rural
Initial education	40	8	32
Basic education	83	11	72
Middle education	20	3	17
Total	143	22	121

SOURCE: ELABORATION BASED ON DATA FROM THE MEC- OPEN DATA, SCHOOL ESTABLISHMENTS 2019 AND THE COMPLETE GUIDE TO EDUCATION IN PARAGUAY.



EDELMIRA TORRES BLANCO SCHOOL AND COLLEGE - PASO MBUTU.



BASIC SCHOOL 2460 NIÑO MILAGROSO- CALLE

Figure 23 – Schools at Horqueta Distric

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM. CONCEPTION. AUGUST-SEPTEMBER 2020.

According to data from the MEC, there are 3 institutions with a modality of Professional Training of Permanent Education for young people and adults, all 3 are located in the urban area and 1 institution with a Special Education Modality also in the urban area (comprehensive training of people with different educational needs, in the urban area).

It is important to clarify that there are establishments that have more than one institution and that more than one modality could be taught in the institutions.

With regard to higher education, in the Horqueta district there are several public and private university institutions, as indicated in the social studies report of the industrial

component, among them are, Intercontinental Technological University (UTIC), San University

Carlos, National University of Concepción (UNC), the Polytechnic and Artistic University of Paraguay (UPAP). Likewise, the Horqueta Teacher Training Institute (IFD Horqueta).

A variety of undergraduate and graduate careers offered by these institutions are identified, including careers related to Agronomy, Education Sciences, Administration, Accounting, Computer Science, among others related to health, such as Medicine, Nursing, Nutrition and others.

6.2.4.2.7.8 Professional and Technical Training

About access to professional and technical training, within the Department of Concepción there are several teachings offers in public and private institutions. According to the data extracted from the SINAFOCAL official website, in the Horqueta district it is planned to teach "Cooking and Pastry" courses.

Other vocational and technical training offerings that exist in the Horqueta district are presented below.

Table 82 – Technical Education

Institutes		Districts	Carrers
ITN Instituto del Norte	Tecnológico	Horqueta	IT Assistant
			executive Secretary
			IT technician
			Programming
			Commercial cashier
			Bank cashier
			American English

SOURCE: SUPPLEMENTARY INFORMATION IN THE FRAMEWORK OF SOCIAL STUDIES

6.2.4.2.7.9 Health

With regard to health services, according to data from the Ministry of Public Health and Social Welfare (MSPYBS), there is in the Horqueta District; 1 District Hospital and 11 Family Health Units. The following assistance centers are:

- Horqueta District Hospital
- USF- Santa Librada
- USF- Mbutu Pass
- USF- Naranjaty
- USF- Peguajhó Loma
- USF- Captain Giménez
- USF- Alfonso Cué
- USF- Captain Sosa
- USF- Curupa'y Loma
- USF- German Cué
- USF- Ybyraty-Brasil Cue
- USF- Totorá

In the Local Health Plan it is mentioned that in the town of Horqueta and its surroundings there are 7 Health Posts:

- Captain Sosa Health Unit
- Pirity San Carlos Health Unit
- Arroyito Núcleo 7 Health Unit
- Calle 13 San Ignacio Health Unit
- Cuartelero Health Unit
- Paso Mbutu Health Unit
- Ykua Hovy Health Unit



Figure 24 – Cartelero Health Unity

SOURCE: PHOTOGRAPHIC RECORD OF FIELD WORK. CONSULTING TEAM.
 CONCEPCIÓN. AUGUST-SEPTEMBER 2020.

According to data provided by the First Health Region, in 2018 there were 76 health facilities throughout the department of Concepción, of which 15 are in the Horqueta district (public services confirm) and 1 private clinic (San Antonio). According to data provided by the inhabitants of the localities visited in the framework of the field work, it was confirmed that there is 1 USF in Paso Mbutu (1 Doctor, 1 Nursing Degree, 2 Senior Nursing Technician and 1 Community Agent). Vaccination programs, PANI, Planning and Nicolau potato, Prenatal control, Growth and development control, ITS prevention, Hypertension and diabetes, Tuberculosis and others. The most frequent health problems are hypertension and parasitosis due to the use of latrines and the use of water that is not drinking water.

The residents of Calle 15 consult in this USF because it is at a distance of 8 km and if the doctor is not found, they go to the Arroyito Health Post 12 km away. The inhabitants of Domínguez Nigó consult at the Cuartelero Health Post, it is at a distance of 10 km, they have

a family doctor and 4 graduates. They make visits, develop educational talks to students and meetings with the group of women.

For serious cases, they go to Horqueta or Concepción (distance to Horqueta: 40 km of the route and Concepción: 80 km).

6.2.4.2.7.10 Access to information and communication technologies (ICT) and comfort goods

Considering the data provided by the DGEEC, in relation to access to ICTs, it can be pointed out that the vast majority of homes in the district have a cell phone, followed by a radio and television; To a lesser extent, households have cable TV, computers, satellite dishes, computers connected to the Internet and a landline telephone, as can be seen in the following table.

Table 83 – Household Equipment and ICT

Access to ICT	Concepción Department	Horqueta District
Occupied Private Homes	42.402	8.761
% Homes with radio	80,6	76,9
% Homes with television	79,8	75,4
% Homes with landline phone	8,0	5,2
% Homes with cell phone	83,3	83,7
% Homes with a computer	11,9	7,7
% Homes with a computer connected to the internet	9,2	5,3
% Homes with satellite dish	10,8	6,3
% Homes with cable TV	13,4	15,7

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

The inhabitants of the consulted localities (Paso Mbutu, Calle 15 and Domínguez Nigó) have indicated that the most used communication media are: radio, television, cell phones and social networks; of which they mentioned as radio stations Radio Arroyito Record 96.5, Radio Cristal and 102.5 of Arroyito; Guyra Campana 102.5 and 89.9 from Horqueta; Radio Los Angeles and Radio Regional; to television channels: Channel 9 SNT, Telefuturo and cable channels and Cell phones with internet: through messaging, calls and WhatsApp groups (they mentioned that there is a poor internet connection in the area).

Likewise, the DGEEC provided information regarding the access of the population of the Horqueta District to comfort goods in the homes, these data indicate that a large percentage of the homes have motorcycles, then they have refrigerators and washing machines, then less As a percentage, the dwellings have an electric shower, video / DVD, air conditioning, car / truck, microwave oven and thermo heater, as can be seen in the following table.

Table 84 – Household Equipment and Comfort Goods

Comfort Goods	Concepción Department	Horqueta District
Occupied Private Homes	42.402	8.761
% Homes with refrigerator	68,1	62,2
% Homes with washing machines	50,9	44,5
% Homes with video / DVD	21,2	16,1
% Homes with thermo-heating	4,0	3,7
% Homes with electric shower	25,7	19,9
% Homes with air conditioner	15,2	8,8
% Homes with microwave oven	14,4	7,4
% Homes with car / truck	9,9	8,5
% Homes with motorcycle	74,3	72,3

SOURCE: STP / DGEEC. NATIONAL POPULATION AND HOUSING CENSUS, 2012.

6.2.5 Indigenous Peoples

6.2.5.1 Political, legal and administrative framework

The indigenous communities identified within the DIA are located in the Departments of Concepción and Amambay, within the national territory. Therefore, PARACEL's relationship with these communities is limited to the current national regulatory frameworks and to the international regulatory frameworks that have been ratified by the Paraguayan State, as well as the entire process of preparing this document.

At the national level, the 1992 National Constitution recognizes the existence of indigenous peoples, defined as cultural groups prior to the formation of the Paraguayan State. In this sense, it must be guaranteed that indigenous people can preserve their systems of political, social, economic, cultural and religious organization, as long as they do not violate fundamental rights. Therefore, in addition to Law No. 294/93 and its Regulatory Decrees No. 453/13 and No. 954/13, they specify that all projects that modify the environment by works or human activities and that may affect the life, biodiversity, the quality or quantity of natural resources, well-being, health, safety, habits and customs, cultural heritage or livelihoods, must be necessarily preceded by an Environmental Impact Assessment. Additionally, and According to Law No. 904/81 and Decree No. 1039/18, every project, public or private, must guarantee the participation and consent of the indigenous people who are affected by its activities, in the legal spirit of protecting their rights and heritage, respect their integrity, ways of life and free self-determination, dedicating all the efforts that are necessary so that, in good faith and in an appropriate way, an agreement can be reached with the communities, through a process of consultation and free, prior and informed consent. It is worth mentioning that, in a transversal way, the carrying out of the activities that led to the preparation of this report, as well as for the preparation of future management plans, considered the following regulation: the Paraguay 2030 National Development Plan, approved by Decree No. 2794/14; Law No. 4251/10 that establishes the modalities and use of the official languages of Paraguay, including respect for the languages of indigenous communities; Law No. 3231/07 that recognizes and guarantees the respect and value of the existence of indigenous education; and Law No. 5469/15 of indigenous health, that creates the National Directorate of Health of Indigenous Peoples (DINASAPI), an organization that created, together with the National Council for the Health of Indigenous People (CONASAPI), the Guide and Recommendations for the Prevention and Protection of COVID-19 directed at the Indigenous Peoples and Communities of Paraguay, promulgated in 2020.

At the international level, the Paraguayan State has expressed its commitment to the well-being of indigenous peoples, strengthening its commitment through the ratification of Convention No. 169 on indigenous and tribal peoples in countries independent of the National Labor Organization, approved by Law No. 234/93; the United Nations Framework Convention on Climate Change, ratified by Law No. 251/93; the International Convention on the Elimination of All Forms of Racial Discrimination of the United Nations General Assembly, approved by Law No. 2128/03; the United Nations Declaration on the Rights of Indigenous People; and the American Declaration on the Rights of Indigenous People, of the Organization of American States, approved in plenary session in 2016. In addition, all the activities of liaison with indigenous communities carried out for the preparation of this document have been framed in the rigorous compliance with the Equator Principles; the Performance Standards of the International Finance Corporation (IFC); the Sustainable Development Goals; and

taking as reference the World Bank Policy on Indigenous Peoples, the World Bank Safeguards, the Operational Policy on Indigenous Peoples of the Inter-American Development Bank (IDB) and the Policy on Relations with Indigenous Peoples of the International Fund for Agricultural Development (IFAD).

6.2.5.2 Indigenous people of Paraguay

Administration and Self-Determination

Indigenous peoples or ethnic groups are distributed in indigenous communities, that is, the organizational component of the ethnic is reduced to communities and each community is autonomous and autarkic to define its own statutes and rules (Law 904/81, Official Gazette of the Republic of Paraguay). One of the main cultural characteristics that have resulted from the autonomy of indigenous communities is that they are “closed”, this means that they maintain social distance with those people who are not members of their communities.

The community is a territorial entity that, within the departmental territorial order, is endowed with a communal territory, legislative autonomy and executive powers, as well as the power to administer itself through its own representatives (Law 904/81, Official Gazette of the Republic of Paraguay). The communities function as “micro-states” with the right to self-determination, recognizing their right to choose their political administration and the actions they will take to achieve their well-being and economic, social and cultural development.

In short, the times and processes related to the relationship with indigenous peoples do not respond to the conventional logic of community intervention, but to their own traditions and customs.

Language families of Paraguay

Before the incursion and occupation of the Paraguayan lands by the Spanish colonizers, the people that inhabited them had a diverse and complex ethnic-cultural composition; the region was populated by various ethnic groups, belonging to various linguistic groups, with their own languages and different cultural traits, the most important being Paĩ Tavyterã, the Avá Guaraní and the Mbyá Guaraní. For historical reasons, today we can also find some families and population groups of the indigenous people of the Chaco.

Right to Consultation and Free, Prior and Informed Consent

Indigenous communities have the right to participate actively and collectively in those projects that may affect their territories, culture and livelihoods. Projects, whether of public or private origin, have the obligation to consult, inform and dialogue with indigenous communities in all phases of project execution, from the preliminary study to the completion or closure of the project.

For this project, it was ensured the technical specifications of the Performance Standard 7 Indigenous Peoples were followed. This rule postulates that the indigenous communities identified within the DIA (direct influence area) are vulnerable groups who live in a socio-economic situation that does not allow them to defend their rights and interests. Therefore, all the necessary steps required by this standard were taken to identify any adverse impacts that, as a consequence of project activities, could threaten their integrity, identity, culture, and livelihoods; as well as for the survey of information

and relationship respecting the free consent of the communities, which was prior and informed; baseline analysis; and for the development of management plans that benefit the development and participation of indigenous communities.

It is also important to note that IFC Performance Standard 7, as a guideline, is in line with the Paraguayan legal framework and establishes respect for the rights of indigenous peoples, as well as international conventions that contribute to respect the rights of indigenous peoples and promote their sustainability, such as the United Nations Declaration on the Rights of Indigenous Peoples and the International Convention on the Elimination of All Forms of Racial Discrimination, among others.

Paraguayan laws require that projects, whether public or private, guarantee the participation and consent of the indigenous peoples that could be affected by their activities in order to protect their rights and historical cultural heritage; respecting the integrity, way of life, and free self-determination of the communities, and therefore, it is required that the implementation of these projects be consensual, through a process of consultation and free, prior and informed consent. It should be noted that, both for the implementation of the activities that led to the preparation of this report, and for the elaboration of future management plans, the National Development Plan Paraguay 2030, approved by Decree No. 2794/14, was considered.

Prior is the right of the community to know in advance when they will be consulted, before decisions that could affect them are made.

First it was needed the Permission to Consult. According to Decree 1039/18, the authorities of each indigenous community and with broad support from their community must give permission to the project developers to plan activities that may affect lands, territories, natural resources and the rights of indigenous peoples, requesting a writing permission to be consulted. The Permission to Consult is not mandatory and it is the responsibility of each community to request it if it deems it pertinent. In this project, 11 of the 12 communities identified in the pre-field work requested to sign the Permission to consult and 1 community gave its consent verbally; for those communities that requested a permission signature, the permit application form provided by the INDI (Paraguayan Indigenous Institute) was used. This stage was necessary to begin a process of dialogue with each community and is previous to the Free, Prior, and Informed Consent. As a result of this stage, the records of the 11 consultation permits were collected from the communities within the DIA that requested them and were delivered to the INDI's Consultation Department.

Informed is the right of the community to know in completeness and truthfulness all the information related to the project, including things that could benefit and harm them, giving them the information in an appropriate language that allows them to fully understand it.

The dialogue with the indigenous communities in instances of meeting and consultation, were carried out with the objective of finding out if each community provides its broad support to the project, that is, the support of the main groups of each community that are representative of the voice of the other members who agree with the project and want it to be carried out.

It is important to note that as established in Decree No. 1039/18, the leader of each community were given the contacts of the PARACEL consulting team representative for direct communication between them during this stage of the project, so that they could communicate with each other in case of any questions or complaints.

6.2.5.3 Overview of indigenous people in the Departments

Department of Concepción

The Department of Concepción is located to the north of the Eastern Region and has a total area of 18,051 km², bordered to the north by the Apa River and to the south by the San Pedro department, to the west by the Paraguay River and to the east by the Amambay department. Of the total area of the department, 103.53 km² belongs to indigenous communities with property title, who maintain 51.77% of this area as wooded forest.

The population of the department is 244,071 inhabitants, of which 3,998 are indigenous, representing 1.63% of the total population of the department. Of those, 50.67% are women and 49, 32% are men.

In the department there are 20 rural indigenous communities, 1 urban indigenous community and 6 family nuclei, distributed in a district manner as follows: 3 indigenous communities and 1 family nucleus in the district of Concepción; 5 indigenous communities in the district of Horqueta; 1 indigenous community in the district of San Lázaro; 10 indigenous communities and 5 family nuclei in the district of Yby Ya'ú; 1 indigenous community in the district of Azotey; and 1 indigenous community in the district of Sargento José Félix López.

Department of San Pedro

The Department of San Pedro is located in the center of the Eastern Region and has a total area of 20,002 km², bordered to the north by the department of Concepción and to the south by the departments of Caaguazú and Cordillera, to the west by the Paraguay River and to the east with the departments of Amambay and Canindeyú. Of the total area of the department, 138.49 km² belongs to indigenous communities with property title, who maintain 30.31% of this area as wooded forest.

The population of the department is 419,629 inhabitants, of which 3,572 are indigenous, representing 0.85% of the total population of the department. Of those, 48.2% are women, while 51, 79% are men.

In the department there are 36 rural indigenous communities, distributed in a district manner as follows: 1 indigenous community in the district of San Pedro del Ycuamandiyu; 1 indigenous community in the district of General Elizardo Aquino; 1 indigenous community in the district of Nueva Germania; 3 indigenous communities in the district of San Estanislao; 6 indigenous communities in the district of Tacuati; 2 indigenous communities in the district of Villa del Rosario; 8 indigenous communities in the district of General Isidro Resquín; 2 indigenous communities in the Guayaibi district; 10 indigenous communities in the Capibary district; and 2 indigenous communities in the Yrybu Cua district.

Department of Amabay

The Department of Amambay is located in the northeast of the Eastern Region. With an area of 12,933 km², it borders to the north and east with Brazil, to the south with the department of Canindeyú and to the west with the departments of Concepción and San Pedro. Of the total area of the department, 802.92 km² belongs to indigenous communities with property titles, who maintain 46.41% of this area as wooded forest.

The department's population is 164,462 inhabitants, of which 11,852 are indigenous, representing 7.2% of the total population of the department. Of those, 48.82% are women, while 51, 17% are men.

In the department there are 47 rural indigenous communities, distributed in a district manner as follows: 26 indigenous communities in the Pedro Juan Caballero district; 9 indigenous communities in the Bella Vista district; 10 indigenous communities in the Capitán Bado district; and 2 indigenous communities in the Zanja Pyta district.

6.2.5.4 Land tenure, title and use

The latest National Census of Population and Housing for Indigenous Peoples (DGEEC, 2012), identifies that in the country there are 493 indigenous communities and 218 villages and family nuclei, distributed in 19 ethnic groups that inhabit the 13 departments. The data reported allow an analysis of the land tenure, title and use situation in a general way.

Land tenure and titling is a central issue for the development of indigenous peoples. Of the 493 indigenous communities, 30% live on lands without title. Specifically, in the department of Concepción 40% of the communities do not have land titles; in the department of San Pedro 21.42% of the communities do not have land titles; and in the department of Amambay 24.44 % do not have the land title.

6.2.5.5 Traditions and Customs

Livelihoods are the capabilities, assets (which include both material and social resources) and activities necessary to earn a living (Ashley & Carney, 1999). In indigenous peoples there is usually a vision of interaction and coexistence with forests, biodiversity and ecosystem services. In this sense, the productive activities of subsistence of the communities cannot be separated from the conservation of the forests, since their protection is interdependent on the well-being of the communities.

The geographic space that a community needs to move and make their livelihoods varies from one community to another. This means that due to the location and geographical characteristics, customs, ecosystem services and cultural heritage, some communities travel a greater extension of land than others, influencing that the delimitation of the area of direct influence is variable, since the reference point is not only the location of the project activities, but its interaction with the culture of the indigenous community.

Generally, the displacement carried out by indigenous peoples around their communities is to carry out subsistence activities.

Hunting and fishing activities are one of the main sources of food for some indigenous families. 92.12% of the country's indigenous communities declare that they practice these activities. It is recognized that since the pre-colonial period, the indigenous people of the region lived in egalitarian societies and did not produce surpluses, the forest provided them with everything they needed for their subsistence. They traveled large areas to collect, hunt and fish, in addition to meeting their needs for clothing and tools. Hence the importance of these activities for people of indigenous communities.

In relation to hunting and fishing, the knowledge and practice of these activities are directly related to food. The communities hunt only edible animals and in the amount that is indispensable for feeding the community and family, avoiding indiscriminate hunting and respecting the fauna's breeding season. The main animals available for

hunting within the IIA are armadillo, pig, fish, deer, coati, lizard, bird, turtle, anteater, monkey, capybara, and ostrich.

The activities of gathering wild fruits are carried out by the indigenous families of the communities to provide themselves with food sources at different times of the year to complement their diet. In the country, 88.6% of indigenous communities declare that they practice gathering food from the forest, field or other places. The main sources of collection in the area are wild honey, coconut, guavira, yvaviju, pakuri and beans.

The manufacture of handicrafts is a cultural and economic activity for many communities. In the country, 75.2% of indigenous communities declare that they dedicate themselves to this activity, with a greater participation of women, which represent 68.2% of indigenous artisans. Although the manufacture of handicrafts is considered as underdeveloped compared to the activities of agriculture, livestock, gathering, hunting and fishing in the area, it is an activity of interest to artisans that not only provides them with income, but is also a source of leisure that contributes to their overall well-being. The raw materials that are usually used for the manufacture of indigenous crafts in the departments of Concepción, San Pedro and Amambay are karaguata, takuara, seeds, wool, guembepi, karanday, feathers and soft woods.

Most of the population alternates agriculture and livestock with the production of handicrafts; These populations have always lived in conditions of extreme poverty with little support from the government and from organizations that channel their productive work towards the achievement of their needs and interests. Many of the artisan trades and their products have disappeared and consumption has drastically decreased as a result of the processes of migration and rural depopulation.

In the case of the department of Concepción, the little production of indigenous crafts that was detected in shops during 2018 was mainly destined for the souvenir market, which had negatively influenced the identity and symbolism of the artisan objects. The productive capacity is limited and dispersed, and the whole process requires technological and equipment improvement. Anthropological studies carried out by the Government of the department of Concepción, have determined that these realities have to be faced to rescue and preserve this cultural heritage, with a view to maintaining an identity and as an income-generating mechanism for indigenous conglomerates (Secretariat of Indigenous Affairs, Government of the Department of Concepción, 2018).

Traditional medicine activities are a constitutive element of the identity of indigenous communities, as it is linked, on the one hand, to the relation between health and disease and, on the other hand, to their worldview and magical, religious and empirical knowledge. For the practice of traditional medicine, indigenous people collect medicinal plants from their environment, known as pohã ñana, and perform prayers, songs and dances. In most cases tobacco is used as a primary plant for healing rituals carried out by spiritual leaders.

For some communities, especially those that are far from urban centers, traditional medicine is, in many cases, the only health system available to the population. Due to the indigenous cultural diversity, it is not possible to speak of "one" traditional medicine, but rather of the coexistence of various forms of expression of traditional medical knowledge.

The school and the health systems that do not incorporate this knowledge are seriously undermining the reserve of knowledge that these indigenous cultures have managed to

accumulate through millenary experience. One of the most significant aspects of this ancestral knowledge is the use of therapeutic songs and medicinal plants, the latter deeply welcomed in the predominant culture of the country. Some of the diseases and conditions in which the natives often use pohã ñana are ulcers, kidney, fractures, liver, stomach pain, flu, appendix, headache, diarrhea and childbirth (Secretariat of Indigenous Affairs, Government of the Department of Concepción, 2018).

The organizational structure is oriented towards articulation with the outside world. Its decision-making methodology continues to be based on meetings in which dialogue and participation of all members of the community are promoted.

Political power rests with the figure of the leader who is invested with legitimate power by the other members of the community, through culturally validated and shared selection processes. The leader is responsible for traveling to Asunción to achieve recognition from the INDI.

Indigenous communities usually establish a series of rules and principles that regulate the behavior of those who occupy positions of power within the group. The leaders recognized by the assembly are responsible for monitoring and regulating community life, fulfilling the function of conciliating conflicts between members and being a bridge of communication with the outside world, in most cases with public institutions, organizations of civil society and private organizations.

In indigenous communities, there may be more than one leader, those who are chosen to contribute to the work that the previous leader is already doing or because the community is going through a period of conflict between family clans that prefer to mobilize the community in different development paths. Sometimes you can find family groups that promote modernization and change and other groups that advocate a return to ancestral traditions and customs.

The figure of the leader is subject to a process of significance given by community members and external interest groups. On occasions, some interest groups approach the community with the intention of interacting with the “leaders”, believing that this will guarantee a good relationship with the total group of people who live in the community, however, this is not correct. Because the political system of the communities is not necessarily based on representations, but only on the distribution of community responsibilities.

The leader also has the responsibility of being the link between the community and supra-community organizations, which are those organizations that bring together more than one indigenous community with common development interests and that are grouped with the aim of influencing local and national policies and to ensure respect for the rights of indigenous peoples.

6.2.5.6 Indigenous ethnic groups identified within the DIA

Within the DIA, the presence of indigenous communities from the Paĩ Tavyterã and Mbya Guaraní ethnic groups, and a multicultural indigenous community made up of indigenous people of different ethnicities, mainly from the Maskoy language, has been specifically detected.

The Paĩ Tavyterã traditionally lived around the hills of the Amambay mountain range and the political border between Brazil and Paraguay. They were hunters, fishermen, gatherers and practiced agriculture. Their Tekoha Guasú even today are closely related

to several of these sacred hills, the most important being Jasuka Venda, center of the universe, according to the Paĩ.

There are around 70 communities and family nuclei that make up a total population of 15,097 people distributed mainly in the department of Amambay, where 77% of the population is located. The rest is distributed in Concepción, San Pedro and Canindeyú (DGEEC, 2013).

The Mbya Guaraní, occupy an extensive territory from north to south in the Eastern Region of Paraguay, being one of the indigenous peoples with the highest population proportion compared to the rest. They are strategically located at the headwaters of the main rivers, such as Paraguay and Paraná, taking advantage of the topography as a natural defense. This is another of the indigenous peoples in cross-border Paraguay, located in the departments of San Pedro, Concepción, Canindeyú, Caaguazú, Alto Paraná, Guairá, Caazapá and Itapúa. The total population in the country is around 21,422 inhabitants, being proportionally the majority, their communities extending over more departments than the rest of the country's indigenous peoples (DGEEC 2013).

The multiculturalism of the urban indigenous community Redención is especially atypical compared to the rest of the indigenous communities in the country. In the indigenous community of Redención an exceptional phenomenon of multiculturalism is identified. Most of the member families of this community descend from indigenous people who were forced to migrate from the Chaco to the Concepción area in the 19th and 20th centuries, due to the extractive and livestock expansion, being regrouped in urban areas. The Redención community is made up of descendants of indigenous ethnic groups from the Maskoy linguistic family: Toba, Maskoy, Enlhelt norte, Enxet surm, Sanapaná and Angaité, and to a lesser extent some Paĩ tavyterã families.

6.2.5.7 Characterization of Indigenous Communities in the DIA

The detailed characterization of each indigenous community inside the DIA can be seen on document “Indigenous Component Study – 2nd phase”, in **ANNEX I**.

The social impact assessment of the indigenous component followed the principles applied in the Environmental and Social Impact Assessment (EIAS) of PARACEL, the IFC performance standards, the Equator Principles and good local and international practices related to unrestricted respect for the rights of indigenous peoples.

The project identified the following indigenous communities: Redención, Jeguahaty, Vy'a Renda, Takuarendyju, Takuarita, Sati - Pai Renda Chiru Poty, Guyra Ñe'engatu Amba, Mberyvo Jeguarymi, Yvyty Rovi Cerro Poi and Apyka Jegua.

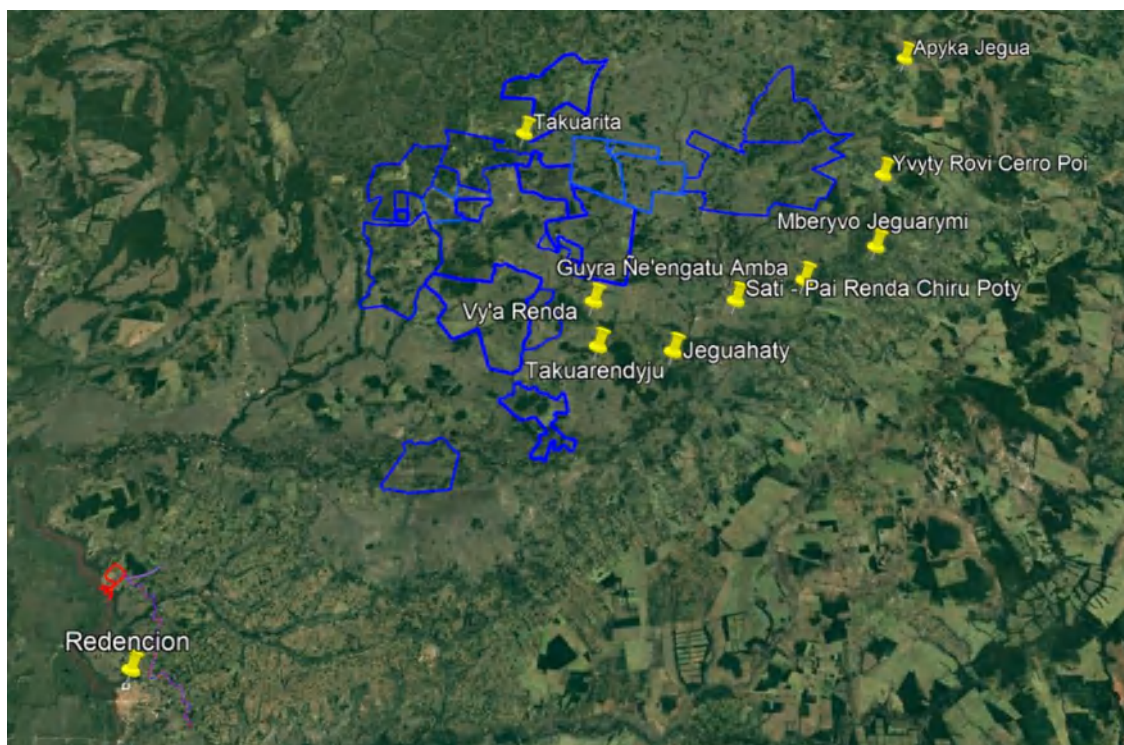


Figure 25 – Location of the indigenous communities and PARACEL project (pulp mill in red and eucalyptus plantation farms in blue).

The main impacts from this project, that applies to the specific IP groups, are related at the table below, highlighting that not all groups suffer the impacts with the same intensity due to longer distance, specific cultural aspects, etc.

Table 85 – Impacts from this project related to IP groups

Impact	Affected IP group
Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers	Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Improvement of the routes for the realization of customs, such as, for example, leisure walks	▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita
Increase in purchasing power to improve homes in accordance with their welfare standards	▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Greater access to public services	Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita.
Increase in the degree of well-being or wealth	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.

Impact	Affected IP group
Improvement of conditions for food security	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out	▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita.
Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains	▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Strengthening the role of the leader within the community	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Increase in indigenous people hired with permanent or long-term jobs (> 1 year)	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua
Increase in indigenous people hired with temporary or short-term jobs (> 1 year)	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Expansion of sources of income generation in the department.	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua
Improvement of the occupational health and safety conditions of hired indigenous people	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Reduction of work in exploitative conditions	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua
Opportunity to participate in labor associations and unions	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Access to financial services and banking	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra

Impact	Affected IP group
	Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Increased opportunities for professional training	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua
Increased risk of disease, including STDs	▪ Redención. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita
Increase in the flow of people and the probability of suffering crimes	▪ Redención. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita.
Increased risk of man-made disasters due to waste management	▪ Redención. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita.
Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents	▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita.
Strengthening the role of women in the social structure thanks to education and work	▪ Redención. ▪ Jeguahaty. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita. ▪ Sati. ▪ Guyra Ñe'engatu Amba. ▪ Mberyvo. ▪ Yvyty Rovi. ▪ Apyka Jegua.
Immigration of relatives to the indigenous community from other communities of the same ethnic group	Redención. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita.
Increase in the flow of people from outside the communities	▪ Redención. ▪ Sati. ▪ Jeguahaty. ▪ Guyrá Ñe'engatu Amba. ▪ Mberyvo. ▪ Vy'a Renda. ▪ Takuarendyju. ▪ Takuarita.

6.2.5.8 Indigenous Peoples Plan

The baseline is the main tool for the evaluation and analysis of the impacts that will occur in the indigenous communities related to the PARACEL project, serving as a starting point for the development of the Indigenous Peoples Plan, as well as to guide the development of strategies and programs focused primarily on avoiding, minimizing, mitigating and compensating the identified socio-environmental impacts.

The strategies, programs and actions resulting from this plan are especially relevant for the indigenous communities identified because there are vulnerable groups that are highly dependent on some type of assistance to enhance their development.

The dialogue and work activities done in partnership with the indigenous communities should always seek horizontal relationships, emphasizing the strengths and all kind of

resources that families have, in order to contribute to the improvement of their living conditions and increase their level of well-being.

The purpose of the programs presented below is to avoid, prevent, mitigate or compensate for negative impacts and enhance positive impacts.

The Indigenous Peoples Plan (PPI) is linked to PARACEL's Social Management Plan and Environmental Management Plan; this plan is designed for the 10 indigenous communities analyzed in this study, one of them located in the urban area in the district of Concepción and the homonymous city called Redención and 9 rural indigenous communities distributed in the departments of Concepción and Amambay, called Jeguahaty, Vy'a Renda, Takuarendyju, Takuarita, Sati, Guyra Ñe'engatu Amba, Mberyvo, Yvyty Rovi and Apyka Jegua.

The objectives of the PPI are:

- Ensure full respect for the rights of indigenous peoples and carry out activities established by current legislation and international regulations.
- Establish a participatory, healthy and predictable relationship framework with indigenous communities.
- Strengthen support for indigenous communities with the project.
- Promote local and community development.
- Influence PARACEL's stakeholders for the improvement of the relationship practices with indigenous communities.
- Generate a successful experience of social management with indigenous communities in the country in order to inspire future work related to local and foreign investment projects of similar characteristics.

The selection of these communities within the DIA was made under the following criteria:

Location of the PARACEL project; Distance from PARACEL undertakings; Watercourses of the Aquidabán Basin; Common access roads between the communities and the undertakings; Protected wilderness areas (PWA) bordering PARACEL properties; Social indicators; and Traditions and customs.

The DIA is in accordance with Paraguay's current legal framework, the international regulations ratified by the Paraguayan government and the frameworks that guide this report, using as guidelines the Equator Principles, the IFC Performance Standards and the World Bank's Operational Policy for Indigenous Peoples. Likewise, all the design, execution and evaluation of the activities contemplated in this program or that may result as a product of some of the strategies presented here, must be framed strictly within the respect for the self-determination model of each community.

The implementation of the PPI is the responsibility of PARACEL's Communication and Social Sustainability Management, which should work towards the commitment and cooperation of other areas of the company that are linked to the indigenous issues analyzed in this report. The PPI must be integrated into the other management plans of the company and also incorporated into the PARACEL Socio-Environmental System.

Collaboration with other company departments and stakeholders is essential for the success of this plan. To this purpose, it is recommended that no effort be spared to achieve a clear understanding and awareness of the importance of working responsibly, systematically and permanently on the programs and actions described in this PPI,

essentially in those areas and groups in which their actions may directly affect the respect for the rights of indigenous peoples.

Throughout the implementation process of the PPI and in accordance with Decree No. 1039/18, PARACEL is responsible for maintaining fluid, clear and complete communication with indigenous communities about actions involving their physical integrity, cultural identity, use of ecosystem services, livelihoods, heritage, territories and any elements that are part of their traditional way of life, as well as to carry out free, prior and informed consultations, in all cases when necessary.

For the PPI, as for all other management plans, it is recommended to supervise and audit external organizations to ensure the proper and timely implementation of this plan, including documentation of the activities carried out and verification of participation with broad support from the communities.

The execution of the PPI will be the responsibility of the Socio-Environmental Committee formed to execute the Social Management Plan, who may assume responsibility for carrying out the programs and activities or may delegate their execution to external and competent organizations.

The Socio-Environmental Committee is responsible for establishing the dates, frequency of meetings, work spaces and activities, while in conversation with the indigenous communities and attending institutions, as well as representing the company before local government organizations.

Some of the stipulated measures in this PPI are mandatory to ensure full respect for the rights of indigenous peoples from the pre-construction phase of the project, so they should be implemented as soon as possible and continue throughout the life of the project; other activities should be implemented during the operation phase. As stipulated in INDI's regulations, this organization will act as supervisor and guarantor of the indigenous peoples' rights, therefore, the Socio-Environmental Committee and/or the organization in charge of implementing this plan must coordinate actions in collaboration with this government institution, especially those stipulated in the Law, such as Decree 1039/18.

The following is the PPI designed to be added to the management plans of the Industrial and Forestry components mentioned in the Social Studies and which are especially focused on rural indigenous communities. For the urban indigenous community of Redención, it is proposed (in addition to their participation in the PPI programs), to include them in the management plans designed for the Industrial Component presented in the Social Studies, because they reside in the urban area and their socio-demographic characteristics and means of subsistence are more similar to an urban vulnerable group than to a vulnerable group of a rural indigenous community, since they have practices that are typical of the predominant culture in the country. According to what was found during fieldwork, they celebrate 15th birthday parties, work informally in the city, and engage in banditry. In addition, population at risk of drug addiction, prostitution, domestic violence, among others, was found.

Table below shows the programs and measures of the PPI, including the stages of the project at which implementation should begin and the impacts that each of them is intended to mitigate or strengthen.

Table 86 – PPI programmes and measures

PROGRAMS/ MEASURES	PROJECT STAGE	RELATED IMPACTS
Social Management Program with indigenous communities of the AID	Installation and operation of the Forest Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> • Decreased poverty levels. • Increasing the flow of people outside the communities • Expanding sources of income generation in the department. • Strengthening the role of the leader within the community. • Increasing and strengthening links with local organizations. • Immigration of relatives to the indigenous community from other communities of the same ethnicity. • Right of way
Labor Inclusion Program	Installation and operation of the Forestry Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> • Modification in customs and schedules of the indigenous people hired by the project and their families, to responsibly work in the jobs assigned to them in a dependent manner for PARACEL or its suppliers. • Increase of indigenous people hired with permanent or long-term jobs (> 1 year). • Increase of indigenous people hired with temporary or short-term jobs (< 1 year). • Opportunity to participate in labor associations and trade unions. • Access to financial services and banking. • Increased opportunities for professional training. • Strengthening the role of women in the social structure through education and work. • Risk of occupational diseases related to the use of chemicals.
Good Practices and Supplier Audit Program	Installation and operation of the Forestry Component and construction and operation of the Forestry Component. Industrial.	<ul style="list-style-type: none"> • Reduction of work in exploitative conditions. • Improvement of the health and safety conditions of indigenous people under contract. • Increased traffic for light and heavy vehicles around communities and the risk of traffic accidents. • Risk of occupational diseases related to the use of chemicals..
Community Health and Safety Program	Installation and operation of the Forestry Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> • Increased risk of diseases, including STDs, and accidents. • Improved coverage and access to health services and sanitary facilities. • Increased risk of anthropic disasters from waste management. • Increased flow of people and the likelihood of crimes. • Increased traffic for light and heavy vehicles around communities and the risk of traffic accidents.
Family Production Strengthening and Value Added Generation Program	Installation and operation of the Forestry Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> • Expanding the sources of income generation in the district. • Lower poverty levels. • Improved conditions for food security. • Improved conditions for access to agricultural production inputs and commercial inclusion in value chains. • Increasing vocational training opportunities.
Women's Empowerment Program	Installation and operation of the Forestry Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> • Strengthening the role of women in the social structure through education and work. • Participation in strategies for the visibility and improvement of gender equity. • Increasing vocational training opportunities.

It is worth mentioning that the company has created a communication and follow-up committee, made up of representatives from the districts considered within the areas of influence, whose objective is to involve the population in each stage of the project and serve as a direct communication channel between PARACEL and its different stakeholders, which should be used as a communication and diffusion channel with the indigenous peoples.

As PARACEL has already developed a "Complaints, Suggestions and Consultations Management Program" and a "Dissemination and Communication Program" aimed at its stakeholders, a specific program for indigenous communities has not been recommended, but it has been recommended that an indigenous component be incorporated into both programs.

6.2.6 Vulnerability

According to the DGEEC data in relation to DIA households, it can be observed in Table 87 that more than half of these have at least one unsatisfied basic need (NBI), prevailing the district of Sargento José Félix López with the 89.4%.

Table 87 – Unsatisfied basic need (NBI)

Indicators of Unsatisfied Basic Needs (Nbi)	Concepción Department	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
Private dwellings occupied with people present	42,638	8,772	3,063	1,221	967	839	2,012
% Homes with at least one NBI	56.2	58.2	59.5	89.4	49.1	65.1	68.6
% Homes with NBI in quality of housing	19.0	18.0	21.3	24.5	19.0	22.3	17.4
% Homes with NBI in health infrastructure	29.7	31.3	33.1	82.9	21.5	28.8	40.5
% Homes with NBI in access to education	20.3	19.5	15.8	26.3	24.5	31.1	33.6
% Homes with NBI in subsistence capacity	19.8	21.0	20.7	37.5	12.5	24.2	17.5

SOURCE: STP/DGEEC: NACIONAL CENSUS OF POPULATION AND HOUSING 2012.

(**) DISTRICTS THAT HAVE BEEN AFFECTED BY THE DISMEMBERMENT OF NEW DISTRICTS AND THEREFORE THERE MAY BE DIFFERENCES WITH INFORMATION ALREADY PUBLISHED FOR THEM, SINCE THERE IS NO COINCIDENCE OF BOUNDARIES DUE TO THE RECENT DETACHMENT. (***) POSTCENSAL DISTRICT 2012.

In the Bella Vista district, according to DGEEC data on NBI , as can be seen in

Table 88, more than half of the households have at least one UBN with 64.0%

Table 88 – Houses with NBI, by Department and District

Indicators of Unsatisfied Basic Needs (NBI) (%)	Total Country	Amambay Department	District of Bella Vista
Private dwellings occupied with people present	1,232,496	27,047	2,675
% Homes with at least one NBI	43.0	48.3	64.0
% Homes with NBI in quality of housing	12.6	18.6	23.5
% Homes with NBI in health infrastructure	20.8	26.5	46.5
% Homes with NBI in access to education	15.7	25.9	32.2
% Homes with NBI in subsistence capacity	14.9	14.7	16.2

SOURCE: DGEEC: TRIPTYCH OF UNSATISFIED BASIC NEEDS (NBI) 2012. PARAGUAY IN BASE OF STP-DGEEC. NATIONAL CENSUS ABOUT POPULATION AND HOUSING 2012.

Poverty

Monetary Poverty Indicators – income distribution -results 2019

According to published data on monetary poverty indicators, in Paraguay around 1,675,000 people live in households whose per capita income is lower than the cost of a basic consumption basket, estimated for 2019.

This same source indicates that in rural areas the extreme poverty line for 2019 has a value of 243,608 guaraníes per month per person and the total poverty line is 497,049 guaraníes per month per person.

In general, the cost of the basic food basket (extreme poverty line) in 2019 increased by 1.5% compared to 2018 and the basic consumption basket (total poverty line) increased by 2%.

The official measures of total and extreme monetary poverty are obtained from two data sources; on the one hand, the information on the population's income, from the Continuous Permanent Household Survey, executed annually by the DGEEC; while the cost of the Basic Food and Consumption Baskets are obtained from the Income and Expenditure Surveys, and the values updated annually by the Consumer Price Index (IPC), prepared by the Central Bank of Paraguay (BCP).

Poverty at a departmental level

According to data from the Permanent Household Survey, 43.97% of the population of Concepción is in a situation of poverty, that is, around 107,097 people have per capita income lower than the cost of a basic consumption basket (LPT). Of these people, 15,911 (6.53%) have per capita monthly income lower than a minimum food

consumption basket, that is, they cannot cover the cost of the minimum amount of food. Amambay has a lower poverty index as can be seen in table below.

Table 89 – Total and Extreme Poverty According to Department (year 2017)

Department	Total Population ⁽¹⁾	Total Poor Population ⁽²⁾		Extreme Poor Population	
		Absolute (amount)	Relative (%)	Absolute (amount)	Relative (%)
Concepción	243,560	107,097	43.97	15,911	6.53
Amambay	164,254	25,026	15.24	5,390	3.28

SOURCE: DGEEC. HOUSING PERMANENT CENSUS 2017.

(1) DOES NOT INCLUDE NON-RETIREMENT DOMESTIC EMPLOYEES. (2) INCLUDES EXTREME AND NON-EXTREME POOR

Regarding the districts included in the DIA, as shown in the poverty map of Paraguay, the districts with the highest percentage of poverty are Sargento José Félix López, followed by Loreto and San Alfredo, and as can be seen in the following Table, the district with the lowest percentage of poverty is Concepción, the departmental capital.

Table 90 – Information About Poverty in Homes of Concepción - Poverty Map of Paraguay

Codes	Department/District	% of poor homes according to censused houses (Census 2012)
Total		21
D. Concepción		29
01	Concepción	22
02	Belén	32
03	Horqueta	32
04	Loreto	37
05	San Carlos	27
06	San Lázaro	35
07	Yvy Ya'u	27
08	Azotey	37
09	Sgto. Jose Félix López	39
10	San Alfredo	36
11	Paso Barreto	31

SOURCE: STP-POVERTY MAP OF PARAGUAY BY DISTRICT

In the case of the Bella Vista district (Amambay), it is stated that there are 19% of households living in poverty.

During the survey work in the field, the “poverty” factor was repeatedly mentioned by residents of the different areas included, this associated with problems such as:

- Lack work sources.

- Job insecurity: most of them are day laborers and receive low payment for the activities they carry out.
- Poor access to public services (health, roads, etc.).

6.2.7 Gender Context

The project plans to employ 90% of women in forest nurseries, thus contributing to reducing the existing gender gap in employment opportunities. The jobs related to the nurseries will be around 150, including more than 80% of unskilled profiles that will be trained by the project. In this sense, it is expected that most of the jobs may be held by local women, considering that the technical/professional qualification of labor in the area is low, with the additional advantage that the nurseries operate throughout the cycle of the project.

In the DIA districts, women make up an average of 47.97% of the population. As for the Bella Vista Norte district of the Amambay department, also part of the DIA, 49.44% of the population are women. According to the data collected in the field in the localities of these districts close to/neighboring the forest plantations (with emphasis on Paso Barreto, Loreto and Jhuguá Guazú). Women are mainly engaged in household chores, the farm, handicrafts, the raising of small animals, the sale of dairy products and their derivatives, trade, decoration, rentals, gastronomy, hairdressing, dressmaking, among other activities and/or they migrate in search of job opportunities, both to Asunción and its metropolitan area; the departmental capitals of the IIA as well as abroad. Regarding training aimed at productive employment for women, the lack of opportunities was mentioned. It was also mentioned that unequal practices still persist, assigning women to household tasks and to men productive tasks that generate income.

In this context of lack of opportunities for women, the project's human resources policy will contribute to offering employment opportunities that currently do not exist in the DIA, from which women from the IIA or other areas of the country could also benefit.

6.2.8 Governance, Security, and Human Rights

According to HSE Guidelines, PARACEL is committed to developing its activity in a safe, environmentally correct and socially responsible manner, generating value and creating opportunities for society and the country. Human rights is embedded in one of the guiding principles: “Equal opportunities and promotion of non-discrimination based on gender, religion, ethnicity, race, sexual orientation, social status or any other, within the framework of full respect for human rights.”, and in one of the pillars on which the company's values are structured: “Sustainability, create value by protecting the environment, people and their culture. At PARACEL, sustainability is a fundamental value since it encompasses all the axes of corporate social responsibility, such as: institutional governance, human rights, fair operating practices, labor practices, consumers, the environment and the community.”

Code of Ethics guides the actions of PARACEL and its stakeholders through declarations of principles and values, moral and ethical foundations of a universal nature, in order to establish relationships based on trust, transparency and mutual benefit. PARACEL support the principles of the United Nations Global Compact, basing our fundamental values on respect for human rights, labor rights, the environment and the fight against corruption. Human Rights is one of the Ethical Principles: “The directors and employees of Paracel must treat all people with respect

and dignity, promoting diversity, promoting equal opportunities for all and an ethical culture in accordance with the conventions and recommendations of the International Labor Organization (ILO). Paracel wants and expects the same conduct on the part of the stakeholders with which Paracel has relationships.” In addition, Directors and employees must ensure that Paracel does not use illegal child labor in its operations. The minimum age for work is determined by national legislation. Young people under the age of 18 should not be employed to perform any work that, by its nature or the circumstances in which it is performed, may harm their physical, mental or moral health, school performance, safety or spirit, or that must be performed underground or under water. Also, Directors and employees will refrain from violating human rights. They should not incur or benefit from the use of forced or compulsory labor. All employment is voluntary (under an employment contract) and employees are free to terminate their hiring or leave their job in accordance with the law.

Human Rights topic is also embedded in the Social Management Program, Communication Plan, Stakeholder Engagement Plan, Internal Management Program for Land Affection and risks by External Agents, Awareness and Follow-Up Program for Contractors and Workers Regarding Compliance with Regulations, Corporate Security Management Manual, Supplier Code of Conduct and PARACEL’s policies (Recruitment and Selection, Equal Opportunity and Non-Discrimination and Linkage with Indigenous Peoples).

The project properties will have their own security personnel, which is common in private enterprises. In this sense, the need for the project to have the support of the public police/security service is reduced. However, as it is a sensitive aspect that could involve the violation of human rights, the project will observe, as a minimum, IFC PS 4 on “Community Health and Safety”, regarding the safeguarding of personnel and properties; on the one hand, and the minimization of security risks for the surrounding communities.

The corporate security mission consists in guaranteeing that all the people of Paracel and those that work for Paracel in its installations are taken care and protected in a safe environment. Likewise, it guarantees the security of all the installations and allows that all Paracel’s operations carry out freely. It provides effective operative support in the area of security to all the activities of the project.

Paracel’s security personnel will carry out its mission from the principle that the good security and the respect by the human rights are totally compatible, which will reflect, among other things, in the behavior of the security forces, the communications and the use of force.

The Corporate Security Management Manual of PARACEL is part of the Health, Safety, Environment and Social Management System Manual, as well as the training they will receive to do security with the appropriate and available equipment will be detailed later.

6.2.9 Health

In Concepción and San Pedro, in 2018, a little more than 50% of women showed up for a medical consultation, while the average drops to 46.5% in Amambay. With respect to men, the averages remain below 50% in the three IIA departments, with the lowest average being in Amambay and the highest in San Pedro.

According to data from the DGEEC, only a small proportion of the population of the department of Concepción has medical insurance, either private or from the IPS. Thus, although the records indicate a slight increase to 16.52% of coverage in 2015, in the last years for which data are available, the trend remains below 15% of the population.

6.2.10 Education and Literacy

The school-age population of the department of Concepción that attends an educational center represented 97.18% in 2017, with a gradual increase both in percentage terms and in average years of studies.

With reference to the department of San Pedro, a situation with similar characteristics is presented: 88,204 people of school age attended educational centers in 2017; which represents 97.33% of the school population.

In Amambay, although the absolute number of students attending an educational center is much lower (31,889 in 2017), the trend in percentage terms is maintained (97.48%) and the average number of years of studies increases to 8.48 (DGEEC, EPH 2017).

6.2.11 Economy and Livelihoods

Through the data provided by the STP/DGEEC, it can be observed that the total employed population in the department of Concepción corresponds to 89,881 people, this constitutes 39.67% of the total population of the department of Concepción.

Likewise, in the department of Concepción the Tertiary sector predominates with 42.2%. However, in the districts of the sector linked to the DIA, the primary sector predominates (agriculture, livestock, hunting and fishing); then the tertiary sector (groups electricity, gas and water, commerce, restaurants and hotels, transportation, storage and communications, finance, insurance, real estate, community, social and personal services; and not informed) and finally the secondary sector (industries manufacturing, construction, mines and quarries).

Table 91 – Population by Economic Sector in the DIA

Economic Sector of the working population	Concepción Department	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
Total population(*)	226,585	6,029	16,817	6,610	4,800	4,085	11,540
% Primary	40.9	53.5	66.1	72.9	48.9	57.6	80.3
% Secondary	15.7	11.3	8.0	9.8	30.1	17.0	4.0
% Tertiary	42.2	34.7	25.1	16.3	18.9	23.9	15.5
% Not reported	1.2	0.6	0.8	0.9	2.1	1.5	0.3

SOURCE: STP/DGEEC: NATIONAL CENSUS OF POPULATION AND HOUSING 2012.

In the Bella Vista Norte district, according to data from the 2011 National Economic Census, the employed population linked to industry, commerce and service activities

corresponds to 666 people, as can be seen in Table 92. Magnitude of socioeconomic activity in the Bella Vista district. Year 2011. In this, the predominance of the commerce sector can be seen, followed by the services sector and finally the industrial sector.

Table 92 – Magnitude of Socioeconomic Activity in the Bella Vista District. Year 2011

Department, district, and sector	Economic Units	Working Staff		
		Total	Man	Woman
Amambay	6,249	18,502	11,071	7,431
Bella Vista	292	666	383	283
Industria	20	55	45	10
Comercio	197	439	241	198
Servicios	75	172	97	75

SOURCE: ELABORATION BASED ON NATIONAL ECONOMIC CENSUS 2011.

Main economic activities

Among the main economic activities referred to by the people consulted, the following were mentioned:

- Small-scale agriculture and livestock, mainly for self-consumption and sale as needed.
- Breeding and sale of small animals and products such as cheese, milk, eggs.
- In the case of Paso Barreto, Puentesíño and Calle 15, they mentioned the production and sale of coal.
- In the Paso Barreto area, the number of family gardens for consumption increased, as well as the sale of fast food (minutes) and more elaborate as an economic alternative due to the Covid-19 pandemic.
- There is also a significant number of farms in the area that are mainly dedicated to large-scale livestock production.

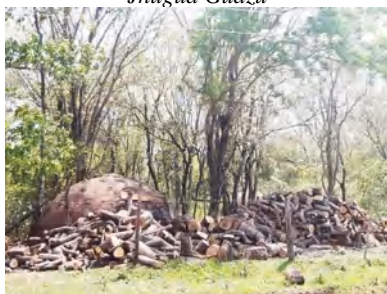
A large number of the population is dedicated to making trades per day ("per day" or "for treatment"); performing work in the rooms, cleaning and wiring the land; others are engaged in tasks such as bricklayers, plumbers, or chainsaw operators. This type of activity in any of its manifestations has the particularity of being a form of informal employment that is not carried out permanently. As referenced, depending on the area and the activity they carry out, they receive between fifteen and one hundred thousand guaraníes daily.



*Agricultural Production -Livestock Company
Jhugua Guazú*



Paso Barreto Snack



Coil Production



Ranch – Isla Hermosa

Figure 26 – Photographs of Registry of Economic Activities

SOURCE: PICTURE REGISTRY OF FIELD WORK. CONSULTANT TEAM. CONCEPCIÓN. AUGUST-SEPTEMBER 2020

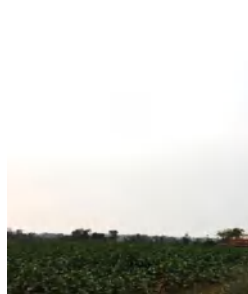
The people who are dedicated to working in the ranches, both in the Chaco and in the area, are to a lesser extent permanent employee (“monthly”) who work as managers or “laborers”. Generally, the work by treatment predominates, in which a person agrees with the managers of the companies or stays to carry out a series of jobs for a period of time and a salary proportional to the activity that is requested. They, in turn, subcontract other people so that they can fulfill the agreed work.



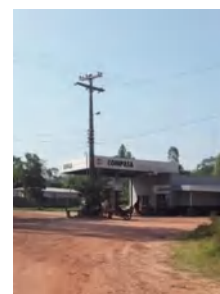
Carpentry- Puentesño



Sawmill- Paso Barreto



*Tobacco Company
Virgen del Camino*



*Service Station Col.
Jorge Sebastián
Miranda*

Figure 27 – Photographs of Registry of Economic Activities

SOURCE: PICTURE REGISTRY OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN. AUGUST-SEPTEMBER 2020.

As a commercial and service activity, you can see pantries, small fuel supply centers or service stations, motorcycle workshops, snack bars, dining rooms, carpentry shops, sawmills, hairdressers, mainly mini-cargo services.

In some areas, people are dedicated to fishing such as Paso Mbutú, Paso Barreto and Ilería. They carry out this activity both for consumption and for sale, and as mentioned they are organized into committees to receive subsidies during the closed season.

Another characteristic activity of communities such as Isla Hermosa, Domínguez Nigó, Anderí and Paso Mbutú is the manufacture and sale of hats made up of Karanda’y. It is a tradition that persists as a source of income for families. The production is carried out

individually, by association between people or working for a "boss"; person who buys and resells the products purchased in other areas such as Pedro Juan Caballero and cities in Brazil.

Some people are employees of health, education or other public institutions existing in the area, in companies such as tobacco companies or refrigerators.



Paso Mbutu



Isla Hermosa

Figure 28 – Photographs of Registry of Economic Activities

SOURCE: PICTURE REGISTRY OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN. AUGUST-SEPTEMBER 2020.

Employment situation

In the department of Concepción, as mentioned in the report on social researches of the industrial component, there is a Working Age Population (PET) of 186,627 people (53.53% are women), of which 58.33% are Economically Active (108,860 people, of which 41.33% are women). The Activity Rate of the department is 58.33%, a figure lower than the national activity rate (63.09%). For women, an activity rate of 45.04% was registered while for men this figure reached 73.64%, in line with the rates registered at the national level of 50.91% and 75.24% respectively, and in Amambay it reached 64.03% (54.07% for women and 74.55% for men).

The report also states that, in 2017, the open unemployment rate in Concepción was 6.66% and that of Amambay was 5.48%. In other words, some 7,247 people from Concepción and another 4,490 from Amambay were unemployed. The country's unemployment rate was 5.20%, a figure lower than any of those mentioned.

In the field interventions, during the different spaces generated with the population, it was commented that the majority of women are housewives, they work on the activities of the farm and small livestock raising, selling cheese, making sweets from peanut or Karanda'y hat production.

Likewise, it was highlighted that peasant family production, for many, ceased to be profitable because they do not have safe markets or fair sale prices for its sustainability; therefore, most of them produce mainly for consumption and sale in some cases as needed.

As already mentioned, people work; also, in estancias in the Chaco and nearby areas. A percentage of that population is absorbed by the tobacco company located between the community of Virgen del Camino and Huguá Po'i de Loreto. However, to a greater extent, they are people who make a living from wage-earning jobs, which are carried out occasionally and sporadically; and in turn a large sum of cases is not well paid. This reinforces the existing precarious labor conditions. A smaller proportion is employed in

the public function, mainly in the education and health sector, which are the key reference institutions that exist in the community.

6.2.12 Land Ownership and Use

The primary sector in the department of Concepción occupies 40.9% of the PEA out of a total employed population of 226,585, according to data provided by the DGEEC within the framework of this study and based on the 2012 National Population and Housing Census (and updates). In other words, this percentage of the population is engaged in productive activities such as agriculture, livestock, fishing and hunting. Likewise, as can be seen in Table 93, 15.7% of the employed population carries out activities related to the secondary sector and, to a greater extent, 42.2% to the tertiary sector

Table 93 – Data on the employed population by economic sector in the department of Concepción

Population Data	Percentage (%)
Total Population(*)	226,585
Economic sector of the employed population(a)	
Primary	40.9
Secondary	15.7
Tertiary	42.2
Not reported	1.2

SOURCE: STP/DGEEC. NATIONAL CENSUS ABOUT POPULATION AND HOUSING, 2012 AND UPDATES

As for the department of Amambay, according to data from the Permanent Household Survey 2017, 11.27% of the PEA is devoted to productive activities linked to the primary sector, out of a total employed population of 77,418 people.

Along the same lines, other sources were consulted such as municipal development plans and local health plans, sources that have this type of information at the local level; and in which reference is made to productive activities of the primary sector, linked to the use of land in each district of the DIA, these are presented below:

Table 94 – Productive Activities by District

District	Productive Activity
Horqueta	Agriculture, specifically farming of cotton, spurge, beans, cassava, corn, seasonal fruits, yerba mate processors, stevia, forestry, and livestock. It has industries that are devoted to the production of agricultural products, oil and cotton gin, bakeries, ice cream parlors, carpentry shops, tanneries, printers, sawmills, tiles and leather crafts. There are also shops in the area.
Loreto	Agriculture for self-consumption and sale, livestock, poultry, pigs, goats and cattle. Characterized by the production of sesame, watermelon, melon, cassava, vegetables, etc. On a smaller scale, services and commerce activities are observed.
Arroyito	Agriculture (family farming), horticulture, items such as cotton, spurge, corn, cassava, sugar cane, tupi corn, watermelon, beans, are some of the main areas of self-consumption and income in the area. It has small raw material processors, milk and yogurt producer and distributor, bakery, carpentry, clothing. There is business development on the rise.

District	Productive Activity
Paso Barreto	Wetland area, low fertility soil for large-scale agriculture (agricultural and horticultural production only for self-consumption), and important livestock activity in large areas. The inhabitants are small ranchers or farm laborers. They are also engaged in general commerce in urban areas and in the wood industry.
Sargento José Félix López	Inhabitants are dedicated to livestock, forestry and agriculture for self-consumption, these activities are also related to the work in the estancias of the district and the sawyers in that area.
San Alfredo	The settlers work in the activities of exploitation of wood, livestock, agriculture. The riparian settlers such as Itakua, Guyrati, Itapukumi live from hunting, fishing, mining and liming.

SOURCE: ELABORATION BASED ON MUNICIPAL DEVELOPMENT PLANS AND HEALTH LOCAL PLANS

In the case of Amambay, in the municipal development plan of the Bella Vista district it is mentioned that there is agricultural and livestock production; however, its border trade stands out above all because it is opposite the Brazilian city of the same name (Bela Vista). In relation to livestock production, they have cattle, horses, sheep and goats, in much of the area.

Land according to use

Considering information provided by MAG, it can be stated that in the districts of Concepción that make up the project's DIA, there are 10,623 agricultural farms; 9,742 are farms with temporary and permanent crops; 9,546 farms with other uses; and 5,946 farms with natural and cultivated pasture. To a lesser extent, the existence of fallow farms was identified, and farms with natural forests and planted forest trees, as can be seen in the following Table.

Table 95 – Land According to its Usage in Number of Farms DIA Districts, Department of Concepción

Districts of the DIA of Concepción	Total, agricultural farm	Land Usage				
		Farms with temporary and permanent crops	Farms with natural and cultivate pasture	Farms with natural mountains, planted forest trees	Farms with fallow, resting (Cocuere)	Farms with other uses (occupied by the house, rocky areas, estuary)
Sgto. J.F. López	771	750	599	590	374	752
San Alfredo	309	248	230	143	101	303
Paso Barreto	406	183	256	186	135	384

Districts of the DIA of Concepción	Total, agricultural farm	Land Usage				
		Farms with temporary and permanent crops	Farms with natural and cultivate pasture	Farms with natural mountains, planted forest trees	Farms with fallow, resting (Cocuere)	Farms with other uses (occupied by the house, rocky areas, estuary)
Arroyito	1,770	1,683	975	643	976	1,645
Horqueta	5,305	4,971	2,843	2,190	2,531	4,670
Loreto	2,062	1,907	1,043	665	1,011	1,792
Total	10,623	9,742	5,946	4,417	5,128	9,546

Horqueta is the district that stands out for the largest number of agricultural farms, having 93% with temporary and permanent crops. This average is maintained in almost all the districts, except in San Alfredo (80%) and Paso Barreto where it only reaches 45%. The district with the highest percentage of natural forests and planted forest trees is the district of Sgto. José Félix López with 76%. The district with the fewest forest plantations is Loreto, with only 32% of the farms with natural forests or planted forest trees.

Table 96 – Land according to its use in number of farms in the Bella Vista district

District	Number of farms with lands	Farms with temporary and permanent crops	Farms with natural and cultivate pasture	Farms with natural mountains, planted forest trees	Farms with fallow, resting	Farms with lands destined for other uses
Bella Vista	516	243	483	357	177	198

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008. OWN ELABORATION.

In the Bella Vista district, according to the National Agricultural Census (2008) out of 516 farms, 483 contain pasture, 357 natural and forest mountains, 243 temporary and permanent crops and vegetables, 198 lands destined to other uses and 177 to fallow and in rest.

It also presents the detail of the surface (in hectares) of the farms according to the use of the land, in the DIA districts of the department of Concepción.

Table 97 – Area of Farms According to Land Use by DIA Districts

Districts	Total area of agricultural farms	Land Usage				
		Farms with temporary and permanent crops	Farms with natural and cultivate pasture	Farms with natural mountains, planted forest trees	Farms with fallow, resting (Cocuere)	Farms with other uses (occupied by the house, rocky areas, estuary)
Sgto. J.F. López	105,709	2,144	74,188	25,259	2,849	1,268
San Alfredo	296,078	1,203	220,499	51,486	5,987	16,902
Paso Barreto	284,480	250	248,486	33,364	411	1,970
Arroyito	65,340	9,199	45,082	6,267	3,205	1,587
Horqueta	130,388	31,885	70,521	15,416	7,776	4,789
Loreto	41,560	6,656	25,193	4,605	2,756	2,350
Total (Ha)	923,727	51,337	683,969	213,142	22,984	28,866

SOURCE: DCEA-MAG BASED ON AGRICULTURAL CENSUS 2008 AND UPDATES. OWN ELABORATION (SEPTEMBER 2020)

It can be noticed that there is a high number of hectares destined for natural and cultivated pasture, followed by farms with natural forests and planted forest trees and in fewer hectares, farms with temporary and permanent crops, farms with other uses and farms with fallow.

Forest plantations

Among the documentation provided by the National Forest Institute (INFONA) within the framework of this report, there are figures (included in maps) regarding existing Forest Plantation Areas in the districts of the department of Concepción, involved in the project's DIA; as well as production forest coverage areas and potential forest development areas, at the national and departmental level.

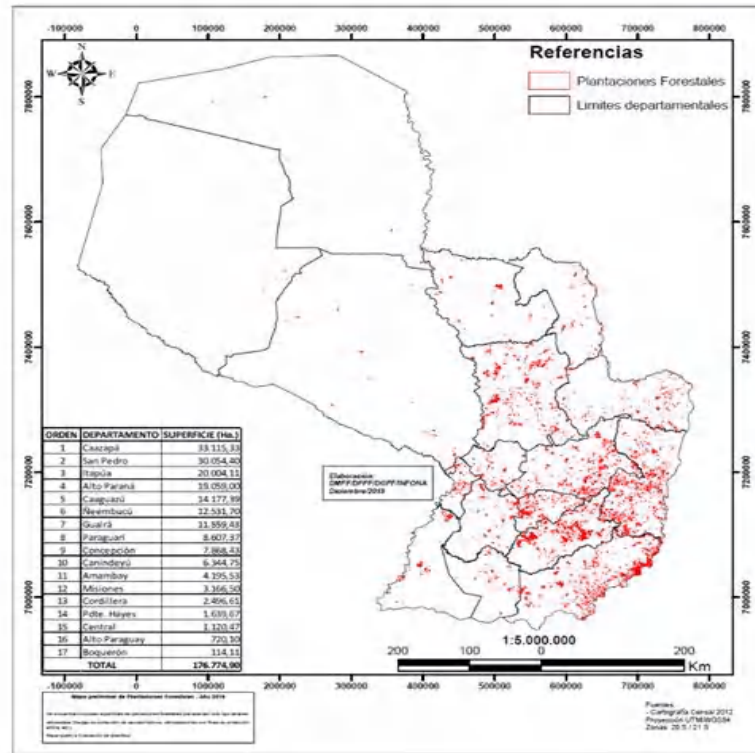


Figure 29 – Forest Plantation Areas. Year 2019

SOURCE: INFONA – GENERAL DIRECTION OF FORESTRY PLANTATIONS. 2019

This map includes areas of forest plantations that cover all types of reforested area (protection strips of water courses, reforestations for wind protection purposes, etc.). The department with the largest reforested area is Caazapá with 33,115.33 ha, constituting 18.7% of the country's total; followed by San Pedro (17%) and Itapúa (11%). The department of Concepción is in ninth place with 7,868.43 ha (4.4%) and Amambay in eleventh place with 4,195.53 ha (2.3%).

According to INFONA (2018), in terms of forest coverage for the protection of water channels, those located within a margin of 100 meters on both banks of the water channels, cover 544,185.06 ha; Canindeyú being the department with the largest area with 76,331.72 ha (14%), followed by Alto Paraná with 11%, and Amambay in third place with 9.8%. Concepción is in fifth place with 50,678.95 ha (9.3%). The detail of the water channels is presented in Figure 30. Forest coverage area for the protection of water channels. Year 2019:

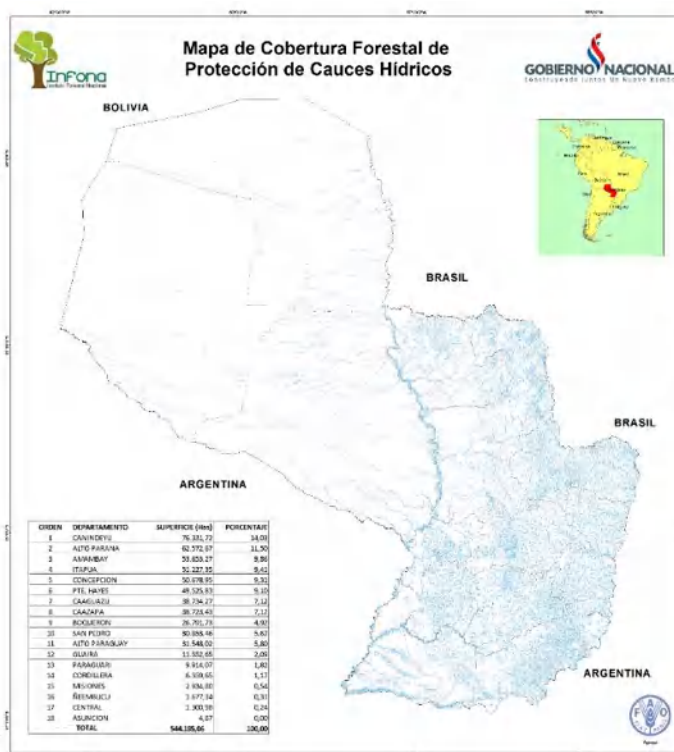


Figure 30 – Forest Coverage Area for the Protection of Water Courses. Year 2019

SOURCE: INFONA - GENERAL DIRECTION OF FORESTRY PLANTATIONS. 2019

Forest Plantation Areas

According to INFONA data regarding forest plantation areas (referring to the areas that cover all types of reforested areas such as: protection strips of water channels, reforestations for wind protection purposes, etc.), the districts with the most forest plantations in the department of Concepción are Sgt. José Félix López with 3,785.78 ha, which constitutes almost half of the total (48%) and Concepción with 3,207.04 ha, with more than 40% of the total. The two districts with the smallest area are Horqueta and Yby Yau. Lastly, the district with the least amount is San Lázaro with just 8.24 ha. According to this source, the other districts of the department do not present forest plantations.

It is important to highlight that the Arroyito district is not mentioned because it was later distributed.

Table 98 – Areas Related to Forestry Plantations

Order	District	Area (Ha)	%
1	Sgto. José Félix López	3,785.78	48.1%
2	Concepción	3,207.04	40.8%
3	Horqueta	382.75	4.9%
4	Yby Yau	382.47	4.9%
5	San Carlos del Apa	102.17	1.3%
6	San Lázaro	8.24	0.1%
7	Azotey	0.00	0.0%

Order	District	Area (Ha)	%
8	Belén	0.00	0.0%
9	Loreto	0.00	0.0%
TOTAL		7,868.45	100%

SOURCE: DGP/DFPF/DMPF. INFONA. 2020. OWN ELABORATION.

Production Potential Forest Cover Areas

Potential production forest cover zones is the denomination INFONA uses for areas with woody vegetation that could be available for use. In 2013, the total available in the country was 14,397,711.02 hectares.

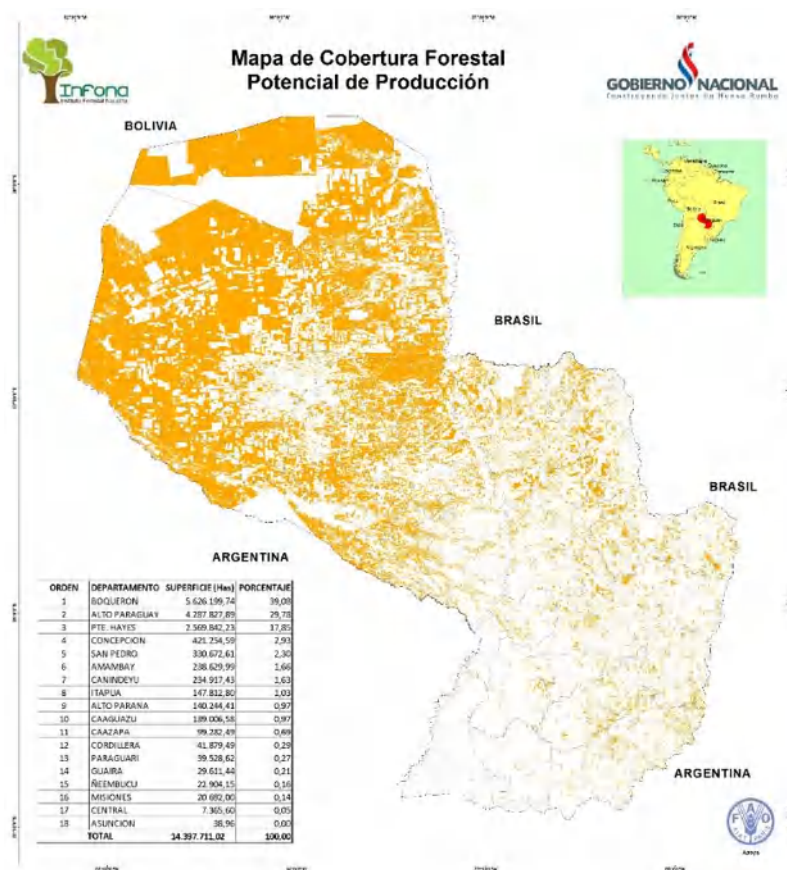


Figure 31 – Potential Production Forest Cover Areas

SOURCE: INFONA - GENERAL DIRECTION OF FORESTRY PLANTATIONS. 2019

Table 99 – Production Potential Forest Cover Areas

Department	Area (Ha)	Percentage
Concepción	421,254.59	2.93
Amambay	238,629.99	1.66
Total	659,884.58	4.59

SOURCE: INFONA, 2013. OWN ELABORATION.

According to the data provided, in Concepción there are 421,254.59 Ha, almost 3% of the national total, while in Amambay there is an area of 238,629.99 Ha (1.66%). Between both departments they add about 5% of hectares of potential production forest cover area at the time of the survey.

Potential Forest Development Areas

As indicated in the documentation provided by INFONA, the potential forest development zones are those areas available and/or suitable for the activity of forest plantations and they have been divided into three categories.

Those of category A: These are the areas obtained from the union between the 100 km areas of influence of the location of the forest industries and silos; and that they do not constitute areas of use of protective forest cover, forest plantations, native production forest cover, wetland coverage or urban area.

Category B: Are those areas whose current use is different from those named or identified and that do not constitute areas of use of forest cover, forest plantations, native production forest cover, wetland coverage, urban area, potential development zone A.

Potential development zone C: These refer to the zones obtained from the areas of extensive crops and that do not constitute areas of use of protective forest cover, forest plantations, native production forest cover, wetland coverage or urban area.

Once this classification has been made, they clarify that the areas generated include livestock production, due to not having the necessary information in this regard. The following Table presents the figures related to the potential forest development zones in each DIA department.

Table 100 – Area of Potential Forest Development Areas According to Defined Category

	Department	Category	Area (Ha)	Total Area (Ha)
Area of potential forest development	Concepción	A	1,169,100.08	1,185,973.03
		B	-	
		C	16,875.95	
	Amambay	A	808,448.53	942,623.81
		B	-	
		C	134,175.28	
Total				2,128,596.84

SOURCE: ELABORATION BASED ON INFORMATION PROVIDED BY INFONA.

As can be seen in Table 98. Area of potential forest development areas according to the defined category and in Figure 29. Areas of potential production forest cover, there are 1,185,976.03 hectares in the department of Concepción and 942,623.81 in the department of Amambay, out of a total of 20,005,725.12 ha nationwide. Considering zones A and C, this constitutes 5.9% of the total in the department of Concepción and 4.7% in Amambay.

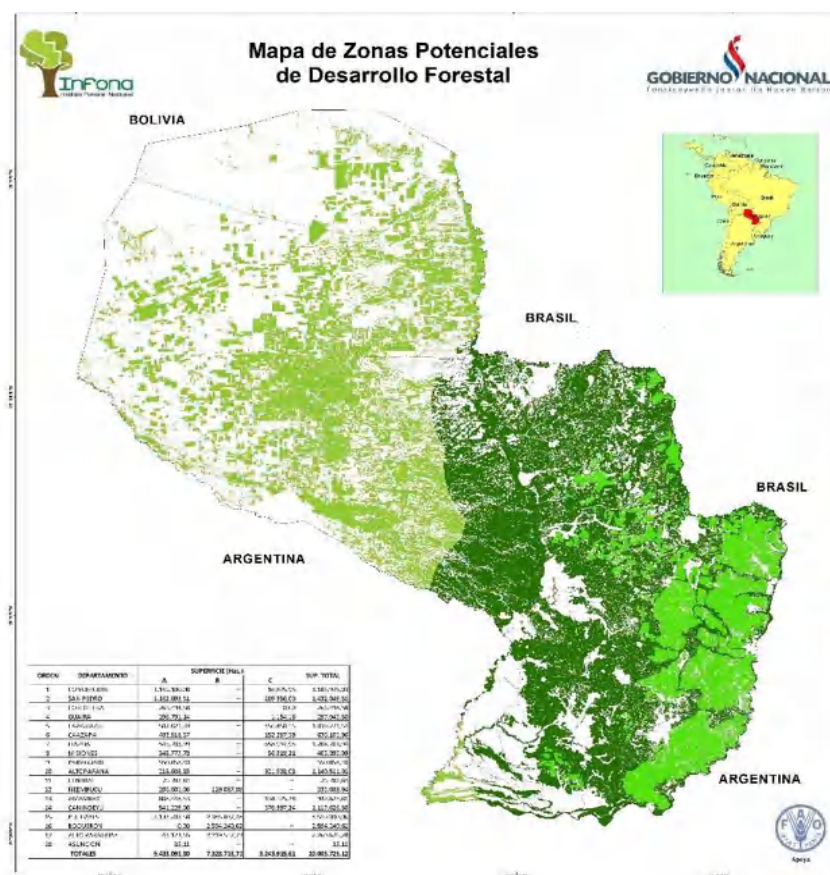


Figure 32 – Potential Forest Development Areas
 SOURCE: INFONA - GENERAL DIRECTION OF FORESTRY PLANTATIONS, 2013

Crop Types

Regarding the types of crops, as indicated in a consultation source, from an analysis carried out of the report of the Statistical Synthesis of Agricultural Production 2017-2018 prepared by the Ministry of Agriculture and Livestock (MAG), it can be stated that the hectares used to the cultivation of soybeans in Concepción total 40,355 hectares. Corn for fuel occupies 8,222 ha, and sugar cane 321 ha. and rice 51 ha. Peasant family agriculture covers 21,443 ha., of which about 11,000 ha were destined to the cultivation of manioc.

After 17 years, between 1991 and 2008, the period from the penultimate to the last agricultural census of Paraguay, the geographic space used by agriculture has increased by more than 11 thousand hectares in the department of Concepción, which shows an expansion of the productive sector. A more detailed analysis allows to appreciate; however, the activity that has advanced is mechanized agriculture while the traditional smallholding area of peasant families has been reduced. From approximately 60 thousand, the agricultural coverage in Concepción rises to more than 70 thousand hectares in the indicated time.

Peasant Family Farming

Regarding peasant family agriculture, a reduction of -33% is observed in the area dedicated to this sector in the country (166,347 ha) from 2002 to 2017. In the department of Concepción -12%; and in Amambay -28%. And in greater proportion the difference existing in this period of time in relation to horticulture in Concepción this retraction represented -68% and in Amambay -72; which also denotes the change of category in

these areas and from what is mentioned in the reference material, to the small horticultural producer, who due to low profitability ends up selling, parceling out or transferring their land to agribusiness .

Analyzing Family Farming (AF) data, also addressed by the CAN, a marked decrease in the number of family farming farms and an increase in Medium and Large Producers (MGP) farms has been found; which indicates an intensification of the land concentration. This dynamic of decrease in AF compared to other types of production, such as business agriculture, has direct effects on food security, considering that food production occurs to a large extent in the AF segment.

Table 101 – Families Dedicated to Family Farming and registered in the RENAF

Department	Universe	Registered	%
Concepción	16,337	14,353	88%
Amambay	3,807	2,536	67%

SOURCE: MAG. [HTTPS://ES.SLIDESHARE.NET/FAOoftheUN/REGISTRO-DE-LA-AGRICULTURA-FAMILIAR-EXPERIENCIA-MAG-RENABE-PARAGUAY](https://es.slideshare.net/FAOoftheUN/registro-de-la-agricultura-familiar-experiencia-mag-renabe-paraguay)



Figure 33 – Representative picture of the extensive agriculture

During the consultations, expressions of fear were expressed regarding the use of agrochemicals, due to the possible negative impacts that may occur in relation to the environment and the health of the population. In addition, the importance of involving producers in the different stages of the project was continuously highlighted.

Regarding this point, Law No. 6286 (May 17, 2019) was recently enacted by the national government, which through it recognizes the productive activities carried out by peasant family agriculture in order to achieve recovery and consolidation of this productive sector.

Cattle raising

In the social researches report prepared for the industrial component of the project, mention is made that livestock as the predominant activity in the area, occupies three-quarters of the territory of the department according to the publication “Concepción, demographic and socioeconomic characteristics, 2002”, occupying, at that time, 5% of the PEA. While only 4% of the total area was used in agriculture, which occupied more than 38% of the PEA. The forested area represented 17% of all land in the department, according to data from the Agricultural Survey by Sampling carried out in 2002 by the

Directorate of Agricultural Censuses and Statistics of the Ministry of Agriculture and Livestock.

This same source mentions that the territory used by livestock until 2002 was 76% for natural and implanted pastures, 17% natural or cultivated forests, and the rest temporary and permanent crops, fallow or for other uses.

Of the totality of lands occupied by livestock; the author Hugo Pereira, taking as a source the publication “Territory and Population”, states that around 100,000 hectares of the Concepción district are in the hands of Brazilian owners (54 farms); and approximately 46,000 hectares of the entire department are occupied by 8 farms.



Figure 34 – Representative Picture of the Extensive Cattle Raising

In the departments of Concepción and Amambay, in 2019 approximately 15% of the head of cattle in the country is concentrated, with the highest production in the department of Concepción. Table 102 presents the figures in this regard.

Table 102 – Existence of Cattle per Year, in Concepción and Amambay. 2015-2017-2019

Department	2015	%	2017	%	2019	%
Total Country	14,216,200	100	13,821,500	100	13,801,993	100
Concepción	1,226,100	8.6	1,158,600	8.4	1,104,572	8
Amambay	1,018,200	7.2	970,100	7	923,581	6.7
Total, Concepción / Amambay	2,244,300	15.8	2,128,700	15.4	2,028,153	14.7

SOURCE: STATISTICAL YEARBOOKS 2015/2017/2019. SENACSA. OWN ELABORATION

Another source of consultation highlights that, although there are high percentages of beef production in the areas involved in the DIA, this has not consequently meant a decrease in poverty levels that still remain high, as can be seen in Table 103.

Table 103 – Comparative Data on Poverty Levels and Their Relationship with Beef Production (livestock)

Department	Land Holders 2019	Total cattle by department	% poverty	% extreme poverty
Concepción	14.069	1.104.572	43,97	6,53

Department	Land Holders 2019	Total cattle by department	% poverty	% extreme poverty
Amambay	2.240	923.581	15,24	3,28

SOURCE: ARTICLE PUBLISHED IN BIODIVERSIDAD-LA.ORG. APRIL 2018, DATA FROM THE DGEEC-EPH 2017 AND SENACSA 2019. OWN ELABORATION.

Land Distribution

Regarding the distribution of land by districts, according to data from the 2008 Agricultural Census, Concepción is the district with the largest number of farms and area, followed by Yby Yaú and Horqueta. It is worth mentioning that the surfaces of these two districts were modified after the Census, due to landslides and the creation of new districts.

Likewise, the fact that the vast majority of farms are managed by a single producer in the four DIA districts, as well as in the entire department of Concepción, stands out. Table 104. Distribution of land by district, department of Concepción presents data in this regard.

Table 104 – Distribution of Land by District, Department of Concepción

Districts Department of Concepción	Number of farms	Total Area	Farm Management				
			Only one producer	Two or more associate producers	A company or society legally constituted	The State	Others
Concepción	4,214	924,385	4,083	61	59	2	9
Belén	1,479	16,080	1,421	57	1	-	-
Horqueta	7,075	195,727	6,870	183	17	1	4
Loreto	2,062	41,560	2,032	28	2	-	-
San Carlos del Apa	86	62,146	77	9	-	-	-
San Lázaro	219	56,161	199	19	1	-	-
Yby Yaú	2,242	323,357	2,127	74	35	1	5

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008. OWN ELABORATION

The dominance of a single producer is verified in all farm management strata, either by use of family labor or hired as day laborers.

Table 105 – Number of Farms According to use of Inputs

District	Number of farms using technical supplies	Uses hybrid seed	Uses genetically modified seed (Transgenic)	Uses agricultural lime	Uses chemical fertilizers (fertilizers)	Uses pesticides (herbicides – matayuyo)	Uses veterinary products
Sgto. J.F. López	533	94	4	2	22	430	246
San Alfredo	109	0	2	3	10	10	103
Paso Barreto	345	74	0	1	17	2	320
Arroyito	1,353	272	2	65	101	895	824
Horqueta	3,693	628	61	242	650	1,916	2,635
Loreto	1,660	712	253	225	499	825	1,060
Total	7,693	1,780	322	538	1,299	4,078	5,188

SOURCE: INFORMATION PROVIDED BY THE DCEA-MAG BASED ON THE 2008 AGRICULTURAL CENSUS AND UPDATES (SEPTEMBER 2020)

As a percentage, the district that uses the most hybrid seeds is Loreto, being the district with the most use of transgenic seeds, where it stands out above all other districts. Likewise, this is maintained in terms of the use of chemical fertilizers, although in number it is surpassed by Horqueta. Both districts have about 50% in terms of pesticide use. The district with the least use of inputs is San Alfredo.

Table 106 – Farms According to use of Inputs. Bella Vista District

Department and District	Number of farms using technical supplies	Farm Management					
		Uses hybrid seed	Uses genetically modified seed (Transgenic)	Uses agricultural lime	Uses chemical fertilizers (fertilizers)	Uses pesticides (herbicides – matayuyo)	Uses veterinary products
Amambay	3,424	1,068	293	194	409	2,046	2,090
Bella vista	401	77	4	4	3	59	348

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008

In Amambay, Bella Vista owns about 12% of the total farms in the department. Of these, less than 20% use hybrid seeds and only 1% work with genetically modified seeds. That same percentage uses agricultural lime and less than 1% uses chemical fertilizers. Around 15% use pesticides and more than 86% apply veterinary products.

Table 107 – Number of Farms According to Soil Management and Conservation-DIA Districts

Districts	Number of farms with soil management	Level Curve	Crop Rotation	Green Manure	Plots with organic production certification	Direct sowing	Others
Sgto. J.F. López	637	2	616	0	0	119	7
San Alfredo	46	3	43	0	0	1	1
Paso Barreto	122	2	113	0	0	1	8
Arroyito	964	18	921	5	86	6	100
Horqueta	3,618	53	3,099	62	45	183	483
Loreto	1,428	41	1,333	26	56	51	132
Total	6,815	119	6,125	93	187	361	731

SOURCE: INFORMATION PROVIDED BY THE DCEA-MAG BASED ON THE 2008 AGRICULTURAL CENSUS AND UPDATES (SET, 2020)

With regard to the management and conservation of soils at the district level, Horqueta, Loreto and Arroyito lead the list of use of conservation techniques; which could be linked to the work/enforceability of peasant organizations given the need for support and technical assistance in development programs and/or projects with an emphasis on said issue.

Likewise, the figures related to the management and conservation of soils in Bella Vista Norte, Amambay are presented below:

Table 108 – Management and Conservation of Soils, number of farms according to management in Department of Amambay, district of Bella Vista

Districts	Number of farms with soil management	Soil management and conservation					
		Level curve	Crop rotation	Green manure	Plots with organic production certification	Direct sowing	Others
Amambay	1,715	307	1.123	10	39	740	241
Bella vista	95	47	9	-	-	32	15

SOURCE: NATIONAL AGRICULTURAL CENSUS 2008

6.2.13 Community Infrastructure and Services

Regarding access to basic services for the Districts of Concepción linked to DIA, it can be observed in Table 21 on basic services, that access to electricity predominates with 93.1%; the Arroyito district being the one with the highest access percentage (94.6%). The second service to which the population has the most access is running water with

74.4%; being the District of San Alfredo the one with the highest percentage of access (78.7%); while 46.9% correspond to homes with improved sanitation and 22.8% to homes with garbage collection. In the districts linked to the DIA there is no access to the sewage service. However, according to information obtained; in the city of Horqueta, works are being carried out for the construction of a sanitary sewer system and a wastewater treatment plant. Likewise, in the Paso Barreto district, the construction of the canalization system and the storm drainage canal is being carried out, according to local residents.

Table 109 – Basic Services

Basic Services	Departm ent of Concepc ión	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arro yito (***)
Private dwellings occupied with people present	42,402	8,761	3,063	1,221	966	838	2,011
% Homes with electricity	93.1	93.0	91.3	73.1	92.3	85.2	94.6
% Homes with running water	74.4	72.0	72.2	59.9	78.7	70.3	58.2
% Homes with sewage drainage	6.3	-	-	-	-	-	-
% Homes with garbage collection	22.8	10.5	9.2	0.1	0.7	0.1	0.1
% Homes with improved sanitation	46.9	34.8	25.8	6.8	33.1	22.1	19.0

SOURCE: STP/DGEEC: NACIONAL CENSUS OF POPULATION AND HOUSING 2012.

(**) DISTRICTS THAT HAVE BEEN AFFECTED BY THE DISMEMBERMENT OF NEW DISTRICTS AND THEREFORE THERE MAY BE DIFFERENCES WITH INFORMATION ALREADY PUBLISHED FOR THEM, SINCE THERE IS NO COINCIDENCE OF BOUNDARIES DUE TO THE RECENT DETACHMENT. (***) POSTCENSAL DISTRICT 2012



Figure 35 – Construction of the Canalization System and the Storm Drain Channel - Paso Barreto

SOURCE: FIELD WORK. AUGUST – SEPTEMBER 2020

Also, according to district indicators from the 2012 DGEEC census, in the Bella Vista district, 78.62% of the population has access to electricity; 61.76% of the population has access to running water and 20.34% of the population has access to solid waste disposal.

From the information collected in the field regarding access to drinking water, the following is summarized:

- The communities of Puentesíño, Virgen del Camino, Huguá Po’i, Jhuguá Guazú, Paso Barreto, Isla Hermosa and Colonia Jorge Sebastián Miranda: They have a water supply network managed through SENASA.
- Virgen del Camino: It has three wells, one of them is used for irrigation and consumption of animals due to its color (red).
- Puentesíño: It has at least 10 wells managed through the Sanitation Board. The Calle 7 settlement does not have a water supply network; and it has about 47 families that are supplied by the Kora stream, which has the peculiarity of being muddy. In general, it can be said that they have water systems through SENASA, tajamares and some common wells. Those who have a water problem have cutwaters and use the streams; but they are not suitable for consumption because the water is salty, it has a lot of salt. In Norte Pyahu and Calle 3 there are areas from which water cannot be extracted, where attempts were made to excavate more than 100 meters deep.
- Huguá Po’i: Has a well through the Sanitation Board.
- Jhuguá Guazú: They have two wells built for an irrigation system for agricultural production and they also built one for community distribution managed with SENASA.
- Colonia Jorge Sebastián Miranda: It has 5 tanks that serve as supply to the community; some of which were managed through SENASA and the Government.
- Paso Barreto: It has a drinking water network organized through Sanitation Boards.
- Isla Hermosa: It has a water supply network managed through SENASA.



Water System, Center of Puentesíño



Water System, Isla Hermosa



Water System, Paso Barreto



Water System, Jhuguá Po’i



Water System, Virgen del Camino

Figure 36 – Registry Images About Water Access

SOURCE: PICTURE REGISTRY OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN. AUGUST -SEPTEMBER 2020



Figure 37 – Registry Images About Water Access

SOURCE: PICTURE REGISTRY OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN. AUGUST -SEPTEMBER 2020.

Among the communities that have artesian wells installed in a self-managed way, are Laguna Cristo Rey, Santísima Trinidad, Islería and Domínguez Nigó, Ayala Cue. For their part, the indigenous communities in the Paso Barreto area have tanks and, in some cases carry water from the Aquidabán River.

Four are the communities identified in the territory that do not have water supply systems.

In Estribo de Plata, most of the houses have wells, but they are unable to manage an artesian well for the entire community because there are few residents; and both installation and maintenance have a cost. In total there are 2 people who do not have wells and are supplied by the closest neighbors.

Anderi: It is another of the towns that does not have a drinking water supply network. The houses have private wells or cutwaters. During the dry season they have access problems since the wells tend to dry up.

Paso Mbutu: There is no running water in the area. Most use wells for irrigation and everyday use, because the water is salty and is not used for human consumption. To drink they carry water from a source on the left bank of the Aquidabán river, called Chorro or Yvu, and it is not treated for consumption. They are also supplied with accumulated rainwater in drums of 100 or 200 liters; in certain cases, they pay 20 thousand guaranies per drum.

Calle 15: They are supplied from private wells that in some cases are shared with the nearest houses. There are families that use the water from the cutwater daily.



Figure 38 – Registry Images About Water Access

SOURCE: PICTURE REGISTRY OF FIELD WORK. CONSULTING TEAM. CONCEPCIÓN. AUGUST -SEPTEMBER 2020.

ICT

Regarding access to ICT in the department of Concepción, according to the 2012 National Census data, it can be observed that the majority corresponds to households with a cell phone with 83.3%, followed by households with a radio with 80.6 %; and with 79.8% to homes with television sets, thus being the most used media by the population linked to DIA.

The results of the survey in relation to this issue coincide with the aforementioned figures, especially with regard to access and use of cell phones, due to the health context and the fact that classes are held virtually by provisions of the MEC. They also commented about the existence of connection problems (bad signal) in Anderi, Paso Mbutu, Domínguez Nigó and Isla Hermosa.

Table 110 – Access to Information and Communication Technologies (ICT)

Access to ICT (Information and Communication Technologies)	Department of Concepción	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
Private dwellings occupied with people present	42,402	8,761	3,063	1,221	966	838	2,011
% Homes with radio	8.6	76.9	83.2	86.2	90.4	79.5	80.3
% Homes with TV	79.8	75.4	80.0	48.2	81.3	70.8	68.9
% Homes with landline	8.0	5.2	4.4	1.1	0.8	0.5	0.7
% Homes with cell phone	83.3	83.7	84.1	79.4	86.2	77.7	83.1
% Homes with computer	11.9	7.7	5.4	1.2	2.2	2.0	2.7
% Homes with computer connected to internet	9.2	5.3	4.3	0.6	1.2	1.2	1.1
% Homes with satellite dish	10.8	6.3	4.8	11.8	9.0	19.3	11.8
% Homes with TV cable	13.4	15.7	8.2	2.4	1.6	2.0	0.9

SOURCE: STP/DGEEC: NACIONAL CENSUS OF POPULATION AND HOUSING 2012.

(**) DISTRICTS THAT HAVE BEEN AFFECTED BY THE DISMEMBERMENT OF NEW DISTRICTS AND THEREFORE THERE MAY BE DIFFERENCES WITH INFORMATION ALREADY PUBLISHED FOR THEM, SINCE THERE IS NO COINCIDENCE OF BOUNDARIES DUE TO THE RECENT DETACHMENT. (***) POSTCENSAL DISTRICT 2012

Regarding access to comfort goods, it can be observed in Table 111 that dwellings with motorcycles, refrigerators and washing machines predominate in the Districts linked to DIA.

Regarding the information collected in the field, it was again coincident since the motorcycle is the most used comfort good.

Table 111 – Access to Comfort Goods

Comfort Goods	Department of Concepción	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
Private dwellings occupied with people present	42,402	8,761	3,063	1,221	966	838	2,011
% Homes with refrigerator	68.1	62.2	64.2	48.2	65.0	61.8	63.0
% Homes with washing machine	50.9	44.5	44.8	29.6	30.1	38.4	44.2
% Homes with video /DVD	21.2	16.1	16.3	10.8	15.0	8.9	15.9
% Homes with thermo-heating	4.0	3.7	2.2	1.1	1.4	1.4	1.1
% Homes with electric shower	25.7	19.9	16.0	4.2	3.6	7.2	8.9
% Homes with air conditioner	15.2	8.8	6.4	2.0	3.7	4.4	1.8
% Homes with microwave oven	14.4	7.4	11.7	3.2	6.9	4.4	4.1
% Homes with car/ truck	9.9	8.5	5.0	4.4	4.1	3.9	4.6
% Homes with motorcycle	74.3	72.3	73.8	80.7	74.2	62.3	76.7

SOURCE: STP/DGEEC: NACIONAL CENSUS OF POPULATION AND HOUSING 2012.

(**) DISTRICTS THAT HAVE BEEN AFFECTED BY THE DISMEMBERMENT OF NEW DISTRICTS AND THEREFORE THERE MAY BE DIFFERENCES WITH INFORMATION ALREADY PUBLISHED FOR THEM, SINCE THERE IS NO COINCIDENCE OF BOUNDARIES DUE TO THE RECENT DETACHMENT.

(***) POSTCENSAL DISTRICT 2012

In relation to the condition of home ownership, according to the DGEEC data, in the districts linked to the DIA, the majority are own dwellings, 85.2%, as can be seen in the following Table.

Table 112 – Condition of home ownership

Condition of home ownership	Department of Concepción	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
Private dwellings occupied with people present	42,402	8,761	3,063	1,221	966	838	2,011
% Is own	85.2	88.8	92.0	88.9	82.0	87.6	91.8
% They are paying it in installments	0.9	1.7	0.1	0.1	-	0.5	0.0

Condition of home ownership	Department of Concepción	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
% It is in a condominium	0.4	0.6	0.2	-	0.4	-	0.1
% Is rented	5.1	1.6	1.6	1.8	1.7	1.3	0.5
% It is borrowed, they take care of it	7.5	5.9	5.6	7.5	15.3	9.9	7.0
% It is taken	0.8	1.3	0.5	1.7	0.5	0.2	0.5
% Not reported	0.1	0.1	-	0.1	0.1	0.5	-

SOURCE: STP/DGEEC: NACIONAL CENSUS OF POPULATION AND HOUSING 2012.

(**) DISTRICTS THAT HAVE BEEN AFFECTED BY THE DISMEMBERMENT OF NEW DISTRICTS AND THEREFORE THERE MAY BE DIFFERENCES WITH INFORMATION ALREADY PUBLISHED FOR THEM, SINCE THERE IS NO COINCIDENCE OF BOUNDARIES DUE TO THE RECENT DETACHMENT. (***) POSTCENSAL DISTRICT 2012

6.2.14 Cultural Heritage

Natural Heritage

In relation to the natural heritage existing in the areas involved in the project, as mentioned in the report/social researches for the industrial component, this name is given to the set of natural or environmental assets and wealth that society has inherited from their predecessors. It is made up of: natural monuments made up of physical and biological formations or groups of those formations that have exceptional universal value from an aesthetic or scientific point of view; geological and physiographic formations; and the strictly delimited areas that constitute the habitat of threatened or endangered animal and plant species; natural places or strictly delimited natural areas (such as national parks, natural reserves, conservation areas, among others) that have an exceptional value from the point of view of science, conservation or natural beauty .

Next, the Protected Areas and Reserves identified in the project's areas of influence are presented according to consulted sources.

Table 113 – Relevant natural Heritage List: Protected Areas and Reserves in Project Areas

	Natural Heritage	Area (Ha.)	Norm of Creation	Department/ District	IIA/DIA
1	Paso Bravo National Park	93,612	Decree N° 20.712/98	Concepción/San Carlos Apa	IIA
2	Serranía San Luis National Park (1991/2010)	10,282	Decree N° 11.964/91	San Alfredo	DIA
3	Bellavista National Park	7,397	Decree N° 20.713	Bella Vista	DIA

	Natural Heritage	Area (Ha.)	Norm of Creation	Department/ District	IIA/DIA
4	Cerrados del Tagatiya Private Natural Reserve	5,281	Decree N° 7.791/06	Concepción/San Alfredo	DIA
5	Tagatiya mi Private Natural Reserve	28,755	N° 10.396/07	Concepción/ San Carlos Apa-	IIA
6	Natural Monument Santa Elena	36	Law N° 4.577/11	Concepción/San Lázaro	IIA
7	Natural Monument Cavern Kamba hopo	17	Law N° 4.577/11	Concepción/San Lázaro	IIA
8	Natural Monument Tres Cerros	140	Law N° 4.577/11	Concepción/San Lázaro	IIA
8	Natural Monument Cerro Morado Cavern Ycua pa`i	77	Law N° 4.577/11	Concepción/San Lázaro	IIA
10	Guayacan I, II y III Private Natural Reserve	1,447	Decree 1230/	Concepción/San Alfredo	IIA
11	Kai Rague Private Natural Reserve	1,769	Without data	Amambay /Capitán Bado	IIA
12	RAMSAR Milagro Estuary	26,503	Law N° 350/94	San Pedro	IIA
13	Arrecife Private Natural Reserve	7,812	Without data	Concepción/San Carlos Apa	IIA
14	Biosphere Reserve of Cerrados of the Apa River	267,836	Executive Power Decree N° 14.431	Concepción/Amambay	IIA /DIA
		183,128			

SOURCE: MADES, 2018; GUYRA PARAGUAY, 2007 IBAS. AMONG THE IMPORTANT AREAS AS BIRD CONSERVATION SITES (IBAS), THERE ARE 4 RECOGNIZED FOR THE STUDY AREA (GUYRA, 2017): YPANE MEDIO - ARROYO TAGATIYA - ESTRELLA AND CERRADOS DE CONCEPCIÓN

From another source it is stated that Concepción has the second most extensive wooded area in that area. According to data from the agricultural census of 2008, the natural forests and cultivated forest plantations cover more than 233 thousand hectares of the first department, which represent approximately 14% of the entire forest area of the Eastern region. It is the second largest department in the eastern region of Paraguay.

Two public protected wild areas, Paso Bravo National Park and Serranía San Luis, located in the north of the department concentrate more than 113,000 hectares while two private reserves cover almost 40,000 hectares of forests. To all this, there must be added more than 157,000 hectares of biosphere reserves, of the Cerrado ecosystem of the Apa river, shared by the departments of Concepción and Amambay (SEAM, DGECC, 2010).

The Cerrado Biosphere Reserve of the Apa River, which protects representative samples of the Cerrado ecoregion. It was created in 2001 by Executive Decree No. 14,431, with an area of 267,836 ha, located in the departments of Concepción and Amambay. Its core areas are the Paso Bravo National Park and the San Luis National Park (SINASIP, 2007).

Cerrados del Tagatiyá Natural Reserve

The reserve represents the most direct physical corridor between the Paso Bravo (to the East) and Serranía San Luis (to the West) national parks; interconnecting these areas, which will enhance the comprehensive protection of the eco-diversity contained in the region. There is a part of the upper basin of the Tagatiyá Guasu River, of impressive scenic beauty and high fragility (Clark, 2012).

According to the Technical Justification document for the reserve (2004), there are three key elements when evaluating the quality of the Garay Cué ranch in relation to the conservation of biodiversity:

- The ranch is the most direct physical corridor between the Paso Bravo National Parks (to the east) and Serranía San Luis (to the west), interconnecting these areas, which will enhance the comprehensive protection of the natural resources contained in the region.
- Most of the upper basin of the Tagatiyá Guasu River, of impressive scenic beauty and high fragility, is made up of no more than four properties, three of them, Paso Bravo National Park, Estancia Garay Cué and an indigenous community that would grant protection to it. Based on this initiative, a watershed management strategy could be designed.
- The northern portion of the property is frequently visited by a group of gua'a pyta and hovy, relevant elements of this natural area. Therefore, protecting this portion of habitat will contribute to the conservation of the species in the region.

Tagatiya Mi Natural Reserve

Clark (2012) mentions that it covers 33,000 hectares in the department of Concepción, also forming an eco-diversity corridor such as the Cerrados del Tagatiyá nature reserve to the south. There are gallery forest, thicket and natural grassland. It was established by decree No. 10,396 in 2007.

The reserve forms a bridge or boreal ecological corridor between the San Luis National Park and the Paso Bravo National Park, which increases the dispersal range of species with wide home ranges. So, with the important ecological characteristics of the reserve as a corridor, the role of the neighboring conservation units is more efficient and the viability of the populations is ensured for a prolonged period of time. Another important aspect of the area is that it is located in a confluence zone of different ecoregions. This is demonstrated by the variety of fauna that presents both elements from Chaco and from the Upper Paraná (BAAPA) and Cerrado Atlantic Forest.

The towns closest to the reserve area are: San Alfredo, 45 km; Tres Loma, 20 km; Itacal, 30 km; Pto. Fonciere, 30 km; San Lázaro, 25 km; Saint Charles; 20 km; human settlements of Ex Antebi, 60km. All these communities have some communication via land with the reserve (Ibídem).

Materials of Archeological, Historical and/or Cultural Interest

Regarding materials, objects and/or sites considered as historical and/or cultural heritage, both for the national and/or for the local population, these have not been surveyed within the forest plantation buildings in this evaluation. Outside of these buildings it is possible that there are tangible spiritual/religious and/or cultural heritage materials outside the access/exit roads of the project buildings, considering that at the national level there is the custom of installing small oratories or "niches" in commemoration of people who have lost their lives on the side of the roads. In these cases, it is possible that the project could affect some of these sites through the conditioning of the roads; and the transit of large cargo vehicles, particularly during the period of harvesting and transfer of wood to the industrial plant.

Parcel will have an operational procedure for eventual finds, within the framework of the Archaeologic Finding Chance Program.

For the Parcel mill site DIA and IIA, a quantitative inventory was made of the cultural heritage present, characterized by exceptional and particular architecture from a historical period. For the territorial registration of movable/tangible heritage, geographic coordinates, obtained through the Avenza Map application, were used to identify and create categorized reference points and presented in layered formats with points referring to the registered immovable heritage and adjusted to the cadaster.

For the dating of archaeological sites in similar contexts along the Paraguay River, current research validates and complements these links; and indicates the presence of pre-Hispanic societies along the entire length of the Paraguay River, with radiocarbon dating from ca. 100 BC to ca. 300 AD for the Pantanal Tradition (Lamenza, 2015). Reports of rock art findings in the project area are mentioned for the site called Barrero Guaá, near Gamarra-cué, a site located at the headwaters of the Tagatiyá stream (AII), department of Concepción (Díaz-Pérez, 1904). It is also important to note reports of paleontological remains (Báez Presser, et al. 2004), for flora (fossil vegetables: fern and conifer woods - Itapucumí Group), as well as fauna.

Material or immaterial cultural heritage

It is made up of objects that have physical substance and can be preserved and restored by some type of intervention; they are those manifestations supported by material elements that are products of architecture, urbanism, archaeology, and craftsmanship, among others. It is composed of the movable and immovable goods made by the societies of past.

- **The movable cultural heritage (PCMU - in Spanish)** is the set of cultural heritage that communities, social groups and public and private institutions recognize as part of their memories and identities, or as part of the memories and identities of the nation, since they attribute to them, among others, collective, historical, aesthetic and symbolic values. These assets are generally protected and transmitted to future generations. The properties that make up movable cultural heritage may be representative: 1) for a group, collectivity, community or village; 2) for a municipality; 3) for a district; 4) for a department; 5) for the nation; or 6) for the world.¹⁹

¹⁹ <https://www.mincultura.gov.co/areas/patrimonio/patrimonio-cultural-mueble/Paginas/default.aspx>

- **The immovable cultural heritage (PCIMU)** are movable cultural heritage that are an expression or testimony of human creation or the evolution of nature and therefore have an archaeological, historical, artistic, scientific and/or technical value. Examples are: an aqueduct, a mill, a cathedral, an archaeological site, an industrial building, the historical center of a city, among others.

For the case of the survey of immovable cultural heritage, they were categorized as follows, according to the historic center of the city of Concepción, identified through Municipal Ordinance Number 09/04 on zoning - land use; Number 12/04 establishing the protection, conservation, recovery and transmission of the cultural and natural heritage of the Municipality of Concepción, and Number 13/04 establishing the general catalog of assets that make up the cultural and natural heritage of the Municipality of Concepción; and testimonies of the local imagination, with the following categories: Mansion - Casonas - Houses and Port Area.

This category was also applied to Belen, Loreto and Horqueta, where only historic homes stand out.

- **Mansion:** Buildings that have more than two levels or floors, worked with details in walls and cornices. They are buildings that have a larger built area and a large internal courtyard. It predominates the facades type cover ornamented with pillars in the walls and gables like auction. The pilasters had moldings in the shaft and in the capital with acanthus leaves, characteristics of the European houses with mixtures of styles like the classic one, neoclassic, Renaissance among others. Relative temporality: 19th century.
- **“Casonas”:** Buildings that have a certain bearing similar to mansions, but do not have as many details on the in front. It has predominantly a covered front. They were used as residences as well as local and regional businesses since they brought products from the surrounding settlements. They have the smallest patio in comparison to the mansions. Relative temporality: 19th century.
- **Dwellings:** Buildings intended for smaller residences in comparison with the other categories, predominantly tapa type facades and colonial galleries where the inhabitants sat to share traditional drink “terere” under their shade. It presents similar characteristics to mansions, but with less ornamentation. Relative time: 19th century.
- **Port area:** Buildings dedicated to port activities, is an area of interconnection between coastal towns and commercial exchange of the time. The dwellings closest to the port have a greater architectural presence since the inhabitants were dedicated to this trade, both fishing and commercial exchange. As one moves away from the site, one can observe more precarious dwellings. Relative time: 19th century.



Figure 39 – Heritage grids present in the city of Concepción with hierarchical symbols

The Nature and Cultural Heritage Study is presented on **ANNEX III**.

6.2.15 Community water use, hunting and fishing, gathering and usage of non-timber forest products, and tourist attractions

Community water use

During field surveys, in perception studies, many people have expressed the use of water resources for recreation/recreation (bathing, beach, fishing), highlighting the Aquidabán river. Likewise; it is common in the AID to practice fishing, both for sale and for self-consumption (for example, the towns of Paso Barreto, Paso Mbutu, Islería). In addition, the existing drinking water supply systems are supplied by groundwater, and, as for the communities that still do not have access to drinking water systems, the majority are supplied from deep wells, springs, cutwaters, rivers and streams.

Hunting and fishing

Hunting and fishing are some of the main sources food for the families of the indigenous communities, being an important ecosystem services provisioning and cultural use for livelihoods. Some of indigenous communities use self-made tools, such as bows, arrows, and spears, while other families use firearms. Some families use trained domestic dogs for hunting, which warn their owners where the prey is located and the possible dangers that may exist.

The frequency of which hunting activities are carried out depends on the indigenous families; most of the people consulted stated that they hunt once or up to three times a week. It is important to mention that the animals they hunt and fish are used for their own consumption.

Hunting and fishing activities are one of the main sources of food for some indigenous families. 92.12% of the country's indigenous communities declare that they practice these activities. It is recognized that since the pre-colonial period, the indigenous people of the region lived in egalitarian societies and did not produce surpluses, the forest provided them with everything they needed for their subsistence. They traveled large areas to collect, hunt and fish, in addition to meeting their needs for clothing and tools. Hence the importance of these activities for people of indigenous communities.

In relation to hunting and fishing, the knowledge and practice of these activities are directly related to food. The communities hunt only edible animals and in the amount that is indispensable for feeding the community and family, avoiding indiscriminate hunting and respecting the fauna's breeding season. The main animals available for hunting within the IIA are armadillo, pig, fish, deer, coati, lizard, bird, turtle, anteater, monkey, capybara, and ostrich.

The forests are important because they provide ecosystem services also for the whole community in the influence area, providing them with timber (used for house construction), fauna (for subsistence hunting), flora (for food and traditional medicine), and harvested foods such as honey and fruit.

Seven mammal species of hunting interest can be included in this category. *D. novemcinctus* is considered, together with the limpet, the most tasty and appreciated wild animal meat by hunters (Sigrist, 2012). Similarly, *Dasyprocta sp.*; *H. hydrochaeris* and *M. gouazoubira* are usually hunted for sport or as a source of food.

C. thous; *L. pardalis* and *L. tigrinus* are under hunting pressure to obtain and market their skins.

From the 64 sampled fish species, ten species are used as subsistence fishing, while nine are used in commercial fishing and 23 are used for ornamental purposes, according to the table below:

Table 114 – Usage of recorded species in different fishing practices.

N	Scientific names	Subsistence	Commercial	Ornamental
1	<i>Acestrorhynchus pantaneiro</i>	X	X	
2	<i>Serrasalmus marginatus</i>	X	X	
3	<i>Parodon nasus</i>			X
4	<i>Megaleporinus obtusidens</i>	X	X	
5	<i>Steindachnerina brevipinna</i>			X
6	<i>Potamorhina squamoralevis</i>	X		
7	<i>Hoplias misionera</i>	X	X	
8	<i>Pyrrhulina australis</i>			
9	<i>Triportheus pantanensis</i>			X
10	<i>Charax leticiae</i>			
11	<i>Astyanax lacustris</i>			X
12	<i>Astyanax lineatus</i>			X
13	<i>Psellogrammus kennedyi</i>			
14	<i>Hemigrammus ulreyi</i>			X
15	<i>Bryconamericus exodon</i>			X
16	<i>Moenkhausia dichroua</i>			X
17	<i>Moenkhausia bonita</i>			X
18	<i>Moenkhausia sanctaefilomenae</i>			X
19	<i>Odontostilbe pequirá</i>			X
20	<i>Gymnocorymbus ternetzi</i>			X
21	<i>Poptella paraguayensis</i>			
22	<i>Tetragonopterus argenteus</i>			
23	<i>Hyphessobrycon eques</i>			X
24	<i>Aphyocharax anisitsi</i>			X
25	<i>Aphyocharax rathbuni</i>			X
26	<i>Characidium sp.</i>			
27	<i>Characidium sp.1</i>			
28	<i>Characidium sp.2</i>			
29	<i>Trachelyopterus galeatus</i>			

N	Scientific names	Subsistence	Commercial	Ornamental
30	<i>Pterodoras granulosus</i>			
31	<i>Platydoras armatulus</i>			
32	<i>Pimelodella</i> sp.	X	X	
33	<i>Pimelodella</i> sp.1	X	X	
34	<i>Rhamdia</i> sp.	X		
35	<i>Rhamdia quelen</i>	X		
36	<i>Amaralia oviraptor</i>			X
37	<i>Corydoras aurofrenatus</i>			
38	<i>Corydoras aeneus</i>			X
39	<i>Corydoras hastatus</i>			X
40	<i>Ancistrus pirareta</i>			X
41	<i>Rineloricaria aurata</i>			
42	<i>Otocinclus</i> sp.			X
43	<i>Eigenmannia trilineata</i>			
44	<i>Brachyhypopomus gauderio</i>			
45	<i>Gymnotus pantanal</i>		X	
46	<i>Potamorrhaphis eigenmanni</i>			
47	<i>Bujurquina vittata</i>			X
48	<i>Cichlasoma dimerus</i>			X
49	<i>Crenicichla lepidota</i>			
50	<i>Gymnogeophagus balzanii</i>			X
51	<i>Pseudopimelodus</i> sp.	X		
52	<i>Crenicichla mandelburgeri</i>			
53	<i>Gymnorhamphichthys britskii</i>			
54	<i>Rineloricaria lanceolata</i>			
55	<i>Loricaria</i> sp.			
56	<i>Hypostomus</i> sp.			
57	<i>Pimelodella gracilis</i>		X	
58	<i>Microglanis carlae</i>			
59	<i>Pimelodus maculatus</i>		X	
60	<i>Serrapinnus</i> sp.			
61	<i>Curimatopsis</i> sp.			
62	<i>Bryconops melanurus</i>			
63	<i>Otothyropsis</i> sp.			
64	<i>Paravandellia oxyptera</i>			

Gathering and usage of non-timber forest products

The activities of gathering wild fruits are also carried out by the indigenous families of the communities to provide themselves with food sources at different times of the year to complement their diet. In the country, 88.6% of indigenous communities declare that they practice gathering food from the forest, field or other places. The main sources of collection in the area are wild honey, coconut, guavira, yvaviju, pakuri and beans.

The manufacture of handicrafts is a cultural and economic activity for many communities. In the country, 75.2% of indigenous communities declare that they dedicate themselves to this activity, with a greater participation of women, which represent 68.2% of indigenous artisans. Although the manufacture of handicrafts is considered as underdeveloped compared to the activities of agriculture, livestock, gathering, hunting and fishing in the area, it is an activity of interest to artisans that not only provides them with income, but is also a source of leisure that contributes to their overall well-being. The raw materials that are usually used for the manufacture of

indigenous crafts in the departments of Concepción, San Pedro and Amambay are karaguata, takuara, seeds, wool, guembepi, karanday, feathers and soft woods.

Most of the population alternates agriculture and livestock with the production of handicrafts; These populations have always lived in conditions of extreme poverty with little support from the government and from organizations that channel their productive work towards the achievement of their needs and interests. Many of the artisan trades and their products have disappeared and consumption has drastically decreased as a result of the processes of migration and rural depopulation.

Traditional medicine activities are a constitutive element of the identity of indigenous communities, as it is linked, on the one hand, to the relation between health and disease and, on the other hand, to their worldview and magical, religious and empirical knowledge. For the practice of traditional medicine, indigenous people collect medicinal plants from their environment, known as pohã ñana, and perform prayers, songs and dances. In most cases tobacco is used as a primary plant for healing rituals carried out by spiritual leaders.

Tourist attractions linked to water resources

As indicated in the section "Tourism and Culture in DIA" of this document, there are numerous tourist attractions in the area, particularly those related to water resources such as rivers and streams; these make it possible to carry out sports activities in the open air, walks, navigation, fishing, among others.



Figure 40 – Picture Registry of Economic Activities

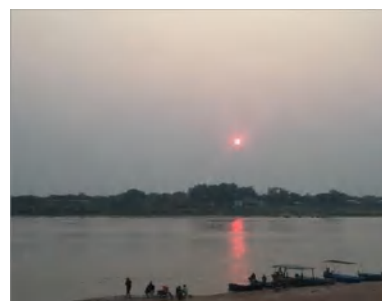
SOURCE: VARIED SUPPLY IN THE NORTH ABC (2016)



Source: Picture record of field work Consulting Team. Concepción. August-September 2020.



Source: Concepción News (2017).²⁰



Source: Picture record of field work Consulting Team. Concepción. August-September 2020.

Figure 41 – Picture Record of Economic Activities

20 Available at: <https://www.Concepción-py.com/2017/12/Concepción-ofrecen-bellas-playas-para.html?m=1>

6.2.16 Survey of social perception

In order to contribute to the identification and evaluation of social impacts, and the recommendation of measures and programs, perception surveys were applied in the communities involved in plantations DIA.

As part of the field work, a total of 63 surveys were applied with people from directly impacted interest groups: of which 3% of the sample corresponds to the Bella Vista district, 19% to Horqueta, 29% to the Loreto district, 32% to Paso Barreto and the remaining 17% to Sargento José Félix López. All locations of the survey of social perception are shown in the Figure below.



Figure 42 – Locations of the survey of social perception.

Survey methodology and sampling design

The fieldwork was carried out in August and September of 2020, and it was developed under two modalities: in situ and by videoconference.

The survey was divided into two parts. Both were made up of a total of 30 questions, mostly open. The first section was aimed at identifying the profile of the people surveyed, based on the interest groups and data referring to the geographical area of location. The second part was related to the perception aspects of the project's knowledge; opinions on the venture, expectations, priority aspects to consider before and during implementation, and some final recommendations. It should be noted that the collection technique used is the survey.

The communities were selected according to their relationship with the following aspects:

- because they are located on the main accesses;
- because of their proximity to the projected forest fields; and
- because they are central locations with the largest number of inhabitants and local movement as indicated in Table 8 of the **ANNEX II**.

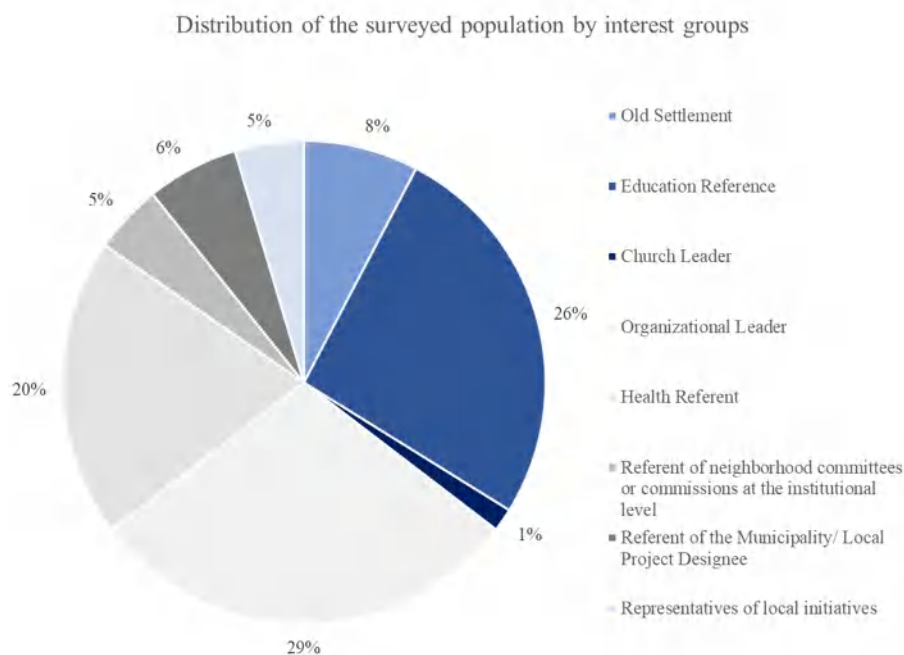
Other key inclusion criteria for respondents were:

- To be of legal age;
- To reside or work in the area for more than one year;
- To ensure the participation of women and men;
- To belong at least to one of the following “interest groups”, as defined in Table below:

Interest Groups	Description of the profile
Old Settlement	They are people with at least 5 years of residence in the town
Education Reference	This population is made up of directors, undergraduate teachers, professors, office managers and/or supervisors.
Organizational Leader	They are members or representatives of neighborhood commissions, productive committees, organizations and/or community associations at the local level.
Health Referent	They are people who are part of the team of professionals, technicians of the Family Health Units and Satellite Units of the territory.
Church Leader	They are people who act as members of a commission, organization or base delegates.
Referent of neighborhood committees or commissions at the institutional level	They are references of key institutions that work directly with neighborhood committees and commissions at the local level

Interest Groups	Description of the profile
Referent of the Municipality/ Local Project Designee	This is the focal point assigned to attend to questions related to the project during the survey process.
Representatives of local initiatives	They are people who carry out some productive activity in the area.

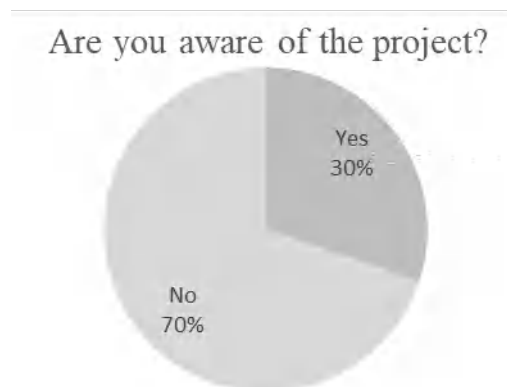
The distribution of surveyed people by interest group is illustrated in the chart below.



More information about the survey methodology and sampling design can be found within the **ANNEX II**.

Results

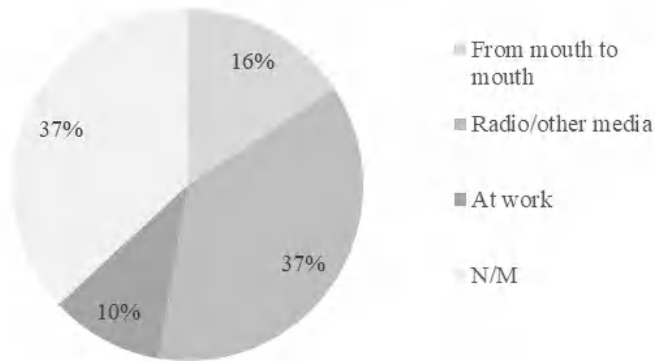
Regarding the notion of inhabitants about the project, the majority have declared to be in ignorance, representing 70% of respondents. The following chart shows the details of the results obtained.



Most of the people, corresponding to 36.84%, mentioned that they received some type of information about the project mainly through the radio or other press; and to a lesser

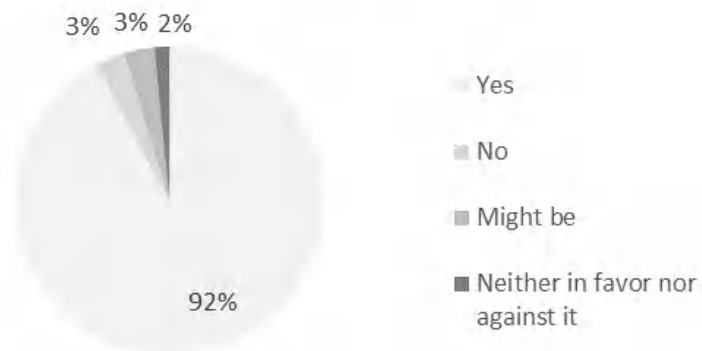
extent, 10.53%, linked it to their workplace. The following chart shows the details of the results obtained.

Means by which they found out about the project



In the chart below, data shows people’s opinion regarding the project. The majority considered that the project is positive for all levels, while two people mentioned that it does not seem like a positive initiative; on the one hand, due to the possible contamination/affectation of natural resources; and on the other, because there is no credibility in the authorities due to corruption/impunity/lack of control. In addition, two people expressed doubts about respecting environmental regulations and also expressed fear of the possible contamination that the initiative could generate. Finally, one person expressed neither in favor nor against it ("I will not be able to do anything against settling in, if what I say or do is decided from above, it will not stop the project").

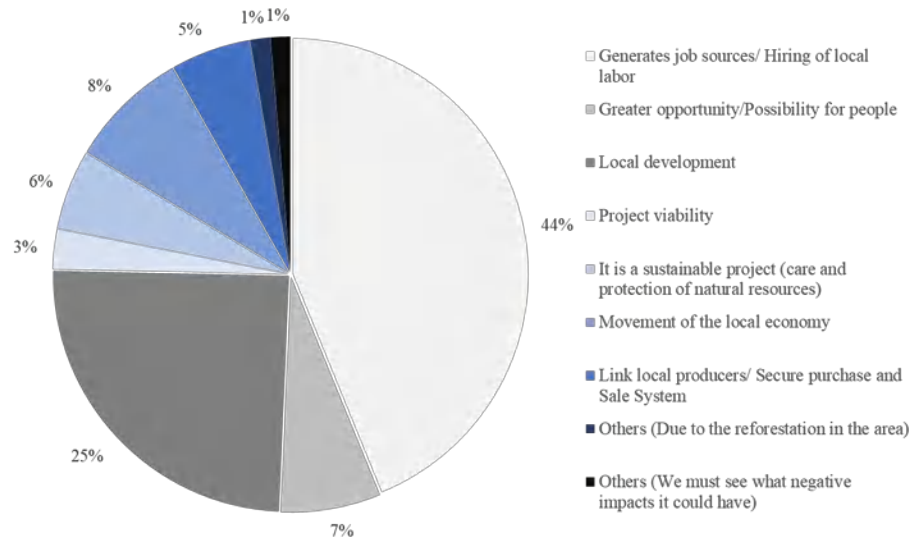
Is the project positive?



Regarding why people consider this undertaking to be positive at the departmental, district and local levels, the majority responded that "the project represents new sources of work/hiring of local labor for the people" (44%).

The following chart shows details of the overall results obtained, and it can be found in the ANNEX II results by departmental, district and local levels, specifically in the Chart 67.

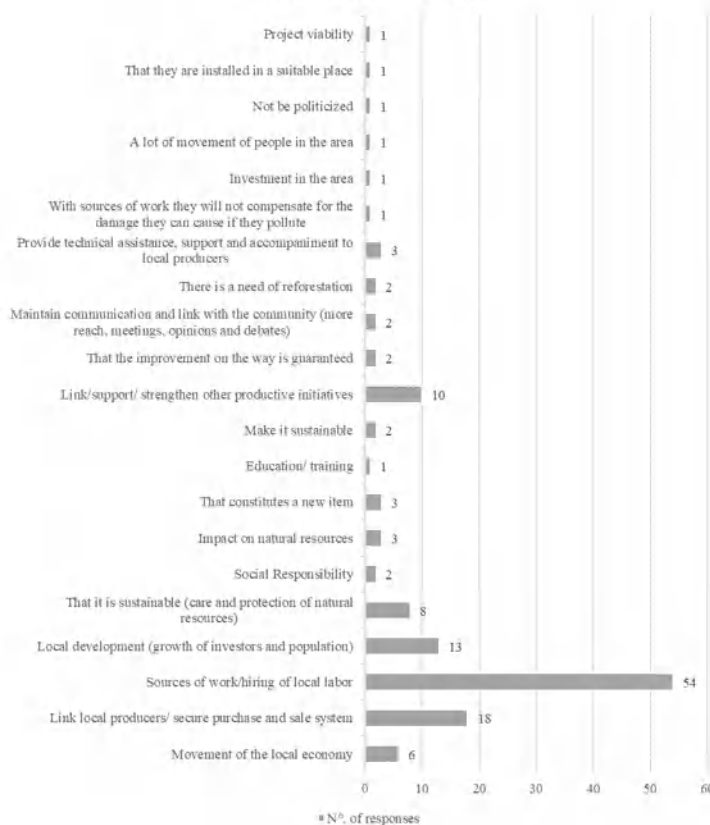
Why do you consider this undertaking to be positive at the departmental, district and local levels?



Concerning the expectations related to the project, of the totality of people who have participated (63 surveys), 135 responses were obtained (more than one expectation per person who responded to this item).

The majority responded that "the project represents new sources of work/hiring of local labor for the people", as can be seen in the following chart. It is important noticing that a full description of all results from the Survey of Social Perception can be found within the **ANNEX II**.

Expectations expressed during the consultation (August-September 2020)



Considering all the information collected regarding the perception of the population included in the consultation spaces, the recurrence of key aspects should be noted, such as:

- “The generation of sources of work/local employment”: It is mainly related to the reduction of unemployment, job security and access to better working conditions in the area. Which in turn could contribute to reducing migration, associated with the search for better job opportunities and existing educational offer;
- "The care and protection of the environment": This topic has the particularity of being raised in terms of high importance because forests, land and water resources are closely related to the livelihoods and subsistence of the population present in the study areas; the production of the field is highly dependent on existing natural resources.
- “Linking local producers to the initiative”: Several residents who have participated in the consultation process expressed their interest in the project, based on the importance of generating mechanisms for the inclusion of local producers in the project; in order to generate a sustained economic impact for the people residing in the area. Some mentioned that it could become a new income category, with a safe market and a fair price;
- "Maintain communication, the link with the community and the sharing of truthful information": Several people valued the fact of involving the population in the consultative processes prior to the approval of the initiative; and they stated that if the project is implemented, it would be interesting to continue generating spaces for exchange in a sustained manner and with a broader level of participation. In addition, some emphasized the need to know all the implications of the project; both positive and negative, since there are doubts regarding the eucalyptus plantations and their effects on the environment.

ANNEX I
INDIGENOUS COMPONENT STUDY – 2ND PHASE

INDIGENOUS COMPONENT STUDY

2nd phase.



Developed for



PARACEL

Acronyms

AID	:	Direct Influence Area
AII	:	Indirect Influence Area
ANDE	:	National electricity association
APS	:	Primary healthcare program
ASP	:	Protected Wilderness Areas
BID	:	Inter-American development bank
CCLPI	:	Consultation, and Free, Prior and Informed Consent
CIPOC	:	Intercultural Commission of Original Peoples of Concepción
CN	:	National Constitution
CONASAPI	:	National Council of health of Indigenous Peoples
DEAg	:	Dictatorate of agrarian extension
DGEEC	:	General Directorate of Statistics, Surveys and Censuses
DGEEI	:	General Directorate of Indigenous School Education
DINASAPI	:	National directorate of health of indigenous people
DRP	:	Participatory Rural Appraisal
ECIp	:	Indigenous Component Study preliminary
EIA	:	Environmental impact assessment
EIAp	:	Environmental impact assessment preliminary
EIR	:	Environmental Impact Report
EISA	:	Environmental and social impact Assessment
ESAAP	:	Sanitary Services Company of Paraguay S.A
ESMS	:	Environmental and Social Management System
ETS	:	Sexually transmitted diseases
FAO	:	Food and Agriculture Organization of the United Nations
FAPI	:	Federation for the Self-Determination of Indigenous Peoples
FIDA	:	International Fund for Agricultural Development
GEI	:	Greenhouse gases
GPS	:	Global Positioning System
ICA	:	Indigenous Climate Action
IFC	:	International Finance Corporation
INDI	:	Paraguayan Institute for Indigenous Affairs
ISO	:	International organization for standardization
LBSI	:	Indigenous Social Baseline
MAG	:	Ministry of Agriculture and Livestock
MDS	:	Ministry of Social Development
MEC	:	Ministry of Education and Sciences
MSPyBS	:	Ministry of public health and social welfare
OIT	:	International Labor Organization
ONG	:	Non-governmental organization
ONU women	:	United Nations women
PGSCIp	:	Preliminary Social Management Plan for the Indigenous Component
PM	:	Management plan
PPI	:	Indigenous peoples plan
RAE	:	Royal Spanish Academy
SENASA	:	The National environmental sanitation service
SNPP	:	National service for professional promotion

SRDP : Sustainable Rural Development Program
STP : Technical Secretariat for Planning
USDA : United States department of agriculture
USF : Family health unit

Glossary

Geographic location

Department: it constitutes the first administrative-political division of the country. In Paraguay there are 17 departments plus the capital Asunción.

District: it constitutes the second administrative political division of the country. It is each of the subdivisions of a department. Districts are equivalent to municipalities.

Rural area: a rural area is considered to be the territory located outside the district capitals.

Urban area: all the headquarters of official districts, defined according to administrative laws, have the shape of blocks, without having any other special consideration.

Indigenous community: group of indigenous families settled in a specific territorial area, whether their own or someone else's. Indigenous people identify with their own way of being, culture and social organization. The community should not be interpreted only in geographical terms, but in social terms, which includes spaces and forms of social coexistence characteristic even in other environments, such as cattle ranches, urban neighborhoods, and temporary camps.

Rural indigenous community: Indigenous community located in the rural area.

Urban indigenous community: Indigenous community located in the urban area.

Community: group of indigenous families with their own leadership, who are distinguished within each community by the occupation and differentiated use of the physical space.

Family nucleus: indigenous families who, because of kinship, labor issues or any other circumstance, are circumstantially settled outside their communities at the time of consultation.

Distances

From the Departmental Capital: Approximate distance expressed in kilometers, from the departmental capital to the center of the community or village, as appropriate.

From the District Headquarter: approximate distance expressed in kilometers, from the district headquarter to the center of the community or village.

From the undertakings, industrial / forestry: Approximate distance expressed in kilometers, from a vertex of the community or village.

Cultural-legal identification

Indigenous: A person having origins in the country. A person who declares to belong to an ethnic group or from an original town and manifests to be a member of a community, the nucleus of families or an indigenous neighborhood, whether you keep speaking your native language or not.

Linguistic family: It is the grouping of indigenous ethnic groups according to the spoken language. There are five linguistic families clearly differentiated from each other in Paraguay. The country's ethnic groups can be classified as: Guaraní, Lengua Maskoy, Mataco-Mataguayo, Zamucho and Guaicurú.

Ethnicity: It's related to human communities defined by linguistic, cultural and social affinities. It also corresponds to the "people", as a group characterized by their own culture and way of social life. In Paraguay, as in other countries in America, during colonial times, ethnic groups were called "nation", because they were born in the same territory and, generally, they had their own language and common traditions.

Spoken language: It's refers to the language that people usually speak in their homes.

Legal entity: It refers to the capacity and legal representation of the community, that is to say, if they have legal personality or not.

Land situation: It refers to the ownership of the land occupied by the community. We can understand it as whether or not they have a property title or are pending.

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1. Introduction.

This report corresponds to the Indigenous Component Study preliminary version (ECIp), developed within the framework of the Social and Environmental Impact Assessment (EISA) related to the project of forestry plantations and pulp manufacturing of the PARACEL firm, located in the Departments of Concepción and Amambay, Paraguay.

The current report describes the technical aspects and normatives that have been taken into account to design, plan and execute the entire dialogue process and engagement with indigenous communities, within the framework of unrestricted respect for Human Rights and the Rights of Indigenous Peoples.

1.1. Objective, scope and justification.

The purpose of the ECIp is to contribute as an input for the elaboration of the baseline of the indigenous component of the EISA, providing valuable information that allows to identify, analyze and design plans to manage the impacts that the project might cause in the indigenous communities within of the Direct Influence Area (AID) and the Indirect Influence Area (AII), in order to contribute to local development and to improve of the quality of life of indigenous peoples.

This report describes the project's effects and possible management strategies for those communities within the AID, delimited in accordance with the technical specifications of Paraguay's Decree No. 1039/18 and the IFC Performance Standards guide; the rural indigenous communities selected for this report are located within a radius of less than 5 kilometers of ongoing forestry operations in Trementina and San Liberato farms owned by PARACEL and an urban indigenous community that is embedded within the city of Concepción. All have previously signed an act of Consultation and a Free, Prior and Informed Consent. The other indigenous communities within the AID will be included in the final delivery of this report, which will be visited between March and April of this year.

1.2. Methodology.

The methodology used for survey and analysis of the information was the Participatory Rural Appraisal (DRP), which allows communities to make their own diagnosis and define work guidelines that help design action plans through field-applied techniques and tools.

The technical team carried out workshops, assemblies, interviews and direct observation of indigenous communities. In workshops and assemblies, members of indigenous communities were able to express their concerns about the Project; delimit and describe the geographical area of their community; characterize the places within the community according to criteria of coverage, services and locations; tell about their history, livelihoods, customs and traditions; identify the main groups and institutions to which they are related; finally, workshops help indigenous people to express their opinions about the impacts they identify and possible action plans. The interviews were carried out with the support of surveys, which allowed us to make a classification and demographic analysis, by gathering valuable information about gender, land tenure and use, employment, agricultural production, economy and participation in public assistance programs.

1.3. Report structure.

This report is structured in the following sections:

Project description, description of the phases and stages of the Project; the political, legal and administrative framework in which the preparation of this document is limited, including national laws and regulations, international standards, the criteria for delimiting the Direct Influence Area (AID) and the Indirect Influence Area (AII) and the connection of this project with the Social and Environmental Impact Assessment.

Methodology for the elaboration of the Indigenous Component Study, in-depth description of the process and actions taken for the elaboration of this document, it mentions the sources of information used for consultation and as reference; support studies; techniques and tools used for the survey and systematization of information; and also describes, the methodology of evaluation, analysis and hierarchy of impacts. In addition, it describes the process of consultation and Free, Prior and Informed Consent, based on Decree 1039/18 in force in the national territory and the international standards that were used as an implementation guide.

Characterization of the influence area, in this section are exposed the socio-environmental characteristics of the influence area, including an identification with georeferenced maps of each community within the areas; a detailed description of the characteristics of their culture, language, use of resources, socio-economic and political structure; It exposes the sociodemographic information raised during the collection process about gender, education, health, economy and livelihoods, productive systems, ownership and use of land, use of ecosystem services and cultural heritage, among others.

Impact assessment, analysis and hierarchy, presents the expected social impacts and effects that the forestry and pulp manufacturing project could cause in indigenous communities as a result of the development of their activities. In addition, the ideas and opinions expressed by the indigenous population as a result of previous interactions with private and public projects in the area, and how these have an impact on the development of prejudices and the generation of feelings of vulnerability are mentioned.

Indigenous Peoples Plan, presentation of the management plan oriented to indigenous peoples, developed from the analysis of the baseline and the impact assessment of each community. The plan contains the objectives, scope, recommendations and lines of action for those programmes that help prevent, minimize, mitigate and offset the impacts generated in indigenous communities. In addition, it contains recommendations to be included in other action plans resulting from the EISA, such as the worker influx management plan, supplier management plan and waste management plan, among others, as well as its significant contribution to public policy development, due to the lack of in-depth information on indigenous communities in this sector of the country.

2. Project Description.

2.1. Project synthesis.

PARCEL is a Paraguayan company constituted of national and foreign sources of capital, whose operations are based on the department of Concepcion and Amambay in Paraguay. It is a pulp plant built on the edge of the Paraguay River, 15 kilometers to the north of the city of Concepción, and the creation of forestry entrepreneurship is distributed in different areas of the aforementioned departments.

During the construction phase, the cellulose plant projects the generation of direct employment for between 5,000 and 8,000 people, and generate indirect employment for about 10.000 and 30.000 jobs for suppliers, having an impact on the local and national socio-economic dynamic, especially in the city of Concepción because it is the closest urban center to the construction and it's the urban area where indigenous community resides.

PARACEL's forestry activities cover an area of more than 170,000 hectares, using the soil of some farms located in areas of coexistence with rural indigenous communities, sharing ecosystem services related to their livelihoods and cultural heritage. It has been identified that the Hermosa and Zanja Morotí farms border an indigenous community, and that the Machuca Cué, Gavilán, Trementina, San Liberato, Soledad, Ronaldo Wiler, La Blanca, Mandiyú, Rancho Zeta, Cristo Rey, Zapallo and Santa Teresa farms are close to indigenous communities at a distance of less than 20 kilometers, so they could share ecosystem services, which will be seen on the ground for each indigenous community.

2.2. Political, legal and administrative framework.

The indigenous communities identified within the AID are located in the Departments of Concepción and Amambay; therefore, PARACEL's relationship with these communities is limited to the regulatory framework in force in the country, which also includes the international treaties ratified by the Paraguayan State.

At the national level, the National Constitution recognizes the existence of indigenous peoples and defines them as cultural groups before the formation of the Paraguayan State; recognizes and guarantees the right of indigenous peoples to preserve and develop their ethnic identity in their respective habitat; recognizes their right to freely apply their systems of political, social, economic, cultural and religious organization, as well as the voluntary submission to their customary rules for the regulation of internal coexistence as long as they do not violate the fundamental rights established in the Constitution. In jurisdictional conflicts, indigenous customary law shall be taken into account.

The following are some of the national laws related to indigenous peoples:

- Law No. 904/81 "Statute of Indigenous Communities" which aims at the social and cultural preservation of indigenous communities, the defense of their heritage and traditions, the improvement of their economic conditions, their effective participation in the national development process and their access to a legal regime that guarantees them ownership of land and other productive resources in equal rights with other citizens.
- Law No. 234/93 ratifying Convention 169 of the O.I.T on "Indigenous and Tribal Peoples in Independent Countries.
- United Nations Declaration on the Rights of Indigenous Peoples.
- Law No. 3231/07 guaranteeing respect and value of the existence of indigenous education.
- Law No. 4251/10 establishing the modalities and use of the official languages of Paraguay.
- Law No. 5469/15 "On the Health of Indigenous Peoples".
- Decree No. 1039/18 "Whereby the Protocol for the Process of Consultation and Free, Prior and Informed Consent with the Indigenous Peoples living in Paraguay is approved.

Our laws require that projects, whether public or private, guarantee the participation and consent of the indigenous peoples that could be affected by their activities in order to protect their rights and historical cultural heritage; respecting the integrity, way of life, and free self-determination of the communities, and therefore, it is required that the implementation of these projects be consensual, through a process of consultation and free, prior and informed consent.

It should be noted that, both for the implementation of the activities that led to the preparation of this report, and for the elaboration of future management plans, the National Development Plan Paraguay 2030, approved by Decree No. 2794/14, was considered.

On an international level, the Paraguayan State has expressed its commitment to the well-being of indigenous peoples, strengthening its commitment through the ratification of Convention No. 169 on indigenous and tribal peoples in independent countries of the National Labor Organization, approved by Law No. 234/93; the "United Nations Framework Convention on Climate Change", ratified by Law No. 251/93; the International Convention on the Elimination of All Forms of Racial Discrimination of the United Nations General Assembly, approved by Law No. 2128/03; the United Nations Declaration on the Rights of Indigenous Peoples, with a vote in favor of Paraguay in 2007; the American Declaration on the Rights of Indigenous Peoples of the Organization of American States, approved in plenary session in 2016. In addition, all the connection activities with the indigenous communities carried out for the preparation of this document have been framed in absolute adherence with the Equator Principles; the International Finance Corporation Performance

Standards (IFC); the Sustainable Development Goals, and taking as reference the World Bank Policy on Indigenous Peoples, the World Bank’s Safeguards, the Operational Policy on Indigenous Peoples of the Inter-American Development Bank (IDB); and the Policy on Relations with Indigenous Peoples of the International Fund for Agricultural Development (IFAD).

Table 1 shows the legal frameworks and principles related to indigenous issues that are in force in Paraguay and that apply to the project.

Table 1. National and international regulations related to the project.

Topic	Mention of the Legal Instrument
National constitution (NC)	<ul style="list-style-type: none"> ▪ The National Constitution devotes the entire fifth chapter to ensure indigenous communities fundamental human rights protection.
International Treaties and agreements related to indigenous affairs	<ul style="list-style-type: none"> ▪ American Declaration of the Rights and Duties of Man, 1948. ▪ The Universal Declaration of Human Rights, 1948. ▪ Law No. 1215/86 ratifies the United Nations Convention on obliterating all forms of discrimination against women. ▪ Law No. 1231/86 approves the Convention on the world, cultural and natural heritage protection. ▪ Law N° 1/89 ratifies The American assembly of human rights, San José agreement. ▪ Law No. 69/90 validates the International Convention against torture and other inhuman, cruel or degrading treatment. ▪ Law No. 5/92 approves the international agreement of civil and political rights and its optional protocol. ▪ Law No. 4/92 ratifies the international pact of economic, social, and cultural rights. ▪ Law No. 234/93 approves the agreement No. 169 on indigenous and tribal peoples in countries independent of the National Work Organization. ▪ Law No. 251/93 validates the United Nations framework convention on climate change. ▪ Law No. 1040/97 aproves San Salvador’s Protocol. ▪ Law No. 1600/00 ratifies the Inter-American assembly to prevent and eradicate violence against women. ▪ Law No. 1680/01 approves the childhood and adolescence code. ▪ Law No. 1748/01 ratifies the International Convention on genocide. ▪ Law No. 2128/03 validates the United Nations’ general assembly International convention on all forms of racial discrimination’s eradication. ▪ Law No. 2885/06 approves the assembly on the Defense of the Archaeological, Historical and Artistic Heritage of the American Nations (San Salvador Assembly) ▪ Law No. 2886/06 validates the Convention and Annex about Protection of the Underwater Cultural Heritage. ▪ United Nations Declaration on the Rights of Indigenous Peoples, 2007.

	<ul style="list-style-type: none"> American Declaration on the Rights of Indigenous Peoples of the Organization of American States, 2016.
Institutional framework emphasizing indigenous affairs	<ul style="list-style-type: none"> Law No. 904/81. The statute of Indigenous communities. Law No. 919/96 modifies and widens legislation N° 904/81. Decree No. 2794/14 approves the Paraguay 2030 National Development Plan, which stipulates that: “Indigenous populations, as a historically neglected vulnerable group, should receive high-priority attention in reducing poverty”. Decree No. 1039/18 approves the Protocol for the Free, Prior, and Informed Consultation and Consent Processes (FPIC) together with the Indigenous communities that live in Paraguay.
Institutional framework highlighting environmental impact evaluation	<ul style="list-style-type: none"> Law No. 40/90 creates the National Commission for the Defense of Natural Resources. Law No. 96/92 of wildlife. Law No. 294/93. Environmental Impact Assessment. Law No. 345/93 that modifies law N° 294/93 article 5 of Environmental Impact Assessment. Law No. 352/94 of Protected Wild Areas (PWA). Law No. 1561/00 forms the National System of Environment, Environment National Council, and the Environment Secretariat. No. 453/13 and N° 954/13 Regulatory decrees from Law No. 294/93 of EIA. Law No. 5413/15 modifies articles 1, 2, 3, and 4 from law No. 40/90. Law No. 5681/16 approves the Paris agreement on climate change. Law No. 6123/18 raises the environments’ secretariat’s level to the rank of Ministry and renames the Ministry of the Environment and Sustainable Development.
Institutional Framework with emphasis on Health, Hygiene, and Safety	<ul style="list-style-type: none"> Law No. 836/80. Health code Decree No. 14390/92. General technical regulation of safety, hygiene, and medicine at work. INDI Resolution No. 370/10, which prohibits the sale and marketing of alcoholc bereverages in indegenous communities of the country, especially to children and Young people. Law No. 5469/15 of indigenous peoples’ health. Guide and Recommendations for the Prevention and Protection against COVID-19 aimed at Paraguay’s indigenous peoples and communities. Promulgated by DINASAPI and CONASAPI in 2020.
Institutional Framework highlighting Education and Labor	<ul style="list-style-type: none"> Law No. 213/93 Labor code Law No. 3231/07 establishing the general department for Indigenous School Education (DGEEI). Law No. 5347/14 provides free access for indigenous applicants to tertiary-level career programs in public and private universities. Law No. 6279/19 establishes the obligatory nature of indigenous people’s incorporation in public institutions.

<p>Institutional Framework with emphasis on the Social, Cultural and Patrimonial aspect</p>	<ul style="list-style-type: none"> ▪ Law No. 946/82 for the Protection of Patrimonial Assets. ▪ Law No. 1372/88 establishes a Regime for the Regularization of Indigenous Communities Settlements. ▪ Law No. 43/89 that modifies Law No. 1372/88 provisions. ▪ Law No. 1863/02 establishes the Agrarian Statute. ▪ Law No. 3051/05 National law on Culture. ▪ Law No. 4251/10 on Languages aims to establish the Republic of Paraguay official language use modality. ▪ Law No. 5621/16 for the Protection of Cultural Heritage.
<p>Other linked laws</p>	<ul style="list-style-type: none"> ▪ Law No. 1183/85. Paraguay Civil Code. ▪ Law No. 1286/98 Code of Criminal Procedure of the Republic of Paraguay, Article 26 on Indigenous Communities. ▪ Law No. 5777/16 on Integral Protection of Women against all forms of violence.
<p>Regulatory frameworks of reference</p>	<ul style="list-style-type: none"> ▪ Equator principles. ▪ Performance Standards of the International Finance Corporation (IFC). ▪ United Nations Sustainable Development Goals. ▪ World Bank Policy on Indigenous Peoples (PO / PB 4.10). ▪ World Bank safeguards. ▪ Inter-American Development Bank (BID) Operational Policy on Indigenous Peoples. ▪ International Fund for Agricultural Development (FIDA) Relations Policy with Indigenous Peoples.

Source: own elaboration based on the documentation consulted.

Below are the principles and performance standards that have guided the preparation of this Indigenous Component Study within the Studies of Social and Environmental Impact, emphasizing those aspects of the Equator Principles and the IFC Performance Standards that emphasize special importance to indigenous issues.

Table 2. Equator’s principles chart.

Principle	Description
<p>Review y categorization</p>	<ul style="list-style-type: none"> ▪ The financial institution linked to the Financial Entities of the Ecuador Principles categorizes the project based on risk levels and environmental and social impacts.
<p>Social and environmental assessment</p>	<ul style="list-style-type: none"> ▪ It refers to evaluation processes to assess risks, significant environmental and social effects of the venture; it incorporates measures to minimize, mitigate and compensate adverse impacts correctly.
<p>Social and environmental applicable standars</p>	<ul style="list-style-type: none"> ▪ The testing process must address the host country’s compliance with laws and regulations; it also permits and must demonstrate overall project compliance with applicable standards.
<p>Environmental and social</p>	<ul style="list-style-type: none"> ▪ Projects must have an adequate environmental and social management system. An Environmental and Social Management Plan must be prepared.

management system, and action plan of the Equator Principles	
Interest groups participation	<ul style="list-style-type: none"> ▪ The venture must guarantee effective and systematic participation of stakeholders through informed consultation and participation processes in the different venture stages. ▪ Because the venture shares ecosystem services with indigenous communities, it must also carry out an informed consultation and participation process and comply with the rights, regulations and, laws in force that protect them.
Complaints channel	<ul style="list-style-type: none"> ▪ The resolution of concerns and problems related to the project's environmental and social performance must have an established action plan.
Independent review	<ul style="list-style-type: none"> ▪ A review by an external environmental and social consultant is required to assess compliance with the principles, emphasizing the adverse effects on indigenous people.
Contractual obligations	<ul style="list-style-type: none"> ▪ Each project must comply with required documentation, current regulations, together with environmental and social permits of the host country.
Independent monitoring and report	<ul style="list-style-type: none"> ▪ An external expert must verify the monitoring data.
Reports and transparency	<ul style="list-style-type: none"> ▪ In addition to the 5th principle's information requirements, at least a summary of the EISA must be guaranteed together with the public delivery of information on the greenhouse gases (GEI) emission levels.

Source: Adapted from PARACEL's environmental impact studies.

Table 3. IFC Performance Standards.

Performance Standard	Description
Assessment and management of environmental and social risks and impacts	<ul style="list-style-type: none"> ▪ The development of an efficient management system during the different stages of the project requires a comprehensive assessment to identify environmental and social impacts, risks, and opportunities. It requires intervening actor involvement in participatory processes and relevant information disclosure. ▪ In addition, the project should include a prior, free and informed consultation process for indigenous communities.
Work and labor conditions	<ul style="list-style-type: none"> ▪ This principle recognizes and guarantees fundamental labor rights promoting fair, healthy, and safe work conditions. It fosters non-discrimination, equality, and worker protection, including vulnerable ones such as children, migrants, and workers hired by third parties.
Resources usage efficiency and	<ul style="list-style-type: none"> ▪ Increased industrial activity and urbanization may raise pollution levels. Therefore, this principle describes the venture approach to avoid or

pollution prevention	minimize the impacts on the environment and human health, integrating pollution prevention and control technologies and practices.
Community health and wellbeing	<ul style="list-style-type: none"> ▪ The principle stipulates the need to foreseeing and avoiding health and wellbeing effects and risks caused on the communities by the project activities.
Land acquisition and involuntary resettlement	<ul style="list-style-type: none"> ▪ Land acquisition for project purposes can lead to individuals or community physical relocation (relocation or housing loss) and or economic displacement (loss of access to resources to generate income or means of subsistence). The objective is to avoid physical or monetary movement or minimize impacts through appropriate measures governed by general requirements stipulated in the regulations, such as compensation, community participation, complaint handling mechanism, others.
Biodiversity preservation and living natural resources' sustainable management	<ul style="list-style-type: none"> ▪ It aims to protect and preserve biodiversity and sustainable management of natural resources by adopting preservation and protection measures.
Indigenous peoples	<ul style="list-style-type: none"> ▪ Guarantee the respect of human rights and indigenous people's dignity through all the processes. ▪ Identify indigenous peoples as all those groups that have self-identification and ethnic recognition, attachment to demarcated geographic resources and habitats, cultural institutionality different from the dominant culture in the country, and their language or dialect.
Cultural Heritage	<ul style="list-style-type: none"> ▪ This principle seeks to protect cultural heritage from the adverse impacts of the venture activities and support its preservation, recognizing their importance for current and future generations.

Source: Adapted from PARACEL's environmental impact studies

For this study, we have proceeded following the technical specifications of the Performance Standard 7 Indigenous Peoples. This rule postulates that the indigenous communities identified within the AID are vulnerable groups who live in a socio-economic situation that does not allow them to defend their rights and interests. Therefore, all the necessary steps required by this standard were taken to identify any adverse impacts that, as a consequence of project activities, could threaten their integrity, identity, culture, and livelihoods; as well as for the survey of information and relationship respecting the free consent of the communities, which was prior and informed; baseline analysis; and for the development of management plans that benefit the development and participation of indigenous communities.

It is also important to note that IFC Performance Standard 7, as a guideline, is in line with the Paraguayan legal framework and establishes respect for the rights of indigenous peoples, as well as international conventions that contribute to respecting the rights of indigenous peoples and promoting their sustainability, such as the United Nations Declaration on the Rights of Indigenous Peoples and the International Convention on the Elimination of All Forms of Racial Discrimination, among others.

2.3. Indigenous peoples of Paraguay.

2.3.1. Administration and self-determination.

Indigenous peoples or ethnic groups are distributed in indigenous communities, in other words, the organizational component of the ethnic is reduced to communities, and each community is autonomous to define its own statutes and rules (Law 904/81, "Statute of Indigenous Communities"). One of the main cultural characteristics that have resulted from the autonomy of indigenous communities is that they are "closed", this means that they keep social distance from those people who are not members of their communities.

Indigenous community means the group of extended families, clan or group of clans, with their own culture and system of authority that speaks an indigenous language and coexists in a common habitat. The community is a territorial entity that, within the departmental territorial order, is provided with a communal territory, legislative autonomy and executive powers, as well as the power to administer itself through its own representatives.

Communities work as "micro-states" with the right to self-determination, recognizing their right to choose their political administration and the actions they will take to achieve their economic, social and cultural wellbeing and development.

The times and methods necessary to establish a connection with indigenous peoples do not respond to the conventional logic of community intervention, but to their own traditions and customs.

2.3.2. Linguistic families of Paraguay.

Before the Paraguayan lands were colonized by the Spanish, they were inhabited by peoples who had a diverse and complex ethnic-cultural composition. The region was populated by ethnic groups belonging to various linguistic groups with their own languages and different cultural behaviors; the most important were the Paĩ Tavyterã, Avá Guaraní and Mbyá Guaraní communities. For historical reasons, today we can also find some families and population groups of the indigenous peoples from the Chaco.

Table 4 shows the historical and current denomination of the indigenous ethnic groups that inhabited Paraguay.

Table 4. Linguistic families and ethnic groups of Paraguay.

Linguistic families	Ethnic communities	Self-designation	Previous designation	Translation and interpretation
Guaraní	Aché	Aché	Guayakí	Aché: The true person Guayakí: Hill's mouse (Designation outside their culture that contains contemptuous attitudes towards this indigenous people)
	Avá Guaraní	Avá Guaraní	Chiripá	Guaraní man and person.
	Mbyá	Jeguakava tenondé porangué i (autodeterminación ritual)	Mbya-apytere Ka' ynguá	The first chosen to wear the feather ornament.
	Paĩ tavyterã	Paĩ tavyterã	Ka' ayguá	Paĩ: title used by the gods and inhabitants of Paradise as they speak. Tavyterã: inhabitants of the earth's center city.
	Guaraní Ñandeva	Guaraní Ñandeva	Tapiete	
	Guaraní Occidental	Guaraní Occidental	Guarayos, Chiriguano	They prefer the self-designation of western Guaraní, probably because of their territorial location. Guarayos: Compound Word formed by mixing <i>guaraní</i> and <i>paraguayos</i> . Bolivian soldiers came up with this name in the Chaco War.
Maskoy	Toba-Maskoy	Enenhit		Toba: they are known as Toba since Argentinian technicians, workers of the Casado factory, called the indigenous people they found in that area Toba. Susnik says that they are the cultural and linguistic transfiguration of the Tobas who fled Argentina and met the Maskoy.
	Lengua	Enlhet Norte	Powok Eenlhit	Other men (refers to the people who are settled in the Mennonite colonies).
	Lengua	Enxet Sur	Eenlhit	Eenlhit: men (Mainly gathered in the Argentinian Mission area).
	Sanapaná	Kasnapan	Kyisapan, Saapan	
	Toba			Angaité: Guaraní origin name, the lengua call them Kyoma which means "common people".
	Angaité	Enslet	Kyoma	Guaná originates from the ancient Mbayá, where vessels were called Guana- Niyolola.
	Guaná	Guaná	Kaskiha	
Mataco Mataguayo	Nivacle	Nivacle - Nivache	Chulipi	Nivacle: Us men, our people. Nivache: (feminine).
	Maká	Maká	Enimaga o Inimaka	Our own.
	Manjui	Yojwaja	Choroti o Chorote	Manjui: Denomination with which the Nivacle know them and that it's generalized in Paraguay Yojwaja: That comes from the dove.
Zamuco	Ayoreo	Ayoreode - Ayoredie	Moros	Ayoreode: The men or true people. Ayoredie: (feminine).
	Chamacocos	Ybytosó	Yshyro	Yshyro: Aboriginal people, the people. Ybytosó: far end area, end part, border. Yshyro Ybytosó: the indigenous people who live at the end of the country, on the border.
	Chamacocos	Tomaráho		
Guaicurú	Toba-Qom	Qom-Lik	Emok-Lik	Toba: Named this way by the Guaraní because of their habit of shaving their heads, which revealed a prominent forehead. Qom-lik: It means "Human being". Emok-lik: The inhabitants of the left bank of the river (referring to the Toba on the Paraguayan side).

Source: Atlas of Indigenous Communities, 2002. DGEEC, 2003.

2.3.3. Right to Consult and Free, Prior and Informed Consent.

Indigenous communities have the right to actively and collectively participate in those projects that may affect their territories, culture and livelihoods. Projects, (from public or private origin), have the obligation to consult, inform and dialogue with indigenous communities in all stages of project execution, from the preliminary study to the completion or closure of the project.

Each community must be free, prior and informed consulted, as explained by the Indigenous Policy of the World Bank:

Libre es el derecho de la comunidad a dar su opinión por voluntad propia, sin ser persuadida, influenciada, engañada o forzada a tomar una postura determinada en relación al proyecto.

Free is the right of the community to express its opinion of its own free will, without being persuaded, influenced, deceived, or forced to take a particular position about the project.

Prior is the right of the community to know beforehand when it will be consulted, before making decisions that could affect them.

Informed is the right of the community to know in completeness and truthfulness all the information related to the project, including those aspects that could benefit and harm them, by giving them the information in an appropriate language that allows them to fully understand it.

As established in IFC Performance Standard 7, in order to carry out the consultation and free, prior and informed consent, there must be a social assessment that compiles evidence of the impact that the project could have on the communities and their environment, and it must be adequately communicated to the indigenous communities so that they can actively participate in the dialogue.

The studies were socialized in meetings made before the free, prior and informed consultation meeting, respecting the traditional deliberation times of each community. Likewise, and in accordance with Decree 1039/18 of Paraguay, for this study, Permission to Consult meetings were held (held prior to the consultation meetings and free, prior and informed consent) in order to identify the interest of the communities to begin a dialogue process in relation to the project.

The dialogue generated with the indigenous communities, in meetings and consultations, was aimed at finding out the conformity and support of each of the communities for the project. Also, to confirm if they have the support of the main groups of each community, who represent the voice of its members, and to let us know if they want the project to be carried out.

It is important to note that as established in Decree No. 1039/18, the leader of each community were given the contacts of the PARACEL consulting team representative for direct communication between them during this stage of the project, so that they could communicate with each other in case of any questions or complaints.

2.3.4. Indigenous peoples and their relationship with ecosystem services.

The indigenous worldview perceives nature is as an integral part of their identity and as an essential source of their well-being; nature provides indigenous families with the necessary resources for their physical and spiritual subsistence, and also teaches them about the ecosystem cycles and is part of the history of the community.

Although the description and meanings that communities give to nature varies from one culture to another, in general, the earth is spiritually perceived as a mother and as a provider, who offers care and protection as well as she is cared for and protected. According to Burger (1990), the land connects indigenous peoples with their past and ancestors; with the present through inputs that satisfy their needs, and with the future through the resources they will have to care for to inherit their children.

In most cases, indigenous communities have adapted to the ideas of private property of the prevailing culture rather than to live nomadically through private farms because natural resources decrease due to erosion, deforestation, and agricultural practices produce by farms. Private property has become an opportunity for indigenous communities to preserve (partially or totally) their ancestral practices to connect with nature but restricting themselves to the limits of their lands for housing, but taking advantage making of the natural resources and ecosystem services found inside and outside their lands; this practice that is protected by the National Constitution and by Law 96/92 on Wildlife from Paraguay.

In other words, the current legislation supports the existence of traditional livelihoods of indigenous communities, allowing them to use the ecosystem services of the geographic perimeter that is meaningful for them. The land combines symbolic, economic, social, and cultural factors for their survival and that are intimately connected to their cultural and ethnic identity.

Indigenous communities take advantage of ecosystem services to collect food, raw materials for traditional medicine; hunting and fishing of animals; water supply; wood for the construction of houses; firewood for cooking food, and as a means of protection against the cold and wild honey. They also take what nature provides to perform rites related to places or phenomena of nature and for recreation and leisure.

2.3.5. Indigenous peoples and their relationship with climate change.

The Paris Agreement on Climate Change, approved by the Paraguayan State in Law No. 5681/16 specifies that climate change is a problem for all humanity, and indigenous peoples are not oblivious to this, affecting them in different aspects of daily life. From the indigenous worldview, the development of the community and the relationship with the environment is based on a deep appreciation and care towards nature; considering the forest and the natural environment as a space of interrelation and reciprocal material, social and spiritual dependence. This worldview stands in direct opposition to the expansive agricultural model that predominates in the country, causing complex situations for communities to continue with their traditional ways of life, and increasing the vulnerability of indigenous territories due to the effects of climate change. Territories

were affected by climate change due to the transformation of large forested areas into lands without coverage (located close to indigenous territories) which increases exposure to the effects of climate change and reduces the capacity of territorial and community resilience and forces them to increase the stress on biodiversity through the clearing of native forests.

The relationship between climate change and indigenous peoples can be observed from two dimensions:

The *vulnerability of indigenous peoples* produced by climate change is one of the priority aspects in action strategies to improve the response capacity of communities. The capacity to respond to climate change is related to the socio-economic conditions of the communities, which contribute to a great extent to increase their vulnerability because of extreme weather events such as droughts, frosts, floods, etc. The socioeconomic conditions include high rates of poverty and inequality, as well as the fragility of livelihoods that are affected, such as food production for self-consumption, hunting, collection of raw materials for handicrafts and other by-products such as bee honey).

However, there are other significant problems such as difficulties to achieve full rights over their lands, territories, and forests; another problem is the lack of certainty to make effective the Free, Prior and Informed Consent; and a third problem is a difficulty to access to health, drinking water, among others.

In general terms, the rates of poverty and extreme poverty in indigenous peoples are around 40% and 60% respectively, rates higher than the national average (DGEEC, 2018). The situation of poverty and extreme poverty is closely related to the loss or lack of access and control over their lands, territories and forests, since their livelihoods depend directly on them. However, even when they have title of property, communities do not have viable economic alternatives that (in the long term) will help them to improve their resilience to the effects of climate change.

Historically, Indigenous peoples have developed in unfavorable socioeconomic conditions and with high rates of vulnerability to the effects of climate change. This vulnerability comprises a variety of elements of sensitivity or susceptibility to damage and the lack of response and adaptation capacity (IPCC, 2014). The vulnerability of communities may increase to the extent that they are more exposed to climate events and have less capacity to respond or adapt to them.

Indigenous peoples contribute to the reduction of Greenhouse Gases emission. The forests that belong to the indigenous communities are an essential part of the territory where biodiversity, water and cultural elements that are important to their worldview are protected. They also protect forest carbon stocks, which are essential for reducing climate change.

Forest reserves in indigenous territories contribute directly to climate change mitigation by maintaining a large part of their lands with forest cover. Indigenous communities have historically maintained the tree cover of their territories, because forests are interconnected to their livelihoods, culture and identity, and its conservation is an essential element to guarantee the well-being and preservation of the communities.

As a result, the ancestral relationship of indigenous peoples with forests leads to climate change mitigation and which also involves safeguarding the cultural and ancestral values of the communities. However, there are multiple other benefits in terms of conservation, according to FAO (2018) and Toledo (2001), it is estimated that forests and territories that belong to indigenous peoples protect 80% of the existing biodiversity in the world.

2.4. Criteria for the delimitation of the area of influence.

The delimitation of the areas of influence for carrying out the Indigenous Component Study has analyzed following references as frameworks of analysis for the selection of criteria:

- The technical specifications in point 8 of IFC Performance Standard 1.
- The technical specifications in point 5 of IFC Performance Standard 7.
- The nature of the project and its execution stages.
- The criteria selected to determine the areas of influence defined by the EISA.
- The sources and normative frameworks related to indigenous issues that guided this study, and that were previously listed.
- The social and cultural aspects, where the opinion of the people who are part of the indigenous communities is included. Regarding this criterion, it is imposing to point out that it is not necessarily a single, homogeneous and stable criterion overtime for all communities, due to they may have different ways of life, cultural practices, and traditions; different views about the use of ecosystem services, cultural heritage and meanings of geographical places, emphasizing that this criterion is different for each community.

Areas of influence have been defined and explained below:

- Indirect Influence Area.
- Direct Influence Area.

2.5. Description of the areas of influence.

Indirect Influence Area (All), delimited in accordance with the EISA, it includes the three northern departments of the country: Concepción, San Pedro, and Amambay. These 3 departments were considered because they are the closest to the PARACEL's undertaking and because they are related to the migratory behavior of the indigenous peoples.

Direct Influence Area (AID), this area was selected according to EISA definitions and considering the areas of displacement of the indigenous communities close to forestry enterprises. The delimitation of the AID for a project with indigenous communities involves greater complexities than those required by environmental impact assessments of others projects because it is not defined in a unidirectional way (considering only the area around the project) but it is bidirectional, which means that it also considers the area around the indigenous communities that they use to take advantage of ecosystem services and whether these areas have contact with the locations of the project's undertakings. For the purposes of this study, on one hand, the district of Concepción has been defined as AID of the industrial plant, for the reason that it is the closest and most populated urban area to the project, with only one urban indigenous community being found, and, on the other hand, as AID of forestry undertakings, a perimeter has been defined using the methodology previously mentioned, which has led to the identification of 10 indigenous communities, but nine of them are interconnected through roads that border forestry undertakings. These indigenous communities are found in the districts of Paso Barreto, Sargento José Félix López (known as Puentesíño) and Yby Yaú, belonging to the Department of Concepción, and Bella Vista of the Department of Amambay.

3. Methodology for the elaboration of the indigenous component study.

For the preparation of this document titled Indigenous Component Study, the following activities have been carried out:

Formation of an interdisciplinary support team of professionals and technicians who were in charge of all the phases of elaboration of this study, including some activities such as the interaction and coordination with stakeholders, the conduction of surveys, the systematization, and analysis of information regarding the topics of which this study is composed.

Survey, systematization and analysis of information, obtained from primary and secondary sources and through the realization of a participatory methodology and the application of consultation techniques and instruments to understand the perception of indigenous communities about their socioeconomic conditions, use of ecosystemic resources, ancestral and cultural practices, ways of life, means of subsistence and everything that corresponds to a better understanding and analysis of the situation of each community and its relationship with the project.

We collaborate with local and national authorities to identify and build relationships with indigenous communities. Mainly, we worked with local governments that share their social capital for a liaison with the communities, and with the Paraguayan Indigenous Institute (INDI). Institution that contributed with its experience, accompanying us to visit to the communities, especially in those visits that were planned for the signing of the consultation acts and Free, Prior and Informed consent that, by Decree 1039/18, requires the participation of an official of the INDI as minister of faith to guarantee respect for human rights and the rights of indigenous peoples.

To carry out this project, we had the collaboration of the General Directorate for the Protection of Indigenous Peoples of the INDI, the Department of Consultations and Inspection of the INDI, the Directorate of Management, Reduction and Mitigation of Risks of the Municipality of Concepción, Secretary of Indigenous Affairs of the Government of Concepción, Secretary of Indigenous Affairs of the Government of Amambay and officials from the Ministry of Agriculture and Livestock.



Photo: meeting at the Secretary of Indigenous Affairs of the Government of Concepción.



Photo: meeting at the Risk Management, Reduction and Mitigation Department of the City Hall of Concepción.

3.1. Methodological Scheme.

Considering the objectives pursued by this study and acting in accordance with the technical specifications of Decree 1039/18, the following work scheme has been carried out:

Review of secondary source. Review of sources prepared by public institutions, local governments, civil society organizations, private projects and multilateral organizations; sources such as censuses, databases, development plans, specific studies, land use planning maps, reports, research, frames of reference, previous projects, literature, conventions and treaties, policies, among others. It is important to mention that indigenous communities are dynamic societies that constantly experience changes in their internal constitution, for which the inaccuracy of some secondary sources was balanced with information obtained from first source with field visits.

Leaders Assembly. It is an activity whose objective is to share the project with several leaders of the same department on the same day, intending to inform them of the characteristics and nature of the PARACEL project. This activity allows the exchange of concerns and opinions and facilitates the delivery of information that leaders take to their communities to begin a respectful dialogue of their own times of conversation and deliberation, which also facilitates the execution of the other necessary activities for the realization of this study.



Photo: Assembly of leaders in Concepción.



Photo: Assembly of leaders in Amambay.

Permission to Consult. According to Decree 1039/18, the authorities of each indigenous community and with broad support from their community must give permission to the project developers to plan activities that may affect lands, territories, natural resources and the rights of indigenous peoples, requesting a writing permission to be consulted. The Permission to Consult is not mandatory and it is the responsibility of each community to request it if it deems it pertinent. In this project, 11 of the 12 communities identified in the pre-field work requested to sign the Permission to consult and 1 community gave its consent verbally; for those communities that requested a permission signature, the permit application form provided by the INDI was used. This stage is necessary to begin a process of dialogue with each community and is previous to the Free, Prior, and Informed Consent. As a result of this stage, the records of the 11 consultation permits were collected from the communities within the AID that requested them and were delivered to the INDI's Consultation Department.

Permission to consulta and free, prior and informed consent. Consultation is a fundamental stage for the correct execution of any project with social impact, especially in those projects that may affect indigenous communities because most of them are in a vulnerable condition. As established by Decree 1039/18 and the IFC Performance Standard, a period of dialogue, information exchange and consultation was established, respecting the deadlines and Decision-making mechanisms of each community, that end up in the signing of an act of Free, Prior and Informed Consent, with the presence of an INDI official who held the role of minister of faith, guaranteeing that the process respects the rights of indigenous peoples. In accordance with Decree 1039/18 (Chapter 3, article 1. Previous studies of social and environmental impact, sections 3.19 and 3.20) the consultation process was also a mechanism for the participatory evaluation of the impacts perceived by the members of the indigenous communities, as stipulated in the Indigenous Component Study decree



Photo: COVID-19 prevention protocol.

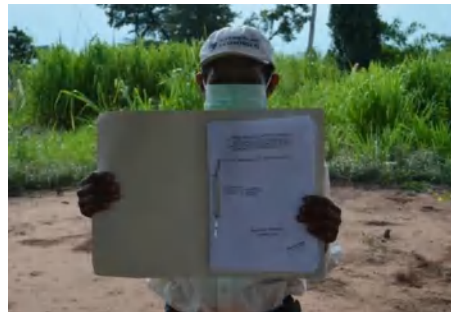


Photo: Delivery of preliminary Environmental Impact Studies.

"... Must be prepared in consultation and with the full and effective participation of the indigenous peoples", so that the studies consider "... the religious, political, economic, cultural, environmental and social concerns of the indigenous peoples". As a result of this stage and thanks to the field work, it was revealed that 10 indigenous communities out of the 12 communities previously identified in the pre-field work, are effectively within the AID. From these 10 indigenous communities, the acts of free, prior and informed consent were collected and delivered to the INDI's Consultation Department. As stipulated in the decree, the stages following the signing of the consent continue to be part of the consultation process, which means that the dialogue and consent process must be carried out until the end of the project. In particular, the activities in the indigenous communities were carried out within the framework of the Guide and Recommendations for the Prevention and Protection of COVID-19 directed at the Indigenous Peoples and Communities of Paraguay, promulgated in 2020 by DINASAPI and CONASAPI.

Information collected during field work. Information gathering activities were carried out in each indigenous community, using the Participatory Rural Appraisal methodology, consisting of workshops, meetings, interviews and the application of instruments, such as maps and surveys.



Photo: PRA workshop in an indigenous community.

Systematization of information. All the information gathered during this study and the documents resulting from the activities of this project have been systematized and organized for the analysis and preparation of the baseline and management plans.

3.2. Field information survey.

The planning for the collection of field data was carried out during October. It was based on a schedule according to the initial contact visits with the people involved in the process. It was designed using information provided by key informants.

In terms of planning and giving context to the consultation process, which was carried out during the pandemic period caused by COVID-19, Natán Foundation took into account the Protocol of entry to the indigenous communities of the country, to prevent the spread of the coronavirus issued by Resolution 171/20 and the Guide and Recommendations for the Prevention and Protection of Covid 19, issued by the National Council of Health of Indigenous Peoples (CONASAPI) and the National Directorate of Health of Indigenous Peoples (DINASAPI), of the Ministry of Public Health and Social Welfare (MSPyBS).

Table 5. Data collection and dialogue techniques.

Technique	Description
Leaders' assembly	<ul style="list-style-type: none"> ▪ Holding meetings with leaders was the first activity carried out with indigenous communities. ▪ Two assemblies were hosted, the first together with indigenous communities from the Concepción department, and the second gathered indigenous communities from the Amambay department. ▪ INDI, the governor's offices, and the local indigenous radio station, Pai Reta Joaju association, cooperated in issuing the invitations and convening the meetings. ▪ Representatives of INDI, PARACEL, and officials from the respective governor offices participated as guests in both leaders' assemblies. ▪ Two general assemblies were held with leaders, one in the department of Concepción and the other in the department of Amambay. ▪ The photographic record of this activity can be found on page 40 of this document.
Individual interviews with key informants	<ul style="list-style-type: none"> ▪ Four interviews were conducted with key informants: the Director of Risk Management, Reduction and Mitigation of the Municipality of Concepción; the Secretary of Indigenous Affairs of the Governor's Office of Concepción; a technician from the Ministry of Agriculture and Livestock; and the veterinarian in charge of the Trementina farm. ▪ The photographic record of this activity can be found on page 39 of this document.
Socio-economic surveys	<ul style="list-style-type: none"> ▪ A total of 349 surveys were conducted with full participation of the families of the indigenous communities, in which a total of 1570 people distributed in 10 indigenous communities were identified. ▪ The surveys constitute one of the fundamental pillars of information for the construction of the Baseline of the indigenous communities. The surveys were aimed at the heads of households.

	<ul style="list-style-type: none"> The photographic record of this activity can be found on page 39 of this document.
Direct observation	<ul style="list-style-type: none"> Direct observation carried out to describe the biophysical environment, identify fauna and flora species, the characteristics of housing, sanitation, health facilities, roads, etc.
Households and key spots georeferencing	<ul style="list-style-type: none"> Walking tours were conducted to verify the number of houses and representative locations such as schools, health centers, and recreation areas, among others. During these tours, coordinates were taken using GPS, to represent every location based on a Geographic Information System for subsequent analysis and action planning.
Project Socialization Meetings (Aty guasu)	<ul style="list-style-type: none"> In the Aty guasu format, 16 meetings were held for the socialization of the PARACEL Project, in 10 of these meetings, the signing of the minutes of the Prior, Free and Informed Consent, also called "Permission to consult", took place. And 10 workshops on Consultation and Free, Prior and Informed Consent were held.
Participatory Rural Appraisal (PRA) workshop	<ul style="list-style-type: none"> After the effective socialization of the PARACEL Project, 10 data collection workshops were held to prepare the baseline using the Participatory Rural Appraisal methodology.

Source: Drawn up by authors.

Each of the activities of the Socioeconomic Surveys, Project Socialization Meetings (Aty guasu) and all the Participatory Rural Appraisal Workshops have been detailed, with photographic record in the section "Description of the process" of each community studied. This material can be found in the following locations within this document: Takuarita community (page 73), Vy'a Renda community (page 101), Takuarendyju community (page 103), Redención community (page 134), Apyka Jegua community (page 153), Guyra Ñe'egatu Amba community (page 178), Jeguahaty community (page 200), Mberyvo community (page 225), Sati community (page 248) and Yvyty Rovi community (page 271).

Table 6. Socialization, consultation, permit application and information gathering activities.

Type of Activity	Participants	Date	Location
Assembly of leaders	27 leaders of indigenous communities, 4 representatives of PARACEL, 3 representatives of Natán Foundation, 2 representatives of INDI, 4 representatives of the Ministry of Livestock and Agriculture.	November 4, 2020	Yby Yaú – Concepción
Project Socialization Meeting	1 female leader from Redención Indigenous Community, 3 representatives of Natán Foundation.	November 5, 2020	Concepción – Concepción
Meeting with key informants	3 representatives of Natán Foundation and 1 Secretary of Indigenous Affairs of the Governorate.	November 6, 2020	Concepción - Concepción

Meeting with key informants	3 representatives of the Natán Foundation and 1 Director of Risk Management, Reduction and Mitigation of the Municipality of Concepción.	November 6, 2020	Concepción- Concepción
Meeting with key informants	3 representatives of the Natán Foundation and 1 Technician of the Ministry of Agriculture and Livestock.	November 6, 2020	Concepción- Concepción
Project Socialization Meeting	3 representatives of Natán Foundation and 18 members of the Takuarita Indigenous Community.	November 12, 2020	Sargento José Félix López - Concepción
Signing of the Prior, Free and Informed Consent Act	3 representatives of Natán Foundation and 18 members of the Takuarita Indigenous Community.	November 12, 2020	Sargento José Félix López - Concepción
Project Socialization Meeting	3 representatives of the Natán Foundation and 14 members of the Vy'a Renda Indigenous Community.	November 24, 2020	Paso Barreto - Concepción
Project Socialization Meeting	3 representatives of the Natán Foundation and 4 members of the Takuarendyju Indigenous Community.	November 24, 2020	Paso Barreto - Concepción
Project Socialization Meeting	2 representatives of the Natán Foundation and 4 members of the Vy'a Renda Indigenous Community.	November 25, 2020	Paso Barreto - Concepción
Meeting with key informants	2 representatives of the Natán Foundation and 1 Veterinarian of the Trementina Farm.	November 25, 2020	Paso Barreto - Concepción
Project Socialization Meeting	3 representatives of the Natán Foundation and 6 members of the Takuarita Indigenous Community.	November 26, 2020	Sargento José Félix López - Concepción
Project Socialization Meeting	3 representatives of the Natán Foundation and 32 members of the Redención Indigenous Community.	November 28, 2020	Concepción
Signing of the Prior, Free and Informed Consent Act	3 representatives of the Natán Foundation and 32 members of the Redención Indigenous Community.	November 28, 2020	Concepción
Project Socialization Meeting	4 representatives of the Natán Foundation and 7 members of the Takuarendyju Indigenous Community.	December 8, 2020	Paso Barreto - Concepción

Signing of the Prior, Free and Informed Consent Act	4 representatives of the Natán Foundation and 7 members of the Takuarendyju Indigenous Community.	December 8, 2020	Paso Barreto - Concepción
Signing of the Prior, Free and Informed Consent Act	4 representatives of the Natán Foundation and approximately 200 members of the Vy'a Renda Indigenous Community.	December 8, 2020	Paso Barreto - Concepción
Project Socialization Meeting	4 representatives of the Nathan Foundation and 26 members of the Jeguahaty Indigenous Community.	December 9, 2020	Paso Barreto - Concepción
Signing of the Prior, Free and Informed Consent Act	4 representatives of the Nathan Foundation and 26 members of the Jeguahaty Indigenous Community.	December 9, 2020	Paso Barreto - Concepción
Project Socialization Meeting	4 representatives of the Natán Foundation and 2 members of the Sati-Pai Renda Chiru Poty Indigenous Community.	December 9, 2020	Bella Vista - Amambay
Project Socialization Meeting	2 representatives of the Natán Foundation and 10 members of the Mberyvo Indigenous Community.	December 12, 2020	Yby Yaú - Concepción
Signing of the Prior, Free and Informed Consent Act	2 representatives of the Natán Foundation and 10 members of the Mberyvo Indigenous Community.	December 12, 2020	Yby Yaú - Concepción
Project Socialization Meeting	2 representatives of the Natán Foundation and 3 members of the Apyka Jegua Indigenous Community.	December 12, 2020	Bella Vista - Amambay
Project Socialization Meeting	2 representatives of the Natán Foundation and 13 members of the Apyka Jegua Indigenous Community.	December 13, 2020	Bella Vista - Amambay
Signing of the Prior, Free and Informed Consent Act	2 representatives of the Natán Foundation and 13 members of the Apyka Jegua Indigenous Community.	December 13, 2020	Bella Vista - Amambay
Project Socialization Meeting	2 representatives of the Natán Foundation and 23 members of the Sati- Pai Reta Chiru Poty Indigenous Community.	December 13, 2020	Bella Vista - Amambay
Signing of the Prior, Free and Informed Consent Act	2 representatives of the Natán Foundation and 23 members of the Sati- Pai Reta Chiru Poty Indigenous Community.	December 13, 2020	Bella Vista - Amambay

Project Socialization Meeting	2 representatives of the Natán Foundation and 2 members of the Guyra'engatu Amba Indigenous Community.	December 13, 2020	Bella Vista – Amambay
Signing of the Prior, Free and Informed Consent Act	2 representatives of the Natán Foundation and 2 members of the Guyra'engatu Amba Indigenous Community.	December 13, 2020	Bella Vista – Amambay
Reunión de Socialización del Proyecto	2 representatives of the Natán Foundation and 5 members of the Yvyty Rovi Cerro Poi Indigenous Community.	December 14, 2020	Bella Vista – Amambay
Signing of the Prior, Free and Informed Consent Act	2 representatives of the Natán Foundation and 5 members of the Yvyty Rovi Cerro Poi Indigenous Community.	December 14, 2020	Bella Vista – Amambay
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 10 members of the Yvyty Rovi Cerro Poi Indigenous Community and 1 representative of INDI.	December 15, 2020	Bella Vista – Amambay
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 22 members of the Apyka Jegua Indigenous Community and 1 representative of INDI.	December 15, 2020	Bella Vista – Amambay
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 25 members of the Sati – Pai Reta Chiru Poty Indigenous Community and 1 representative of INDI.	December 16, 2020	Bella Vista – Amambay
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 20 members of the Guyra Ñe'engatu Amba Indigenous Community and 1 representative of INDI.	December 16, 2020	Bella Vista – Amambay
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 14 members of the Mberyvo Indigenous Community and 1 representative of INDI.	December 17, 2020	Yby Yaú – Concepción
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Nathan Foundation, 25 members of the Jeguahaty Indigenous Community and 1 representative of INDI.	December 17, 2020	Paso Barreto – Concepción
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 15 members of the Vy'a Renda Indigenous	December 17, 2020	Paso Barreto – Concepción

	Community and 1 representative of INDI.		
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 5 members of the Takuarendyju Indigenous Community and 1 representative of INDI.	December 18, 2020	Paso Barreto – Concepción
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 20 members of the Takuarita Indigenous Community and 1 representative of INDI.	December 18, 2020	Sargento José Félix López - Concepción
Free, Prior and Informed Consent and Consultation Workshops	4 representatives of the Natán Foundation, 45 members of the Redención Indigenous Community and 1 representative of INDI.	December 18, 2020	Concepción - Concepción
Assembly of leaders	15 leaders of indigenous communities, 4 representatives of PARACEL, 5 representatives of Natán Foundation, 1 representative of INDI, 2 representatives of the Secretariat of Indigenous Affairs of the Governorate of Amambay and 1 representative of the Municipality of Pedro Juan Caballero	January 27, 2021	Pedro Juan Caballero – Amambay
Individual interviews and georeferencing of locations	5 pollsters of the Natán Foundation and 105 people surveyed from the Redención Indigenous Community.	February 05, 2021 February 06, 2021 February 07, 2021 February 08, 2021 February 09, 2021 February 10, 2021	Concepción – Concepción
Participatory Rural Appraisal Workshop	5 representatives of the Natán Foundation and 24 members of the Redención Indigenous Community.	February 22, 2021	Concepción – Concepción
Individual interviews and georeferencing of locations	5 pollsters of the Natán Foundation and 42 people surveyed from the Takuarita Indigenous Community.	February 12, 2021 February 13, 2021 February 15, 2021	Sargento José Félix López - Concepción
Participatory Rural Appraisal Workshop	5 representatives of the Natán Foundation and 50 members of the Takuarita Indigenous Community.	February 19, 2021	Sargento José Félix López - Concepción
Individual interviews and georeferencing of locations	5 pollsters of the Natán Foundation and 43 people surveyed from the Vy'a Renda Indigenous Community.	February 14, 2021 February 15, 2021 February 16, 2021	Paso Barreto – Concepción

Participatory Rural Appraisal Workshop	5 representatives of the Natán Foundation and 35 members of the Vy'a Renda Indigenous Community.	February 16, 2021	Paso Barreto – Concepción
Individual interviews and georeferencing of locations	5 pollsters of the Natán Foundation and 7 people surveyed from the Takuarendyju Indigenous Community.	February 14, 2021	Paso Barreto – Concepción
Participatory Rural Appraisal Workshop	5 representatives of the Natán Foundation and 11 members of the Takuarendyju Indigenous Community.	February 16, 2021	Paso Barreto – Concepción
Individual interviews and georeferencing of locations	5 pollsters of the Natán Foundation and 43 people surveyed from the Jeguahaty Indigenous Community.	March 16, 2021	Paso Barreto – Concepción
Participatory Rural Appraisal Workshop	5 representatives of the Nathan Foundation and 33 members of the Jeguahaty Indigenous Community.	March 16, 2021	Paso Barreto – Concepción
Individual interviews and georeferencing of locations	4 pollsters of the Natán Foundation and 35 people surveyed from the Sati– Pai Renda Chiru Poty Indigenous Community.	March 16, 2021	Bella Vista – Amambay
Participatory Rural Appraisal Workshop	4 representatives of the Natán Foundation and 20 members of the Sati– Pai Renda Chiru Poty Indigenous Community.	March 16, 2021	Bella Vista – Amambay
Individual interviews and georeferencing of locations	4 pollsters of the Natán Foundation and 18 people surveyed from the Apyka Jegua Indigenous Community.	March 16, 2021	Bella Vista – Amambay
Participatory Rural Appraisal Workshop	4 representatives of the Natán Foundation and 21 members of the Apyka Jegua Indigenous Community.	March 16, 2021	Bella Vista – Amambay
Individual interviews and georeferencing of locations	5 pollsters of the Natán Foundation and 17 people surveyed from the Mberyvo Indigenous Community.	March 17, 2021	Yby Yaú – Concepción
Participatory Rural Appraisal Workshop	5 representatives of the Natán Foundation and 15 members of the Mberyvo Indigenous Community.	March 17, 2021	Yby Yaú – Concepción
Individual interviews and georeferencing of locations	4 pollsters of the Natán Foundation and 24 people surveyed from the Guyra	March 17, 2021	Bella Vista – Amambay

	Ñe'engatu Amba Indigenous Community.		
Participatory Rural Appraisal Workshop	4 representatives of the Natán Foundation and 21 members of the Guyra Ñe'engatu Amba Indigenous Community.	March 17, 2021	Bella Vista – Amambay
Individual interviews and georeferencing of locations	6 pollsters of the Natán Foundation and 15 people surveyed from the Yvyty Rovi Cerro Poi Indigenous Community.	March 18, 2021	Bella Vista – Amambay
Participatory Rural Appraisal Workshop	6 representatives of the Natán Foundation and 15 members of the Yvyty Rovi Cerro Poi Indigenous Community.	March 18, 2021	Bella Vista – Amambay

Source: own elaboration.

4. Characterization of the influence Areas.

4.1. Indirect Influence Area (AII).

As mentioned in the PARACEL’s Environmental Impact Study, to which this study is limited, the AID includes the departments of Concepción, San Pedro and Amambay, with emphasis on the department of Concepción.

The quantitative information, related to the departments presented in this study, is based on the official sources available; however, it is important to note that the diversity of sources and the differences in time periods in which they were elaborated, may result in some of the calculations are rather approximate than exact.

The source of statistical information used in this section was provided by the General Directorate of Statistics, Surveys and Censuses (DGEEC) and the Paraguayan Indigenous Institute (INDI), including the following:

- INDI (1981). Census and Study of the Indigenous Population of Paraguay.
- DGEEC (1992). National Population and Housing Census.
- DGEEC (2002). Atlas of Indigenous Communities in Paraguay.
- DGEEC (2003). Permanent Household Survey.
- DGEEC (2012). National Census.
- DGEEC (2012). National Census of Population and Housing for Indigenous Peoples.
- DGEEC (2016). Permanent Household Survey.
- DGEEC (2017). Permanent Household Survey.

Map 1. Area of indirect influence of PARACEL.



Source: own elaboration

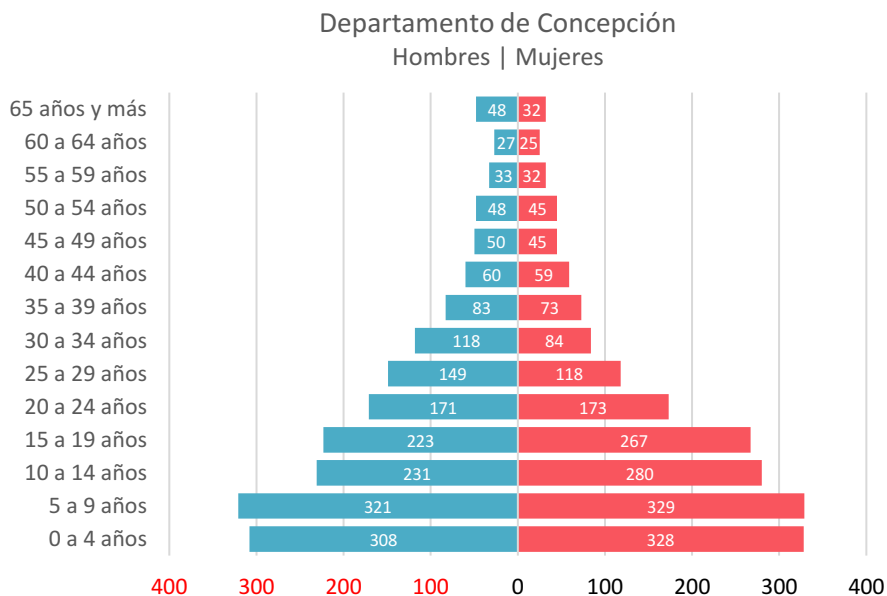
4.1.1. Overview of indigenous peoples in the Departments.

The Department of Concepción is located to the north of the Eastern Region and has a total area of 18,051 km²; it is bordered to the north by the Apa River and to the south by the department of San Pedro; to the west by the Paraguay river and to the east by the department of Amambay. Of the department's total area, 103.53 km² belongs to indigenous communities with property titles, who maintain 51.77% of this area as forest.

According to the DGEEC (2016), in the incidence of Poverty and Extreme Poverty by Department from 1997 to 2016, (in general terms) poverty has been decreasing within the department evidencing in the period from 2003 to 2016 a decrease from 41.52% to 40.62% in the percentage of the population living in poverty conditions and from 25.76% to 9.36% in the population living in conditions of extreme poverty.

The geography of the department is characterized by a large number of rivers and streams that cross it, being the Paraguay River its main river communication route. The department's population is 244,071 inhabitants, of which 3,998 are indigenous, representing 1.63% of the department's total population. From this group, 50.67% of the department's indigenous people are women, while 49,32% are men.

Graph 1. Age and gender distribution of indigenous people in the Department of Concepción.



Source: DGEEC (2012). Own Elaboration.

In relation to education and work, and making a gender comparison, it reveals that in the adolescent indigenous population aged 15 years or more, the illiteracy rate is 54.3% in women and 45.45% in men, the average years of education in this area is 2.13 in women and 2.38 in men; the labor force participation rate is 37.11% in women and 68.17% in men. In the indigenous population

between 6 and 14 years of age, there is a rate of non-attendance at a formal educational institution of 34.98% in women and 39.11% in men. Furthermore, the proportion of the population from 10 to 19 years old that is married or in union with a partner correspond to 28.9% in women and 16.6% in men.

According to older official sources dating from 2002 (DGEEC) that specifically mention the living conditions within the indigenous communities of the department of Concepción, it is detected that 86.56% of homes are lit with candles or fireplaces and while 89.52% of homes do not have access to drinking water from ESSAP / SENASA or do not have access to a well with a water pump. The main economic activity is agriculture.

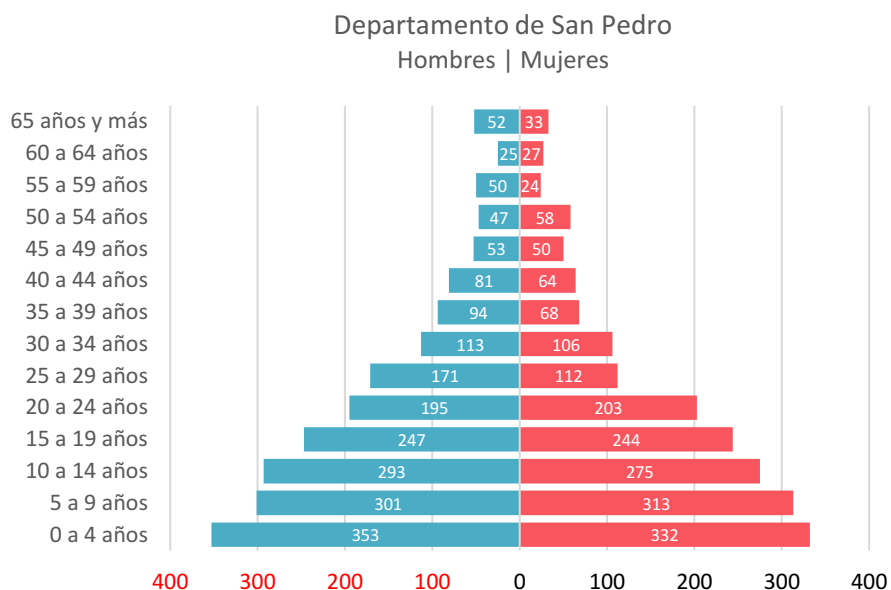
There are 20 rural indigenous communities in the department, 1 urban indigenous community, and 6 family nucleuses. They are distributed in districts as follows: in the district of Concepción there are 3 indigenous communities and 1 family nucleus, in the district of Horqueta there are 5 indigenous communities, in the district of San Lázaro there is 1 indigenous community, in the district of Yby Ya'ú there are 10 indigenous communities and 5 family nuclei, in the district of Azotey there is 1 indigenous community and in the district of Sargento José Félix López there is 1 indigenous community.

The San Pedro Department is located in the center of the Eastern Region and has a total area of 20,002 km². It borders to the north with the department of Concepción and to the south with the departments of Caaguazú and Cordillera, to the west it is bordered by the Paraguay River and to the east with the Amambay and Canindeyú departments. Of the total area of the department, 138.49 km² belongs to indigenous communities with property titles, who maintain 30.31% of this area as wooded forest.

In general terms, poverty has been decreasing within the department, which is evident during the period from 2003 to 2016 with a decrease from 40.35% to 32.64% in the percentage of the population living in poverty conditions and from 28.23% to 15.43% in the population living in extreme poverty conditions.

The population of the mentioned department is 419,629 inhabitants, of which 3,572 are indigenous people, representing 0.85% of the total population of the department. From this group, 48.2% of the indigenous people of the department are women, while 51, 79% are men.

Graphic 2. Age and gender distribution of indigenous people in the Department of San Pedro.



Source: DGEEC (2012). Own Elaboration.

In relation to education and work, and making a gender comparison, was identified that in the indigenous population from 15 years old, the illiteracy rate is 38.16% in women and 22.79% in men. The average years of study are 2.89 in women and 3.99 in men, and the labor force rate is 71.68% in women and 86.97% in men. In the indigenous population between 6 and 14 years of age, there is a rate of non-attendance at a formal educational institution of 22.47% in women and 18.67% in men. Furthermore, the proportion of the population aged 10 to 19 that is married or in union with a partner is 22.15% in women and 9.16% in men.

According to older official sources dating from 2002 (DGEEC) that refer specifically to the living conditions of the indigenous communities of the department of San Pedro, it is detected that 89.3% of the homes use candles or fireplaces for lighting and 94.22% do not have access to drinking water from ESSAP/SENASA or, at least, access to well water with a pump. The main economic activity is agriculture.

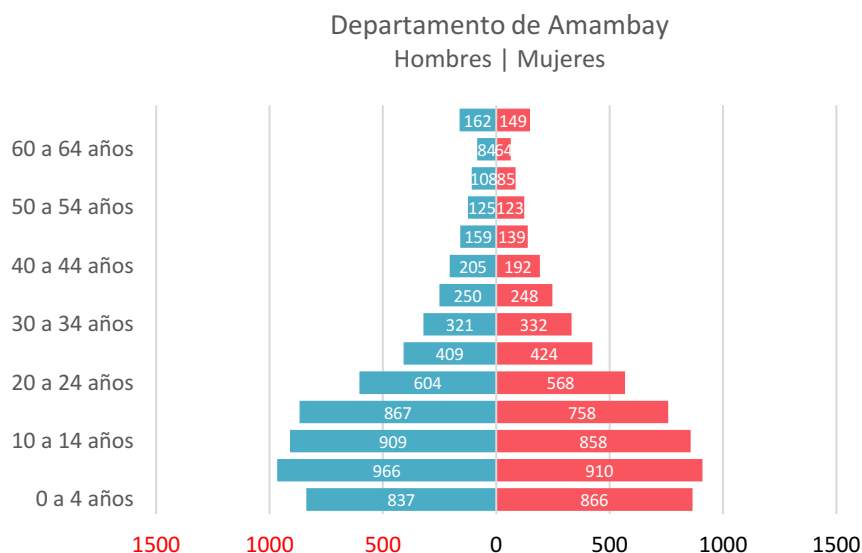
In the department there are 36 rural indigenous communities, distributed in districts as follow: In the district of San Pedro del Ycuamandiyu is identified 1 indigenous community; In the district of General Elizardo Aquino is recognized 1 indigenous community; In the Nueva Germania district is identified 1 indigenous community; In the district of San Estanislao are known 3 indigenous communities; In the district of Tacuati, 6 indigenous communities are identified; In the district of Villa del Rosario, 2 indigenous communities are identified; 8 indigenous communities are identified in the General Isidro Resquín district; 2 indigenous communities are identified in the Guayaibi district; 10 indigenous communities are identified in the Capiibary district, and 2 indigenous communities are identified in the Yrybu Cua district.

The Department of Amambay is located to the northeast of the Eastern Region. It has an area of 12,933 km², it borders to the north and east by Brazil, to the south with the department of Canindeyú and to the west with the departments of Concepción and San Pedro. Of the total area of the department, 802.92 km² belongs to indigenous communities with property titles, which maintain 46.41% of this area as wooded forest.

In general terms, poverty has been decreasing within the department. It is appreciated that in the period from 2003 to 2016 a decrease from 43.08% to 19.42% in the percentage of the population living in poverty conditions and from 15.64% to 3.19% in the population living in conditions of extreme poverty.

The population of the department is 164,462 inhabitants, of which 11,852 are indigenous people, representing 7.2% of the total population of the department; from this group, 48.82% correspond to women, while 51.17% are men.

Graph 3. Age and gender distribution of indigenous people in Amambay department



Source: DGEEC (2012).Own Elaboration.

In relation to education and work, and making a gender comparison, was identified that in the indigenous population over 15 years of age, the illiteracy rate is 56,69% in women and 48,2% in men. The average years of study are 1,62% in women and 1,97% in men, and the labor force rate is 57,72% in women and 86.13% in men. In the indigenous population between 6 and 14 years of age, the rate of non-attendance at a formal educational institution is 45,99% in women and 45,03% in men. Furthermore, the proportion of the population aged 10 to 19 that is married or in union with a partner is 29,04% in women and 15,13% in men.

According to older official sources dating from 2002 (DGEEC) that refer specifically to the living conditions of the indigenous communities of the department of Amambay, was detected that 91,75% of the homes use candles or fireplaces for lighting and 87,85% do not have access to drinking

water from ESSAP / SENASA or, at least, access to a well water with a pump. The main economic activity is agriculture.

In the department there are 47 rural indigenous communities, distributed in districts described below: 26 indigenous communities are identified in the Pedro Juan Caballero district; 9 indigenous communities are identified in the Bella Vista district; 10 indigenous communities are identified in the Capitán Bado district, and 2 indigenous communities are identified in the Zanja Pyta district.

4.1.2. Land tenure, title and use.

The last National Population and Housing for Indigenous Peoples Census (DGEEC, 2012), identifies that in the country there are 493 indigenous communities and 218 villages and family nucleus, distributed in 19 ethnic groups that inhabit the 13 departments of the country. The data reported helps to carry out an analysis of the situation of land tenure, title and use in a general way and, especially, regarding the 493 communities, leaving out of many analyzes the 218 villages and family nucleus.

Land tenure and title is an important issue for the development of indigenous peoples, because of the 493 indigenous communities, 30% live on untitled lands. To be more specific regarding the estimation of indigenous communities that live on untitled lands, in the department of Concepción 40% of the communities do not have land titles, in the department of San Pedro 21.42% of the communities do not have land titles and in the department of Amambay 24.44 % do not have the land title.

Los *problemas con relación a la tenencia* son habituales para estos grupos, de las 493 comunidades indígenas, el 29% declara tener algún tipo de problema de esta índole. Los problemas de tenencia habituales de las comunidades son:

Land tenure problems, are common for these groups. Thus, of the 493 indigenous communities, 29% declare having some type of problem of this nature. The most common land tenure problems in the communities are:

Table 7. Problems related to land tenure.

Communities identified in the indigenous census	Number of communities that manifest tenure problems			
	Problems due to the provision or leasing of land	Misappropriation of Business people	Peasants invasion	Titles overlapping
493 communities	47 communities	42 communities	31 communities	23 communities

Source: DGEEC (2012). Compiled by authors.

Renting indigenous lands is unconstitutional and is prohibited by article 64 of the National Constitution, which stipulates that “indigenous peoples have the right to community ownership of land, in sufficient extension and quality for the conservation and development of their peculiar ways of life. The State will provide them with these free of charge lands, which will be unattachable,

indivisible, non-transferable, imprescriptible, not susceptible, and not capable of guaranteeing contractual obligations or to be rented; likewise, they will be exempt from tax".

However, in practice, it is detected that 36.91% of the communities rent or lend their lands to third parties; half of these lands are destined for extensive crops, in second place, for pasture and, to a lesser extent, for timber extraction and charcoal production.

4.1.3. Traditions and customs

Livelihoods are the capabilities, assets (which include both material and social resources) and necessary livelihood activities (Ashley & Carney, 1999). Indigenous peoples have a vision of interaction and coexistence with forests, biodiversity and ecosystem services. In this sense, the productive subsistence activities of the communities cannot be separated from the conservation of the forests, since their protection is interdependent on the well-being of the communities.

The geographic space that a community needs to move and develop its lifestyles varies from one community to another. Due to variants such as location, geographical characteristics, customs, ecosystem services and cultural heritage, it is that some communities travel a greater extension of land than others, creating variations in the delimitation of the Direct Influence Area, and so the point of view changes, because now, it is not only the location of project activities, its also the interaction with the culture of the indigenous community.

Generally, the displacement of indigenous populations around their communities is for subsistence activities.

Hunting and fishing activities are the main feeding source for some indigenous families. The 92, 12% of the indigenous communities of the country, declare to practice these activities. From colonial times, indigenous people were recognized by living in igualitary societies and they did not produce excedents. The forest provided them with everything they needed for their subsistence; they traveled great extensions for collecting, hunting, fishing, and covering their clothing and tools needs.



Photo: Indigenous person using a bow and arrow

The importance of these activities for the people of the indigenous communities comes from this.

The knowledge and practice of hunting and fishing are directly related to their diet. The animals that they hunt are their main source of fat and protein supply. They hunt only eatable animals and in the amount necessary to feed the community and family, avoiding indiscriminate hunting and respecting the reproductive cicle of the animals. The main animals available for hunting within the IIA are: armadillo, pig, fish, deer, coati, lizard, birds, turtle, anteater, monkey, capybara, and ostrich.

Indigenous families of the communities *collect* wild fruits to provide themselves with food sources at different seasons of the year; this wild fruits complement their diet. In the country, 88.6% of indigenous communities declare to gather food from the forest, field or other places. The main products that are collected in the area are wild honey, coconut, guavira, yvaviju, pakuri and bush beans.



Photo: Child and his coconut harvest.

A sample of the knowledge that indigenous communities have about this variety of plant resources is demonstrated by the local classification system of the fruits that they have, identifying their natural resources according to their characteristics, such as shape, size, flavor, and fruiting seasons. To collect what they need, the members of the family, (according to their physical capacities) participate in the fruit-gathering process. The gatherers, using different techniques and different tools, get the fruits that the family needs.

In some community territories, generally in those that conserve forests, fruit harvesting takes place in different settings, such as the forest and streams. After extracting the fruits, collectors use different techniques to transport and move them from the collection sites to their homes. On the other hand, indigenous people consume some raw fruits and other fruits are processed to be consumed. It is important to note that, in most cases, the vitamin properties of wild fruits do not disappear despite of the cooking process to which they are subjected. When indigenous people talk about fruit harvest, they also talk about a deep worldview that manifests the existence of protective beings that guide and take care of the harvesters and fruit resources. Also, it is evident the presence of norms and rites practiced before, during and after the harvesting of wild fruits.

Handmade crafts are a cultural and economic activity for many communities. In the country, 75.2% of indigenous communities declare that they are engaged in this activity; with a greater participation of women, representing 68.2% of indigenous artisans. Although the manufacture of handicrafts is considered as underdeveloped compared to agriculture, livestock, gathering, hunting and fishing activities in the area, it is considered as an activity of interest to artisans because not only provides them with monetary income, but is also a source of leisure that contributes to their overall well-being. The raw materials commonly used for the manufacture of indigenous handicrafts in the departments of Concepción, San Pedro and Amambay are: karaguata, takuara, seeds, wool, guembepi, karanday, feathers and soft woods.

Most of the population alternates agriculture and livestock with the production of handicrafts; these indigenous communities have always lived in extreme poverty conditions with little support from the government and from organizations that channel their productive work towards the achievement of their needs and interests. Many of the artisan jobs and their products have disappeared; the consumption of handicrafts has also drastically decreased as a result of the migration processes and rural depopulation.



Photo: Mbya handcrafted guitar
Source: Natán Foundation.

In the case of the Concepción Department, the little production of indigenous handicrafts detected in stores during 2018 was mainly destined for the souvenir market, which had negatively influenced the identity and symbolism of the artisan objects. The productive capacity is limited and dispersed, and the whole process requires technological and equipment improvement. Anthropological studies carried out by the Government of the department of Concepción, have determined that these realities have to be faced to rescue and preserve this cultural heritage, with the intention of maintaining a cultural identity and as a mechanism for generating monetary income for indigenous communities. (Secretariat of Indigenous Affairs, Government of the Department of Conception, 2018)

Traditional medicine activities are a constitutive element of the identity of indigenous communities, because these activities are related, on the one hand, to health and disease and, on the other hand, to their worldview, magical, religious and empirical knowledge. For the practice of traditional medicine, indigenous people collect medicinal plants from their environment, known as pohã ñana to perform prayers, songs and dances. In most cases, spiritual leaders use tobacco as a primary plant for healing.



Photo: Mbya Guaraní ritual.
Source: Natán Foundation.

For some communities, especially those that are located far from urban centers, traditional medicine is, in many cases, the only health system available to the population. Due to the indigenous cultural diversity, it is not possible to talk about “one” traditional medicine, but it is possible to talk about the coexistence of various forms of expression of traditional medical knowledge.

The school and the health system that do not incorporate this knowledge are not supporting the reserve of knowledge that these indigenous cultures have managed to accumulate through millenary experience. One of the most significant aspects of this ancestral knowledge is the use of therapeutic songs and medicinal plants; these last fully integrated into the prevailing culture of the country. Indigenous people often use pohã ñana to heal illnesses such as ulcers, fractures, stomach

pain, flu, headache, diarrhea, and kidney, liver, stomach, appendix diseases, and are used in women in labor (Secretariat of Indigenous Affairs, Government of the Department of Concepcion, 2018)

The *organizational structure* is oriented towards the articulation with the outside world; their decision-making methodology is based on meetings in which is promoted the dialogue and participation of all community members.

Political power is vested in the figure of the leader who is invested with legitimate power by the other members of the community; this is done through selection processes that are culturally validated. The leader is responsible for traveling to Asunción to get recognition from the INDI.

Indigenous communities usually establish a series of rules and principles that regulate the behavior of those who occupy positions of power within the group. The leaders who are recognized by the assembly are responsible for monitoring and regulating life in the community, fulfilling the function of conciliating conflicts between members of the community and for being a bridge of communication with the outside world, in most cases with public institutions, civil society organizations and private organizations.

In indigenous communities it is possible to find more than one leader, they are chosen to contribute to the work that the previous leader is already doing or because the community is going through a period of conflict between family clans that prefer to mobilize the community in different ways of developing. Sometimes it is possible to find family groups that promote modernization and changes and on the other hand it is possible to identify groups that advocate a return to ancestral traditions and customs.

The figure of the leader is subject to a meaning process given by community members and external interest groups. On occasions, some interest groups approach the community with the intention of interacting with the “leaders”, believing that this will guarantee a good relationship with the total group of people who live in the community, however, this is not correct, because the political system of communities is not necessarily based on representations, but can be based only on the distribution of community responsibilities.

The leader also has the responsibility of being the link between the community and supra-community organizations, which are those organizations that bring together more than one indigenous community with common development interests, and that are grouped with the objective of influencing local and national policies and to ensure respect for the rights of indigenous peoples.

4.2. Direct Influence Area (AID).

This chapter describes the criteria that were used to identify the AID and those social groups that are considered to be within it. In order to organize the information in this chapter, it is presented as follows:

AID delimitation Foundation. In this section, is explained the reference framework used for the selection of the AID delimitation criteria

AID delimitation Criteria. The AID delimitation criteria are listed and detailed.

Indigenous ethnicities identified within the AID. It describes Pañ Tavyterã and Mbya Guaraní indigenous ethnic groups and a multicultural indigenous community made up of indigenous people of different ethnicities, mainly from the Maskoy language.

Baseline of the characterization of the indigenous communities detected within the AID. Detailed description of the culture features, language, use of resources, socioeconomic and political structure of the indigenous communities within the AID, including socio-demographic information and georeferenced maps of each community.

4.2.1. Foundation for the delimitation of the AID.

To define AID, it is important to conceptualize an environmental impact, which is defined as "the alteration, favorable or unfavorable, in the environment or in a component of the environment, as a result of an activity or action" (Conesa, 1997: 25 and ss). According to this definition, trying to determine the extent of impacts with some accuracy is a complex technical process that faces serious difficulties to carry out and that, in any case, depends on the magnitude and complexity of the project to be developed, and the activity to be evaluated, considering that the direct social relationship between the project and the social environment occurs in at least two levels of integration:

- Individual units (farms, houses, and their corresponding owners), and
- First and second order social organizations (communities, precincts, neighborhoods and associations of organizations).

The characterization of the AID is carried out in function of delimiting the geographical area in which the avoidance, minimization, mitigation and compensation actions will be oriented, so that the communities, neighborhoods and organizations of the first and second order could participate in the actions planning process before, during and after the execution of the project.

To carry out this study, the criteria proposed by IFC Performance Standards 1 and 7 have been considered, which establishes that the area of influence is one that is likely to be affected by the activities and facilities of the project or by the organizations linked to the project that were born thanks to the implementation of this project; which may occur directly or indirectly, predictably or

spontaneously, cumulatively or non-cumulatively, and which affect biodiversity or the ecosystem services on which the communities that are located there depend.

In accordance with IFC Performance Standard 1, Conesa (1997), notes that to define the AID of the project must be analyzed four criteria related to the geographical scope and environmental conditions of the project implementation areas. These aspects are:

The *limit of the project*, is determined by the time and space that comprises the development of the project. For this definition, the spatial scale is limited to the physical space or natural environment where the project will be implemented.

The *spatial and administrative limits*, related to the legal and administrative limits where the project will be developed. In this case, the limits correspond to the indigenous communities of the department of Concepción and Amambay.

The *ecological limits*, determined by the temporal and spatial scales, but is not limited to the construction area where the impacts can be immediately evident, but on the contrary, it extends further based on the potential impacts that a project may generate.

The *social dynamics* within the direct influence Area, in socioeconomic terms, is not restricted to the location's spatial criterion of the specific area of intervention of a project, in other words, it is not limited to the exact site of implementation of the project. It is mainly related to the criteria, such as the presence of population, demographic density, land use and accessibility (roads and paths), among others.

Taking into account the information mentioned above, it is possible to determine that the AID for indigenous communities is not measured merely by aspects of geographical distance, but also by aspects of their way of life that may be especially vulnerable due to loss, alienation or exploitation of their land and nearby lands and by the change in the conditions of access to natural and cultural resources.

4.2.2. AID Delimitation Criteria.

The AID delimitation criteria, presented in the project, in relation to indigenous communities, it is related to the geographical areas of the future industrial plant and forestry undertakings. Based on the IFC Performance Standards, the country's current legal regulations, the reference frameworks used for this study, and what was mentioned by indigenous communities in dialogue activities, the criteria for defining AID are as follows:

- Location of the PARACEL Project.
- Distance from PARACEL undertakings.
- Waterways of the Aquidabán watershed.
- Common access roads for communities and entrepreneurship.
- Wilderness protected areas (biodiversity).
- Social indicators (health, education, security and vulnerability).
- Traditions and customs (migration, ancestral rites, hunting, fishing and others).

From the indigenous worldview, the earth is perceived as a source of life: the one that nourishes provides or sustains and teaches; for this reason, the criteria above were considered. Although this perception may vary according to cultures and customs, in general, the earth is spiritually considered as a mother who cares and protects but who, in turn, must also be cared for and protected.

According to Burger (1990), “the land connects indigenous peoples with their past (the home of their ancestors), with the present (as a provider of their physical needs) and with the future (as a legacy that they must preserve for their children and grandchildren). Although communities are forced to adapt to Western ideas regarding private property and land tenure, they consider that land is a resource to which all people should have the right and access, as an essential provider of livelihood. Under this perception, for indigenous communities, it is essential that the whole of society should assume responsibilities for collective care and conservation”.

It is important to emphasize that these criteria are not hierarchical; they are interrelated with each other and respond to technical criteria and comprehensive regulatory framework, to provide answers to the possible effects on indigenous communities.

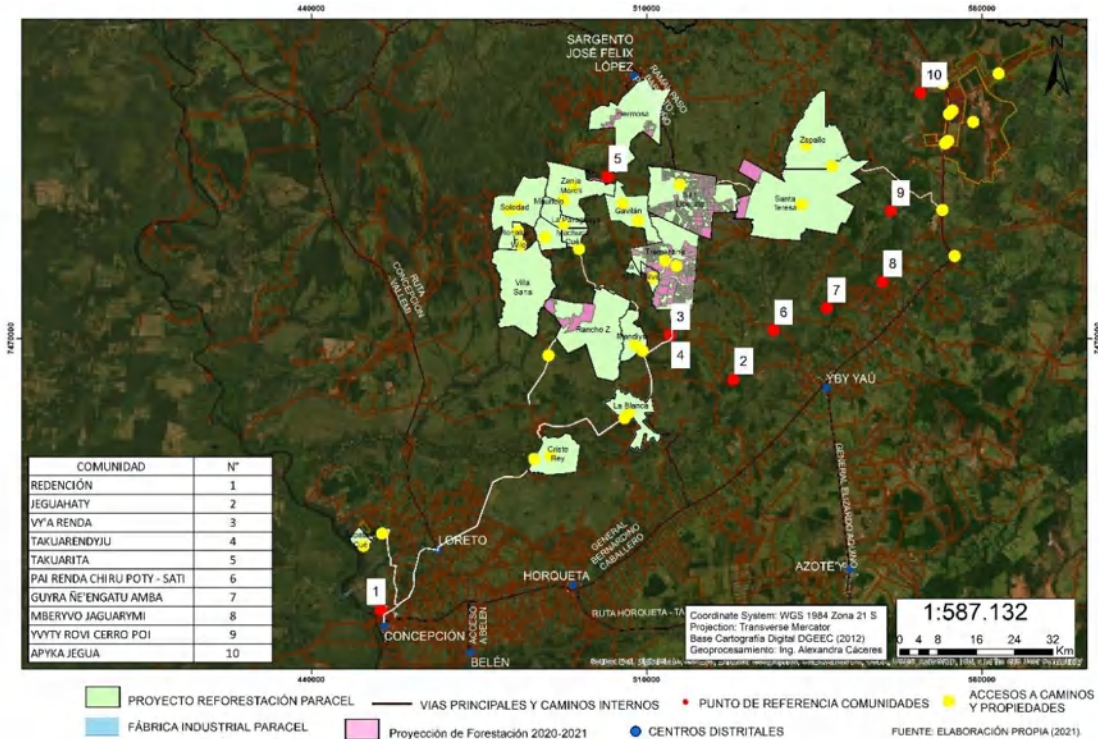
Table 8. Criteria considered for the determination of communities in the Direct Influence Area (AID) of the PARACEL Project.

Criteria	Description
Location of the PARACEL project	Based on the information provided by PARACEL, the location of the Industrial Plant is in the city of Concepción, on the left side of the Paraguay River, about 15 km (in a straight line) from the urban center of the city; and 20 farms distributed in the Sargento José Félix López, Bellavista, Concepción and Loreto districts. The farms are San Liberato, Zapallo, Soledad, Mandiyú, Zanja Moroti, Machuca Cué, Ronaldo, Cristo Rey, Wiler, Hermosa, Isla Alta, Santa Teresa, La Blanca, Gavilán, Trementina, La Paraguaya, Mauricio, Silva, Z Farm and Villa Sana.
Distance between the community and PARACEL’s project	It alludes to the distance between communities and any of PARACEL's undertakings. It also identifies if contact occurs at this distance, within a radius less or equal to that used by the indigenous communities to carry out their traditional practices, livelihoods, and ecosystem services use. This criterion is measured in kilometers and has a different condition for each indigenous community. It depends on the distance that each one specifies during the consultation process. For this study, some indigenous communities have stated that the maximum distance traveled to carry out their activities is 5 kilometers, and others, 15 kilometers. It means each community uses a different geographic area to carry out its activities. Thus, the present study has to consider this piece of information.
Watercourses of the Aquidabán watershed	It is related to the previous criterion, especially if the rivers used by the indigenous communities for fishing and water collection are located within PARACEL's undertakings.
Common access routes for communities and projects	Refers to the common roads and tracks used by the indigenous communities, PARACEL and their suppliers, that may be totally or partially modified.

Protected Wilderness Areas (PWA)	Protected Wilderness Areas are considered because they are mainly related to collection and hunting activities.
Social Indicators	Refers to the effects the project could have on the health, education, security, vulnerability and migratory activities of the indigenous communities.
Traditions and customs	This refers to the effects the project could have on ancestral rituals, organizational structures, decision-making methodologies and livelihoods such as hunting, fishing and harvesting.

Source: Own Elaboration.

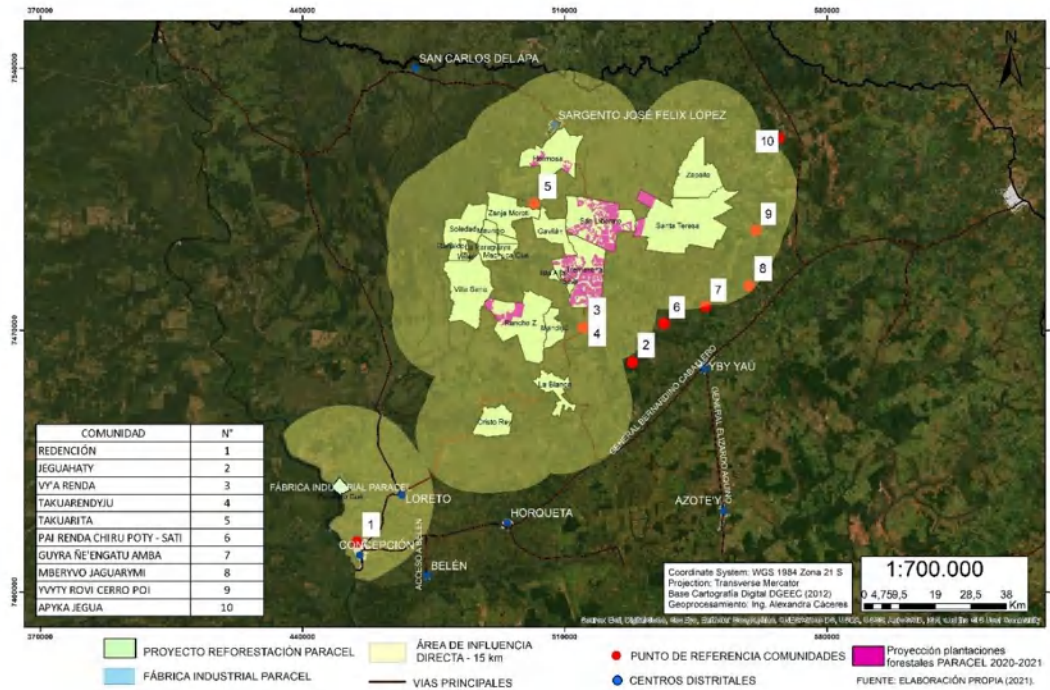
Map 2. Location of the projects and indigenous communities inside the AID of PARACEL.



Source: Own Elaboration.

The project identified the following indigenous communities: Redención, Jeguahaty, Vy'a Renda, Takuarendyju, Takuarita, Sati - Pai Renda Chiru Poty, Guyra Ñe'engatu Amba, Mberyvo Jeguarymi, Yvyty Rovi Cerro Poi and Apyka Jegua.

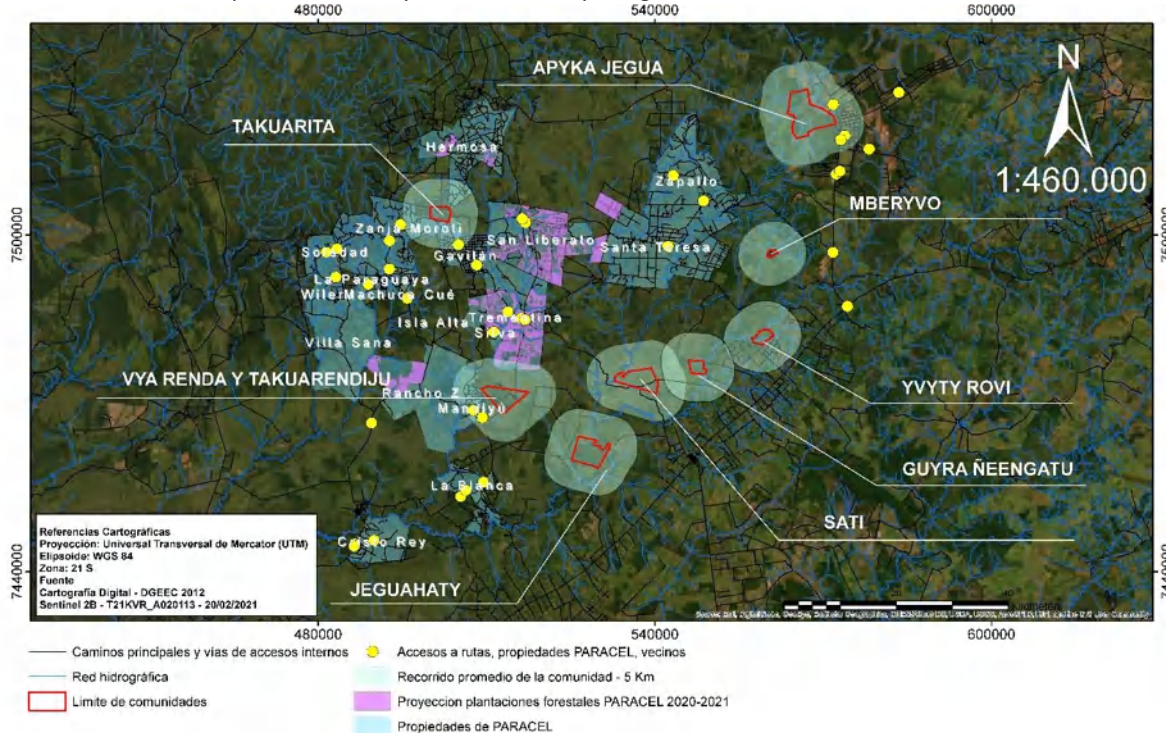
Map 3. Area of influence around PARACEL's undertakings.



Source: Own Elaboration.

An area of 15 kilometers around the industrial plant and forestry projects was established. This allowed the identification of the indigenous communities within the AID.

Map 4. Use of ecosystem services by indigenous communities in the AID.



Source: Own elaboration.

An area for the use of ecosystem services was established around the indigenous communities, which were adjusted independently according to the information gathered in the consultation processes carried out in each indigenous community.

Map 5. Proximity between the Redención community and the future PARACEL plant.



Source: Own Elaboration.

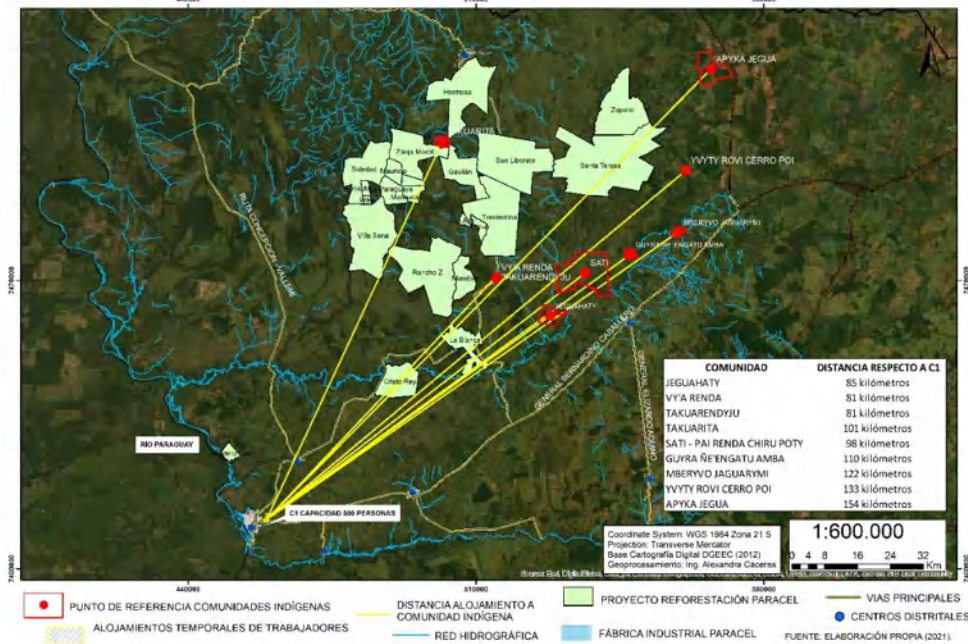
Map 6. Proximity between Redención community and temporary accommodations.



Source: Own Elaboration.

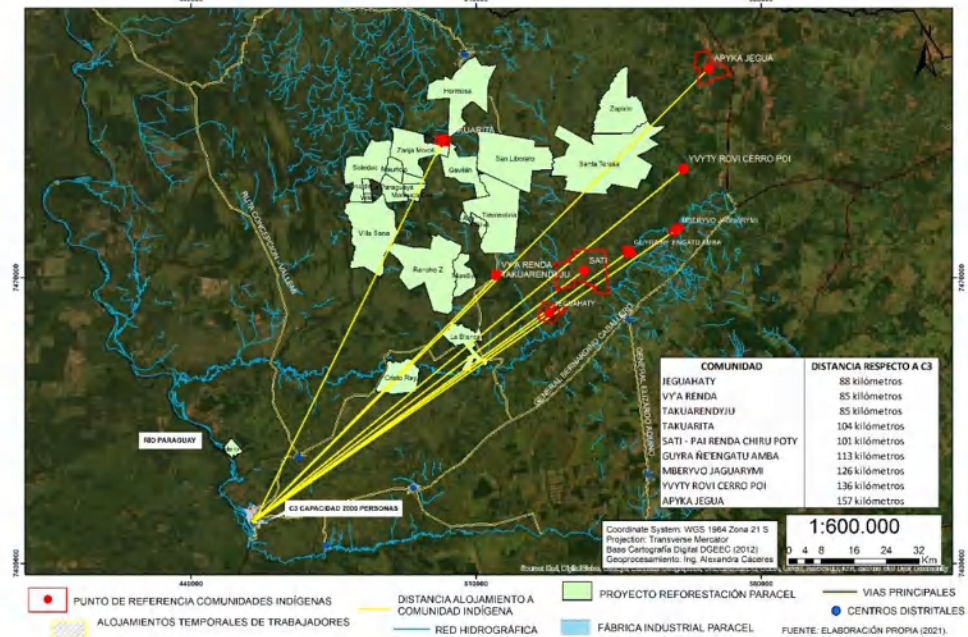
The indigenous community of Redención is the closest to the PARACEL Industrial Plant (13 kilometers) and to the temporary accommodation (C1 at 5 kilometers, C3 at 3 kilometers, C6 at 6 kilometers, C7 at 7 kilometers, C9 at 10 kilometers, and C11 at 4 kilometers).

Map 7. Proximity between C1 accommodation and rural indigenous communities.



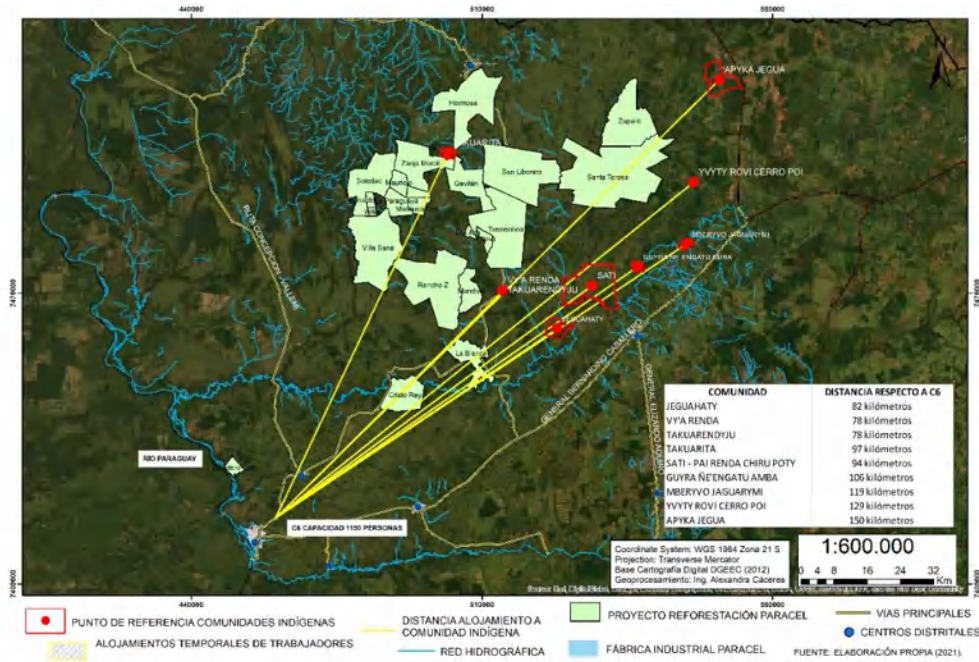
Source: Own Elaboration.

Map 8. Proximity between C3 accommodation and rural indigenous communities.



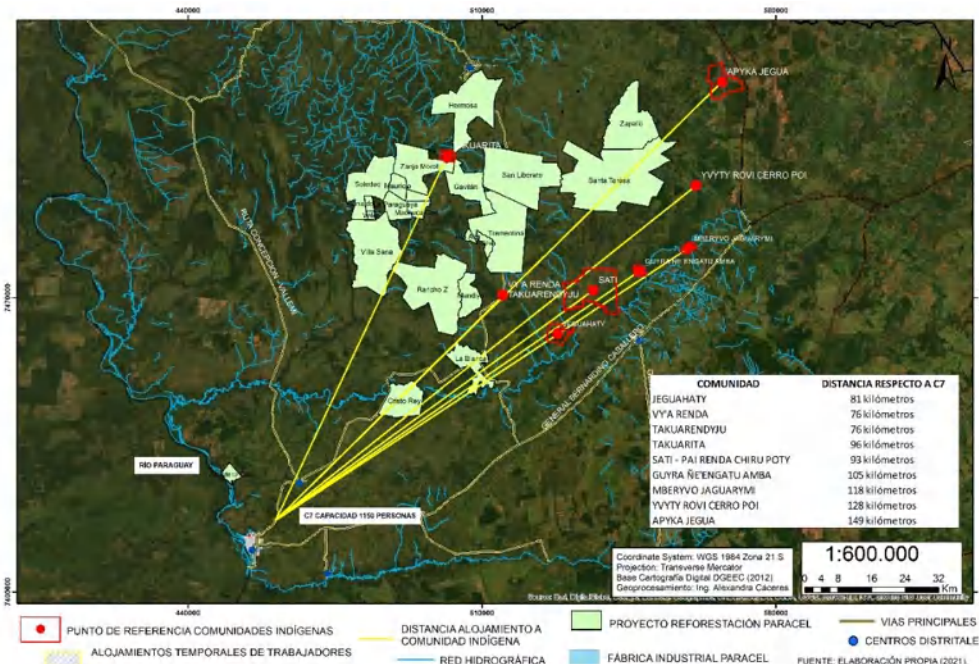
Source: Own Elaboration.

Map 9. Proximity between C6 accommodation and rural indigenous communities.



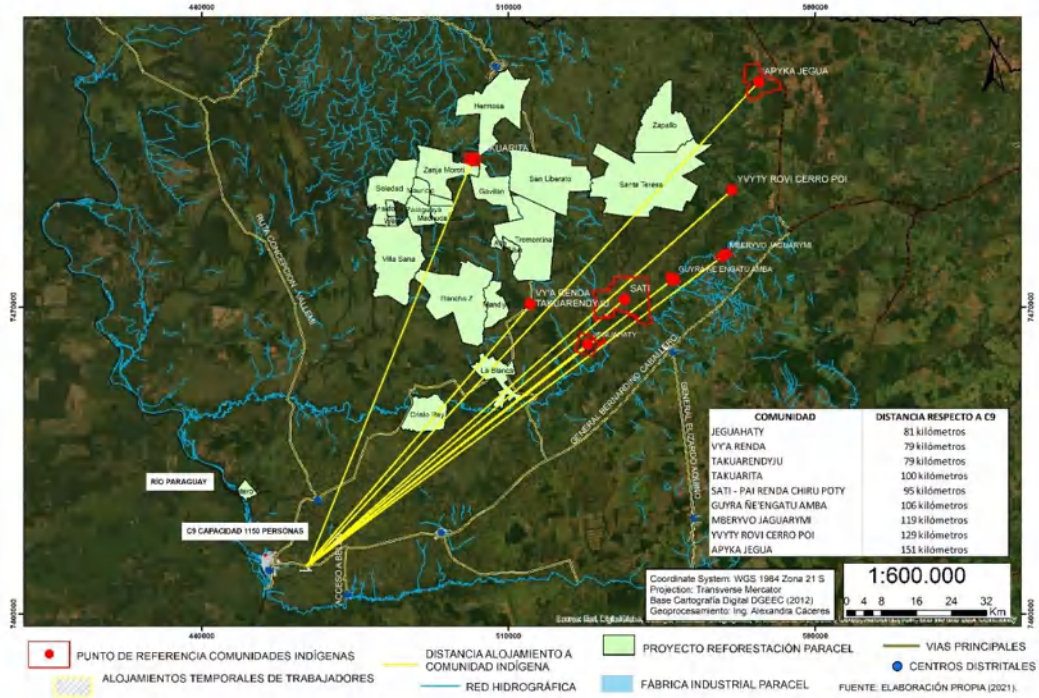
Source: Own Elaboration.

Map 10. Proximity between C7 accommodation and rural indigenous communities.



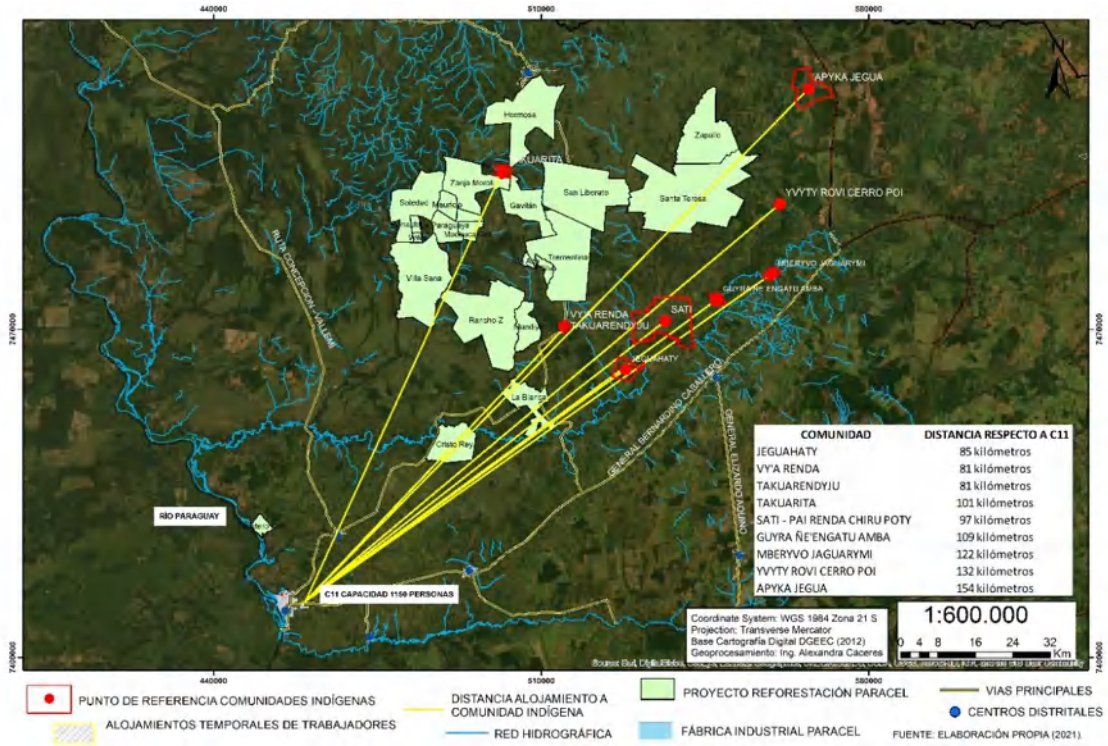
Source: Own Elaboration.

Map 11. Proximity between C9 accommodation and rural indigenous communities.



Source: Own Elaboration.

Map 12. Proximity between C11 accommodation and rural indigenous communities.



Source: Own Elaboration.

Rural indigenous communities, located in the Yby Yaú, Sargento Félix López, Bellavista and Paso Barreto districts, are far from the temporary lodging facilities. The distances between the rural indigenous communities, and the lodges range from 70 kilometers to 160 kilometers.

4.2.3. Climatic characteristics of the AID.

The department of Concepción, where most indigenous communities are located has an average annual temperature of 24°C, the minimum is 20°C and the maximum usually exceeds 40°C; the average annual rainfall is 1324mm; the average daily evapotranspiration is 4mm and the annual average frosts is 8.9 days. The rainiest months are November, December and January, with average monthly rains of 156mm. The driest months are June, August and September, in which the average rainfall is 57.1mm. The prevailing winds are from the north, east and southeast. According to the climatological classifications, the department has a climate that corresponds to the “humid sub-humid” type (Golfari 1981), whose humidity index is equivalent to Thornthwaite B2 (humid above 40).

4.2.4. Indigenous ethnicities identified within the AID.

Within the AID, has been specifically detected the presence of indigenous communities from the Paĩ Tavyterã and Mbya Guaraní ethnic groups, and a multicultural indigenous community made up of people from different ethnicities, mainly from the Maskoy language.

The *Paĩ Tavyterã*, traditionally lived around the hills of the Amambay mountain and the political border between Brazil and Paraguay. They were hunters, fishermen, collectors and practiced agriculture. Their Tekoha Guasú, even today, is closely related to several of these sacred hills; the most important hill is Jasuka Venda, center of the universe, according to the Paĩ.

For this reason, it is no coincidence the self-denomination of this people "the name that would most correspond to them is Tavyterã: inhabitants of the center (of the earth), a fact that forces me to add one more name to the already very long list of names used to designate the scattered remains of the three Guaraní groups: Mbyá, Chiripá and Paĩ, which still survive in the Eastern Region of Paraguay". (Cadogan 1962 in Melià and Grunberg 2008:53).

There are around 70 communities and family nucleus that make up a total population of 15,097 people distributed, mainly, in the department of Amambay, where 77% of the population is located; the rest is distributed in Concepción, San Pedro and Canindeyú. (DGEEC 2013)

The Tekoha are “independent territorial, socio-political and economic entities [...] These communities were formed in a recent historical process, emerging from the traditional and ancient Tekoha and Tekoha guasu, a process that was not only imposed by external forces against the Paĩ Reko (Paĩ Tavyterã culture/mode of being Paĩ) but also entailed implicit and even explicit violence against this teko and left a heavy legacy of socio-cultural, socio-political and economic instability." (Lehner 1995:7)

Culturally "the Paĩ interpret their life on earth as a test that the soul has to suffer, but theoretically, there is at least the possibility of reaching perfection and thus being able to reach the earth without evil, in the direction of the sea, Paray". (Melià and Grinberg 2008: 151)

The rites that indigenous people practice are dances and religious songs that usually last several days. Among the best known and still practiced are the mitâ pepy (the conversion of the kunumi, child, into paĩ); the avatykyry or also known as corn festival and the ñembo'e, translated as "to become a word", is related to the sacred and is practiced in the community with dances. Several people are in charge and know everything about the rituals, and to perform these ceremonies, the paĩ dress in cotton or wool clothes decorated with fringes, feathers (jeguaka, el aovete) and objects that are necessary for rituals (mbaraka, mimby, guyrapa'í, takuapu and petyngu' i) which are hung in the mba'e marangatu inside the ceremonial house.

The *Mbya Guaraní*, occupy an extensive territory from north to south in the Eastern Region of Paraguay, this makes them one of the indigenous communities with a higher percentage of population compared to the rest. They are strategically located at the headwaters of the main rivers, such as Paraguay and Paraná, taking advantage of the topography as a natural defense. This is another of the cross-border indigenous peoples in Paraguay that is located in the departments of San Pedro, Concepción, Canindeyú, Caaguazú, Alto Paraná, Guairá, Caazapá and Itapúa. The total population in the country is around 21,422 inhabitants, being proportionally the majority, their communities extending over more departments than the rest of the country's indigenous peoples. (DGEEC 2013)

They are organized into communities that are made up of an extended family that constitute production and consumption units, with their own political and spiritual leadership exercised by the tamoi ("grandfather") who is helped by the Yvyra'ija. Leadership can be exercised by both women and men, and as well as larger, and non-indigenous societies, they also have established norms that if transgressed, they will apply different sanctions, exercising their customary law recognized by the Paraguayan State.

A feature that characterizes mbya Guaraní people is their continuous confrontation with the hegemony of the colonial world and its resistance to the assimilation of national societies. The Guaraní concept of culture, which is perceived as a way of organizing an awareness of difference, became an instrument of resistance to colonization throughout the history of this people. (Rehnfelt 2000)

Their mythology tells about the first earth that was destroyed, yvy tenonde, by a great flood where virtuous people ascended to heaven and the others, who were not, ascended, but transformed into insects and animals. In this myth, Jakaira's sons rebuilt the earth in the image of the inhabitants of paradise. Mbya guaraní are direct descendants of a woman who lived in the center of the earth, the Guairá, and a God.

According to ancient Mbya traditions, Ñande Ru created four beings: Karai (owner of fire and branches), Jakaira (owner of vivifying smoke and spring), Ñamandú (God of the sun) and Tupa Ru

(owner of rain, thunder and lightning). These four beings and their respective wives were not begotten, that is why they do not have a navel and they are recognized as ipuru'a yva.

The *multiculturalism of the urban indigenous community of Redención*, it is especially atypical compared to the rest of the country's indigenous communities. In the indigenous community of Redención is identifies an exceptional phenomenon of multiculturalism. Most of the member families of this community descend from indigenous people who were forced to migrate from the Chaco to the Concepción area in the 19th and 20th centuries, due to the extractive and livestock expansion, being regrouped in urban areas. The Redención community is made up of descendants of indigenous ethnic groups from the Maskoy linguistic family: Toba, Maskoy, Enlhelt norte, Enxet surm, Sanapaná and Angaité, and to a lesser extent some Paĩ tavyterã families.

4.2.5. Baseline of the characterization of indigenous communities within the AID.

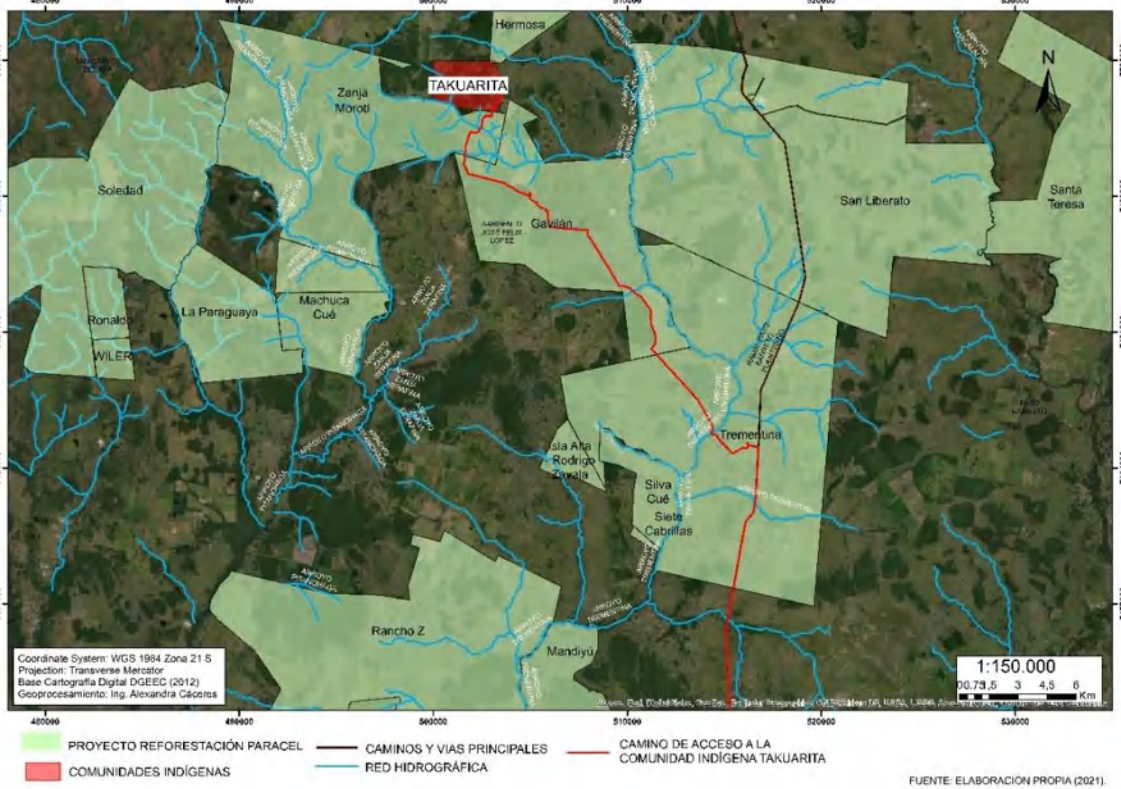
Although indigenous communities are founded on the same ethnic roots, each community and family nucleus has a particular history that influences the construction of their worldview and their relationship with nature, religion and culture. Consequently, each one of the indigenous communities identified within the AID has been treated independently and individually, in order to develop an individual report of each community, capable of collecting and transmitting enough information to understand their demography, culture, language, use of resources, livelihoods, social and political structure, to accurately analyze the possible impacts for each community and design the management plans appropriate to their needs.

4.3. Takuarita indigenous community.

4.3.1. General characteristics of the community.

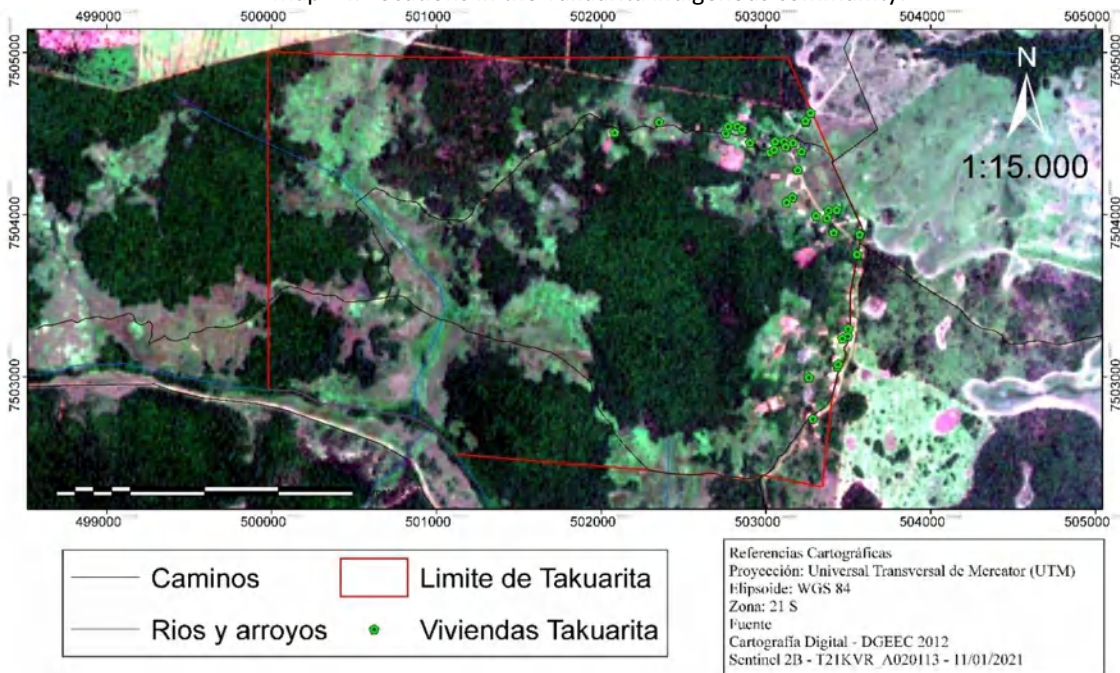
The Takuarita community has an area of 902 hectares and is located in the district of Sargento José Félix López, better known as Puentesíño, about 151 km from the capital of the Department of Concepción and 40 km from its urban district. To get to the community, a 115 km dirt road leads from 15th Street on Route 5. The community is surrounded by large farms; three of them are owned by PARACEL, and are known as Gavilán, Zanja Moroti and Hermosa. To get to the indigenous community there are 3 entrances: crossing Trementina and Gavilán farms; crossing the San Liberato and San Miguel farms; or crossing Hermosa farm.

Map 13. Location Takuarita indigenous community.



Source: Own Elaboration.

Map 14. Locations in the Takuarita indigenous community.



Source: Compiled by authors based on the collected data.

Table 9. Takuarita indigenous community fact sheet.

Item	Description
Community name	Takuarita.
Area	902 hectares.
Department	Concepción.
Recognized leader	Florencio Garcete. Leaders' resolution 620/016.
Population	235 people, distributed in 42 families.
Contact dates	November 12th and 26th, 2020. December 18th, 2020. February 12th, 13th, 15th and 19th, 2021.
Linguistic family	Guarani. The language they mainly speak is Guarani.
Ethnicity	Mbya guarani.
Kind of community	Rural.
Geographical coordinates	Longitude (X) m, 501768,78 Latitude (Y) m, 7503746,16
Nearest PARACEL property	Hermosa farm
Distance from the property	1 kilometer
Community's access routes	The main common road is the Concepción - Gral José F. López route, best known as Puentesíño. Access to the community is through the San Liberato, San Miguel, Gavilán, Trementina and Hermosa ranches, four of them belonging to PARACEL.
Protected Wilderness Area	The indigenous community is not located within a PWA and does not claim reaching out to a PWA among PARACEL's properties.
Watercourses	The indigenous community is located one kilometer away from Trementina Stream, which it's shared with PARACEL properties.
Traditions and customs	The indigenous community does not claim to carry out ancestral activities and rituals within PARACEL's properties, including the prospected factory and ranches, but they do claim to practice hunting and/or fishing inside and outside their territories.
Social indicators	The community is interested in improving their health, education, security, and economic conditions. The community people also anticipate that the implementation of the factory and forestry projects could affect migratory activities with other communities, leading to an increase in the number of people within their community.

Source: Own Elaboration.

4.3.2. Process Description.

All the described activities in the methodology section were carried out in Takuarita indigenous community. The record of the activities carried out is presented below.

Individual interviews and survey application

- On November 26th, 2020, a project socialization meeting was held with the community leader.
- On February 12th, 13th and 15, 2021, the surveys were applied to the families in the community.



Photo: survey application.



Photo: survey application.



Photo: community leader.

Direct observation and key points

- During all visits, the community environment was explored and photos were taken of internal locations for observation of the biophysical environment, identification of ecosystem services and key locations, and as a way of verifying the information gathered



Photo: community's road.



Photo: electrical installation.



Photo: cassava plantation.

Authorization to consultation and socialization of the project (Aty guasu)

- On November 12th, 2020, the meeting and signing of the minutes of the Authorization to consult and the socialization of the project took place.



Photo: consent signing.



Photo: project socialization.



Photo: project socialization.

Free, Prior and Informed Consent

- On December 18th, 2020, was held the meeting and signing of the Act of Free, Prior and Informed Consent.



Photo: indigenous people group.



Photo: plenary of people present.



Photo: FPIC signing.

Participatory Rural Appraisal Workshops

On February 19th, 2021, the Participatory Rural Appraisal workshop was held.



Photo: PRA workshop.



Photo: PRA activity.



Photo: indigenous woman participant.

4.3.3. Community diagnosis.

4.3.3.1. Environmental Area.

4.3.3.1.1. Physiographic characteristics.

4.3.3.1.1.1. Geological characterization.

According to the 1986 geological map of Paraguay, the community is located within the drifts of the Upper Carboniferous with the Aquidaban formations, covering an area of 12,097 km², in Eastern Paraguay, in the Alto del Apa Region, where sandstones and shales of glacial sediments prevail.

4.3.3.1.1.2. Hydrological characterization.

According to the Indigenous Community Development Plan presented by the Government of the Department of Concepcion, the community has a stream called Tapytagua, a tributary of the Aquidabán River, and there are also water springs in the community.



Photo: sun reflection in the Tapytagua stream

The stream that runs is shallow, forming a ravine of approximately three meters; in some sectors it runs on a rocky bed, forming small rapids on the river. In this area is possible to find clear water.

The water causes in which families fish are not used for sailing and will not be affected by the river transfers that PARACEL will carry out.

4.3.3.1.2. Soil characteristics.

According to the Use Capacity map of the Sustainable Rural Development Project - PRODERS, of the Ministry of Agriculture and Livestock, The soils of the Takuarita community are classified as follows:

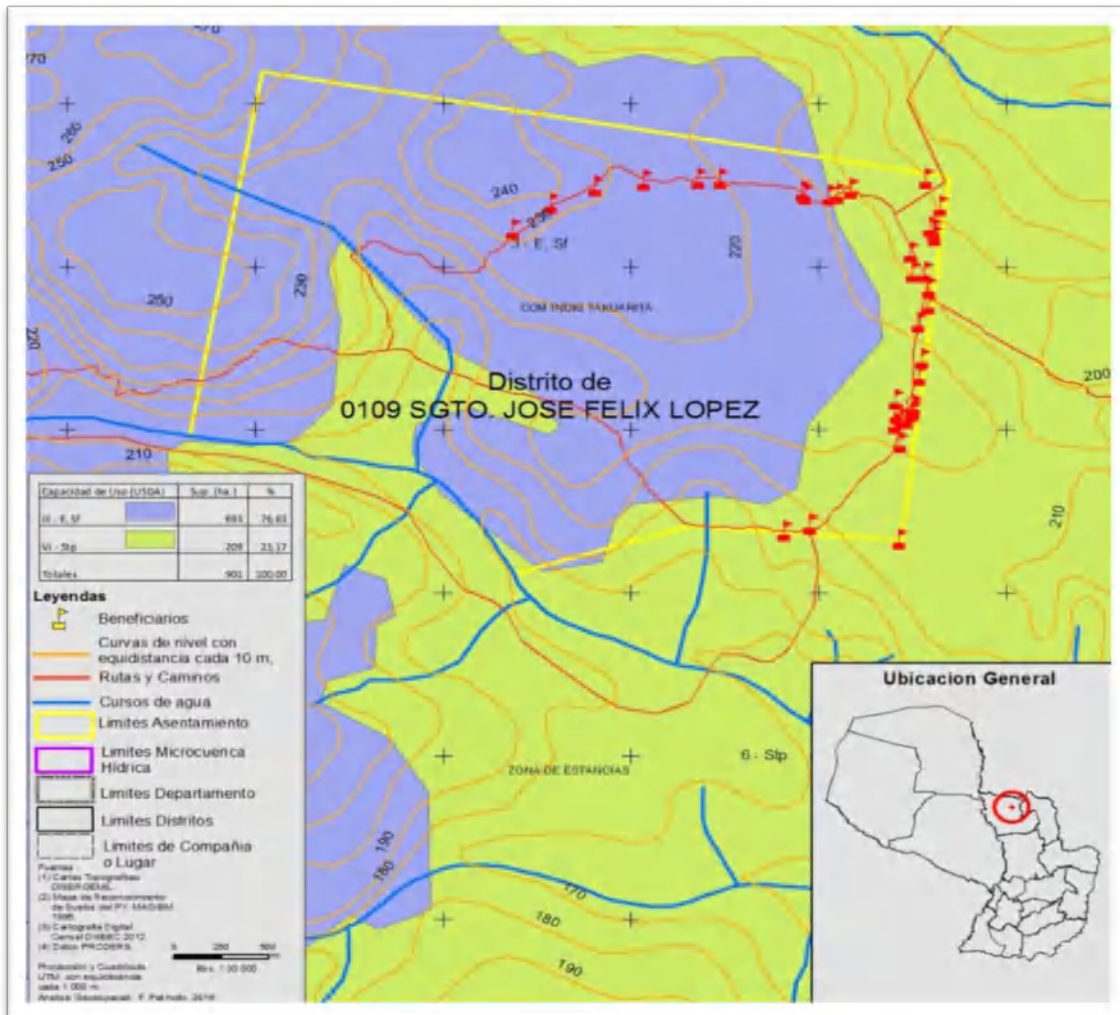
Table 10. Land Use Capacity Table.

Use Capacity (USDA)	AREA (Ha)	PERCENTAGE OF TOTAL AREA
III – E, sf	693	76,83
VI- Stp	209	23,17

Source: Ministry of agriculture and livestock, SRDP.

According to this classification, a large part of the community's land is composed of soils classified as class III-Esf (76.83%) with erosion and fertility limitations, which means, that agricultural production must be accompanied by soil conservation practices. The communities` land also has Class VI-Stp soil with limited texture and useful depth, which requires soil conservation practices and measures for agricultural and livestock use.

Map 15. Land Utilization Capacity of the Takuarita community.



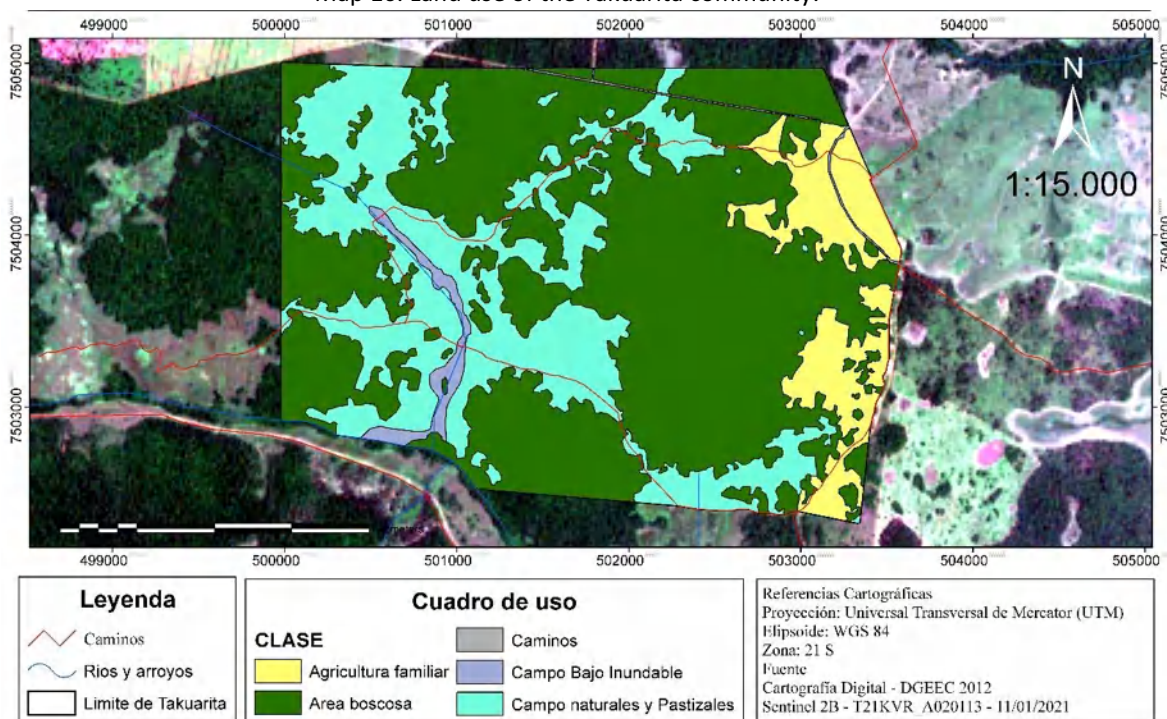
Source: Ministry of Agriculture and Livestock, SRDP (2017).

The soil texture where the communities are located is sandy loam and allows a productive capacity that satisfies farmers' expectations. However, it is observed that if the communities were provided with training and tools, families could use techniques to improve fertility, such as the incorporation of green manures and appropriate management strategies.

4.3.3.1.3. Current land use.

The community has approximately 450 hectares among fields, lands left as fallow or those that are destined for another use, in addition, they have 400 hectares of forest where there are remnants of trees that regenerate forming small forests from where they supply wood for different types of constructions and in cold seasons they use firewood from this place to heat their homes. In the rest of the property are located the houses of indigenous families and lands for other uses such as wetlands that occupy approximately 41 hectares. The community has very few farms.

Map 16. Land use of the Takuarita community.



Source: Own Elaboration.

Table 11. Land use distribution in the Takuarita community.

N°	Clasificación	Area in HA	Represented percentage
1	Annual and permanent crops	10	1,1 %
2	Natural grassland	400	44,3%
3	Housing and other	41	4.5 %
4	Field, fallow and other land	450	49,9 %
	Total	901	100%

Source: PRA and individual interviews from current EISA.

4.3.3.1.4. Water.

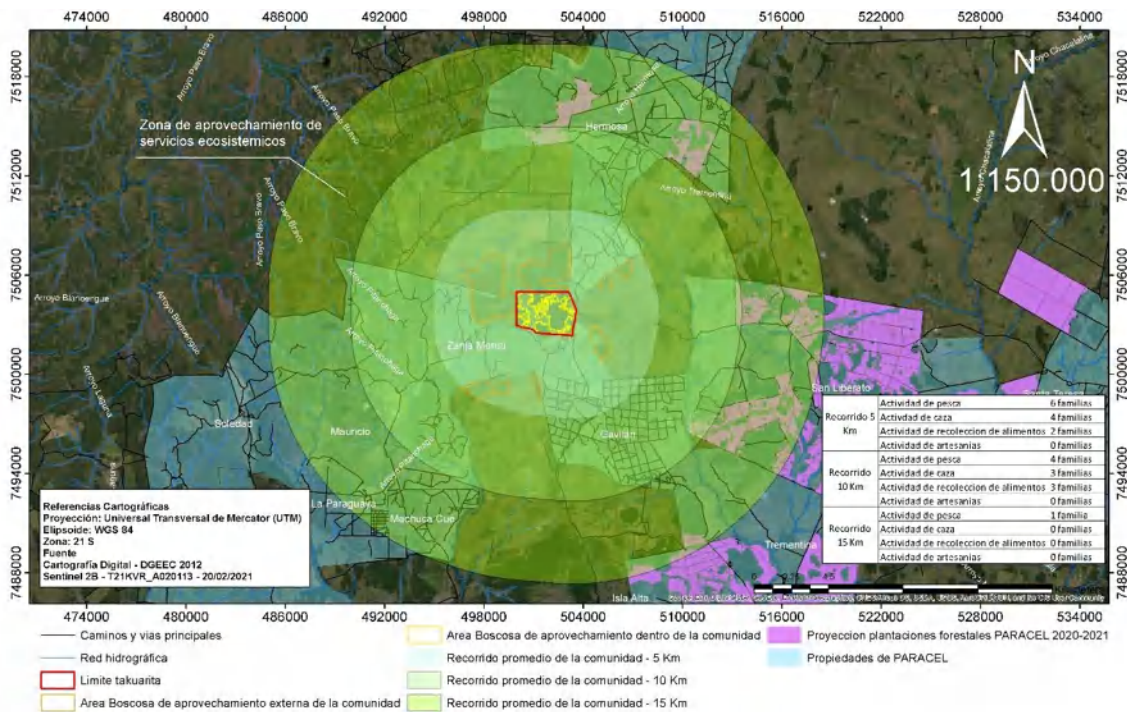
The community has an artisan font located on the property of the community school; this font was built by previous assistance projects carried out by the Paraguayan State. According to the field diagnosis, drinking water distribution system does not reach all the families in the community. It is identified that near the community is the Tapytagua stream, less than 1 km away from the community, and within the community there are springs that provide water for some families. The depth of the water table in the area is 10 to 15 meters deep.



Photo: water faucet of a family in Takuarita

4.3.3.1.5. Use of ecosystem services for livelihoods.

Map 17. Use of ecosystem services -Takuarita indigenous community.



Source: Own Elaboration..

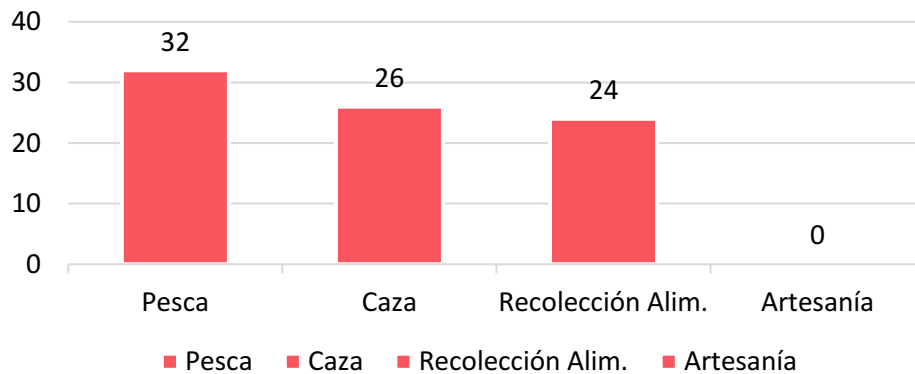
Hunting and fishing are some of the main sources of food for the families of the indigenous communities. Some of them use self-made tools, such as bows, arrows, and spears, while other families use firearms. Some families use domestic dogs trained for hunting to alert their owners as to where prey and dangers are located. Hunting and fishing are some of the main sources of food for the families of the indigenous communities. Some of them use self-made tools, such as bows, arrows, and spears, while other families use firearms. Some families use trained domestic dogs for hunting, which warn their owners where the prey is located and the possible dangers that may exist.



Photo: group of indigenous people going with shotguns and dogs to hunt.

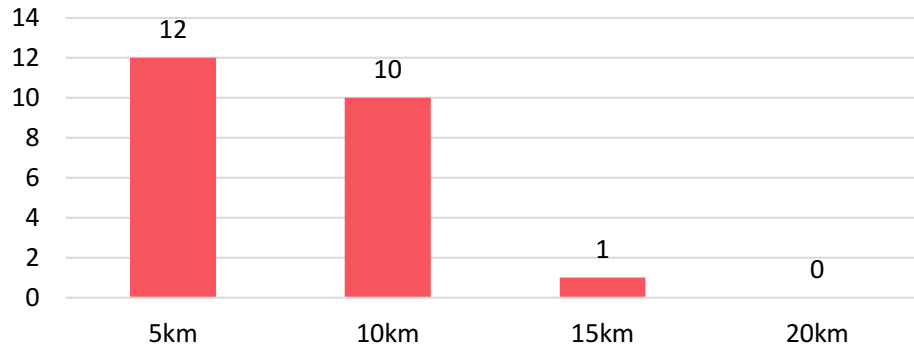
The frequency of which hunting activities are carried out depends on the indigenous families; most of the people consulted stated that they hunt once or up to three times a week. It is important to mention that the animals they hunt and fish are used for their own consumption.

Graphic 4. Families carrying out traditional livelihoods in Takuarita community.



Compiled by authors based on the collected data.

Graphic 5. Maximum distance traveled by families of the Takuarita community to carry out traditional livelihoods.



Compiled by authors based on the collected data.

In the graph entitled "Families carrying out traditional livelihoods in Takuarita community", we can see that there are still families in the community that practice traditional livelihoods such as fishing, hunting, and gathering. In the graph entitled "Maximum distance traveled by families in the Takuarita community to carry out traditional livelihoods," we can see that those families that collect their own food and use ecosystem services usually travel a maximum of 15 kilometers around their community.

According to the field work, thirty-four families of the Takuarita indigenous community reported using ecosystem services in the forests of the Gavilán, Trementina, Hermosa, San Liberato and Zanja Morotí farms, mainly for hunting and fishing activities. However, it should be noted that PARACEL's forest nursery implementation plans and its project-related activities will not affect the areas where these families carry out their livelihood activities.

4.3.3.1.5.1. Flora and Fauna.

According to the PARACEL 2021 Biodiversity Baseline Study, the area is a confluent of the Cerrado ecoregion, contiguous to the humid Chaco and Atlantic Forest of Alto Paraná. In other words, it is located in a transitional zone to the south and east of Cerrado - Atlantic Forest and to the west and south, it is located in a transitional area Cerrado - Humid Chaco. On lands with higher elevation and different soil characteristics, high forests and forest islands are developed.



Photo: three Totis perched in a tree.

PARACEL's Biodiversity Baseline Study conducted during 2020 and delivered in 2021, describes in detail the scientific names, common names in Guaraní, and English names, of the flora and fauna species that inhabit the project's farms bordering the Takuarita community; It has been identified in the field, that the members of the Takuarita indigenous community distinguish the following predominant forest species:

Table 12. Flora species characteristic of the Takuarita community

N°	COMMON NAME	SCIENTIFIC NAME
1	Cedar	<i>Cedrelafissilis</i>
2	Guatambu	<i>Balfourodendron riedelianum</i>
3	Yvyra'ro	<i>Pterogine nitens.</i>
4	YvyraPyta	<i>Peltophorum dubium</i>
5	Guajayvi	<i>Patagonula americana</i>
6	Kurupa'yra	<i>Parapiptadenia rigida</i>
7	Laurel hu.	<i>Nectandra megapotamica</i>
8	Inga guasu	<i>Inga vera</i>
9	Tata jyva	<i>Maclura tinctoria</i>
10	Timbo	<i>Enterolobium contortisiliquum</i>
11	Peterevy	<i>Cordia trichotoma</i>
12	Aguai	<i>Chrysophyllum gonocarpum</i>
13	Yvyraita	<i>Lonchocarpus leucanthus</i>
14	Ka'aoveti	<i>Luehea divaricata</i>
15	Laurel guaika	<i>Ocotea puberula</i>
16	Tajyhu,	<i>Tabebuia heptaphylla</i>
17	Yvyrapere	<i>Apuleia leiocarpa</i>
18	Aju'ysa'y ju	<i>Nectandra lanceolata</i>
19	Yvyrapiu	<i>Diatenopteryx sorbifolia</i>

Source: Own Elaboration based on the collected data.

And that the predominant fauna species are:

Table 13. Fauna characteristic of the Takuarita community.

N°	COMMON NAME	SCIENTIFIC NAME
1	Teju Guasu	<i>Tupinambis mericanae</i>
2	Tortolita	<i>Columbina sp</i>
3	Jeruti	<i>Ceptotila verreauxi</i>
4	Pycasu	<i>Zenaida auriculata</i>
5	Piririta	<i>Guira guira.</i>
6	Tatu poju	<i>Euphractus sexcintus</i>
7	Tatu hu	<i>Dasyopus novemcintus</i>
8	Aguara'i	<i>Cerdocyon thous</i>
9	Coati	<i>Nasua nasua</i>
10	Guasu vira	<i>Mazama gouazoubira</i>
11	Apere'a	<i>Covia Aperea</i>
12	Akuti	<i>Dsyprocta azarae</i>
13	Kure'i	<i>Tajassu tajasu</i>
14	Tapiti	<i>Dsyprocta sp.</i>

Source: Own Elaboration based on the collected data.

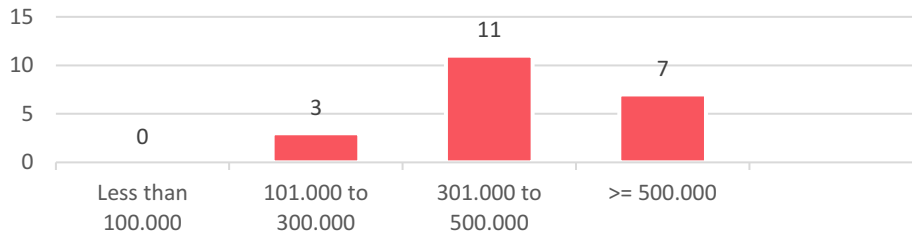
Families fish from 1 to 3 times per week. The fish commonly consumed are tareyi (*hoplias malabaricus*), mandii (*pimelodus omatus*), pira pyta (*brycon orbignyanus*) and carimbata (*prochilodus lineatus*), among other species.

4.3.3.2. Economic Area.

As a rural community, it has resources produced mainly by its family farming activities, traditional livelihood activities, and farm labour on nearby farms.

It was identified that the community is constituted of 235 people. Of the total number, 24 people receive weekly income from their work.

Graph 6. Number of people with weekly income in the Takuarita community (in Guaraníes).



Source: Own Elaboration based on the collected data.

Of the total population that is engaged in a paid work, there are 11 people (representing 45% of the total number of people with weekly income) who are earning between Gs 301,000 and Gs 500,000 guaraníes per week for agricultural activities on nearby farms or domestic services in the homes of their employers.

4.3.3.2.1. Primary production.

The main economic activities of the indigenous community are in the primary sector, developing agricultural, livestock and forestry activities and, to a lesser extent, providing labor services on farms near the community.

4.3.3.2.1.1. Agricultural.

Community members mention that their main work activities are related to cleaning, plowing, planting, and harvesting on their farm. The land used for family farming is between 0.25 and 2 hectares and its production is mainly for home consumption. The main species planted are white and Tupi corn, beans, peanuts, sweet potato, fava bean, and cassava. The cassava harvest is the most important for the families because it is used to feed them and for bartering activities, as it is exchanged for meat or other foodstuffs in the PARACEL farm; mainly in Gavilan, farms that are not yet under the administration of PARACEL, but of those who are currently using them.



Photo: cassava plantation.

Some indigenous people in the community mention using basic tools for land preparation, such as shovels, machetes, axes, among others. From their perspective, they feel that their tools are not sufficient in quality and quantity to carry out good land preparation, and to improve their productive capacity. Although most of the families work on their own farms (kokué - pe, in Guaraní), they also

do daily "changas" (word that means: casual work) on neighboring cattle ranches, where they carry out agricultural labor activities, such as cleaning and harvesting. The payment they usually receive differs depending on who hires them, but they say it is between Gs 70,000 and Gs 100,000 guaraníes per day on a "dry" format, which means that it does not include food.

4.3.3.2.1.2. Livestock.

It was observed in the field that 26 families are engaged in livestock production activities, focused on raising small animals such as pigs, goats, ducks and chickens, which are intended for home consumption.

4.3.3.2.1.3. Forest.

The forested area of the community lands is approximately 400 hectares, where native species are found. For the community, the forests are important because they provide ecosystem services, providing them with timber (used for house construction), fauna (for subsistence hunting), flora (for food and traditional medicine), and harvested foods such as honey and fruit.

The following section presents the main forest species used by indigenous communities, distributed by altitude strata:

Upper stratum: Piptadenia macrocarpa (Kurupa'y), Cordia trichotoma (Peterevy), Tabebuia heptaphylla (Tajy), Pterogyne nitens (Yvyraro), Parapiptadenia niarigida (Kurupa'yra), Patagonula americana (Guajayvi) and Enterolobium contortisiliquum (Timbo).



Photo: indigenous people's Panoramic picture on their land with forest in the background.

Middle stratum: Nectandrame gapotamica (Laurelhu), Lueheadi varicata (Ka'aoveti), Maclura tinctoria (Tata jyva), Machaerium stipitatum (Ysapy'yomoroti) and Casearia gossypiosperma (Mbavyguazu).

Lower stratum: Trichilia elegans (Katigua'i), Guarea macrophylla subsp. Spicaeflora (Cedrillo) and Trichilia catigua (Katigua pyta).

4.3.3.2.1.4. Work force.

Most of the farming activities are carried out by family members. It is not observed that the families have animal traction power for agricultural work.

4.3.3.2.1.5. Machinery and equipment.

Families use manual agricultural tools, such as machetes, scythes, hoes, shovels, axes, and seeders.



Photo: indigenous people using the hoe.

4.3.3.2.1.6. Technology.

The indigenous families conventionally sow the land by burning weeds and manually working the area that will be cultivated. A common practice in all farms is the productive association of crops between corn and cassava, cassava and beans, as well as corn and beans.

The use of mechanized technology for production, such as tractors, certified seeds, or transgenic seeds, was not detected. The use of chemical products was also not observed. In addition, indigenous people said that they did not know about other crop or soil management strategies, such as the use of green manure and crop rotation strategies.

4.3.3.2.1.7. Commercialization of primary sector products.

Product commercialization is informal and generally takes place in nearby settlements, mainly in the Puentesño district. To a lesser extent, commercial activities are carried out with neighboring farms that consume Tupi corn and cassava at an average price of G 2,500 (guaraníes) per kg.

Some families sell wild honey that they collect in the community's forests and on nearby farms, which is sold at a price of around Gs 20,000 to Gs 25,000 (guaraníes) per liter.

4.3.3.2.1.8. Production supplies and materials.

Indigenous families use seeds produced during the previous season, which are stored to cultivate them during the next natural production cycle. Another traditional custom of the families is the barter of seeds among the same members of the community.

4.3.3.2.2. Secondary production.

There is no evidence of secondary production in the community, such as the processing of raw materials for sale or self-consumption, nor the generation of higher value-added products.

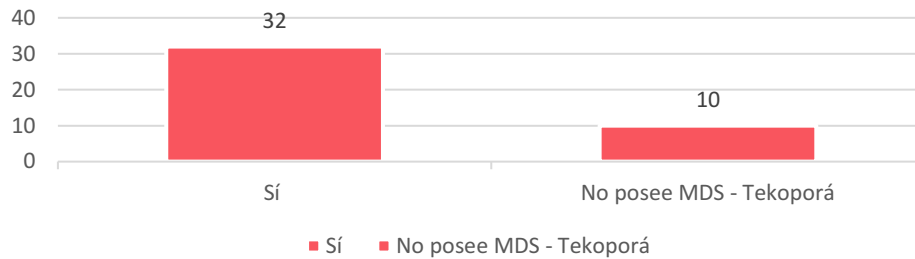
4.3.3.2.3. Services.

4.3.3.2.3.1. Technical assistance.

Regarding technical assistance, families express that, historically, they have not been helped by public organizations because they did not receive technical assistance to improve their productive capacity. However, the community was benefited in 2016 by the Sustainable Rural Development Project of the Ministry of Agriculture and Livestock, which ended in December 2020.

On the other hand, most families have the economic subsidies of the Tekoporã programs and the Alimony Pension for Older Adults provided by the Ministry of Social Development.

Graph 7. Percentage of people in the Takuarita community receiving financial aid from the MDS.



Source: Own Elaboration based on the collected data.

Regarding social assistance, there are 32 families (which represent 76% of the total number of families), which declare that they receive a monthly economic subsidy from the Ministry of Social Development, such as the Tekoporã program and the Food Pension for Older Adults program.

4.3.3.2.3.2. Commercialization of services.

It was not detected the commercialization of services.

4.3.3.2.3.3. Production financing.

Each family plans and finances its own production according to its economic, territorial, technical, and social possibilities. It is not identified financial support from the public and private institutions.

4.3.3.3. Social Area.

4.3.3.3.1. Education.

In 2017, a school was built in the indigenous community. The school has 3 classrooms, 2 modern bathrooms, a kitchen, a restroom for teachers, a storage room, and a playground. In the same year, the school was equipped with furniture, blackboards, chalk, fans, electricity, a drinking water tank, among other things.



Photo: Children playground.

At the school, 2 teachers teach approximately 80 students (including girls, boys, and adolescents). The school teaches from the first to the ninth grade of basic education. The school has 2 shifts, morning and afternoon.

It is observed that the Ministry of Education and Science provides food kits for the students of the school.

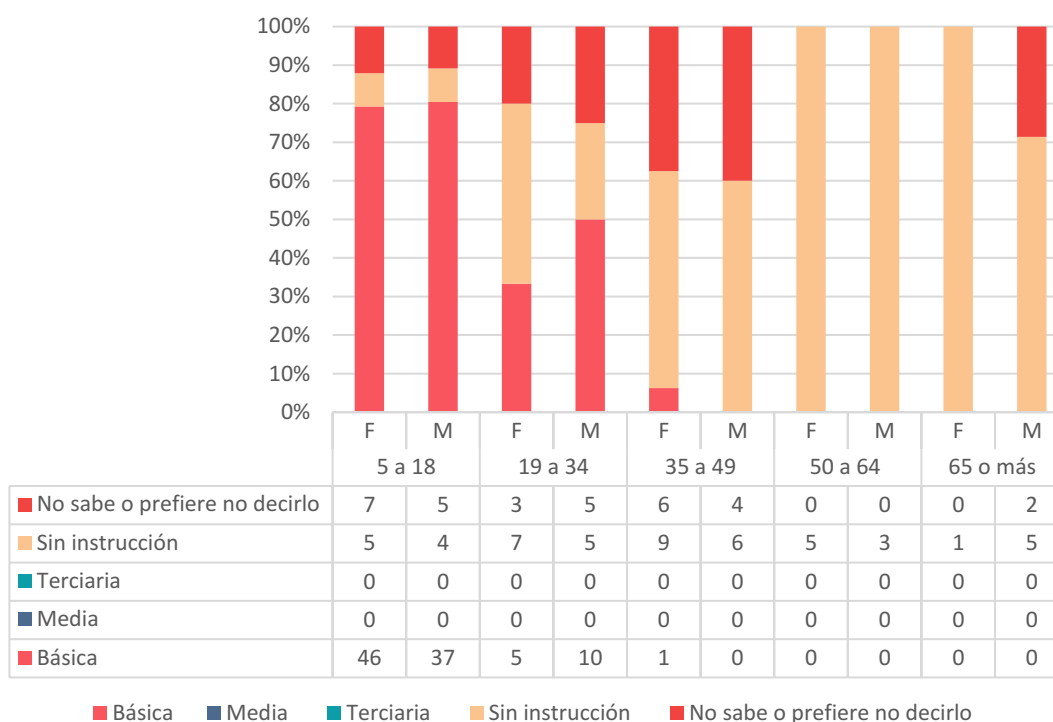
Some community members comment that there are periods of time when teachers do not attend classes. That is the reason why children of the community go several weeks and even months without receiving formal education.



Photo: Child and handcrafted toy shotgun.

In relation to the educational condition of the population in Takuarita indigenous community (school-age children and adults), it was found that the population is distributed according to their academic level as follow:

Graph 8. Distribution of Takuarita population by age range and gender according to their educational status. F= female | M= male.



Source: Own Elaboration based on the collected data.

Fieldwork revealed that the educational status of men and women in the indigenous community of Takuarita is usually similar across all age ranges, which means that both genders face similar gaps in formal education. However, comparing generational groups, it is appreciated that the new generation of girls, boys, and young people between 5 and 18 years of age has experienced a significant change in schooling. Currently, 80% of this segment is enrolled in basic or in secondary education, compared to 43% of students of the previous generation (who are between 19 and 34 years old today). This antecedent shows a great change concerning the previous generation between 35 and 49 years old who have only 4% of school enrollment.

4.3.3.3.2. Health and sanitation.

4.3.3.3.2.1. Health and conventional medicine.

Indigenous people in the community mention that they usually receive monthly health care from the Puentesíño health post, but sometimes spend several months without being visited. Families go directly to the Puentesíño health post for the provision of medicines and to get vaccinated. To get there, they can only go walking or in the best of cases by motorcycle. If a serious case occurs in the community, the health post refers the patient to the Regional Hospital of Concepción or a public hospital in Asunción. During the meetings with indigenous people, some of them mentioned that they face serious difficulties getting to the health post because it usually takes them about 12 hours to get there.

The most common symptoms in indigenous people are toothache, earache, headache, tesá rasy (conjunctivitis), fever, cough, bellyache, vomiting, diarrhea, and some parasites such as lice and kuru.

4.3.3.3.2.2. Health and traditional medicine.

It is not detected that the Takuarita indigenous community occupies the lands of the forestry enterprises to collect what is necessary to practice their traditional medicine. Traditional medicine shows two fundamental aspects:

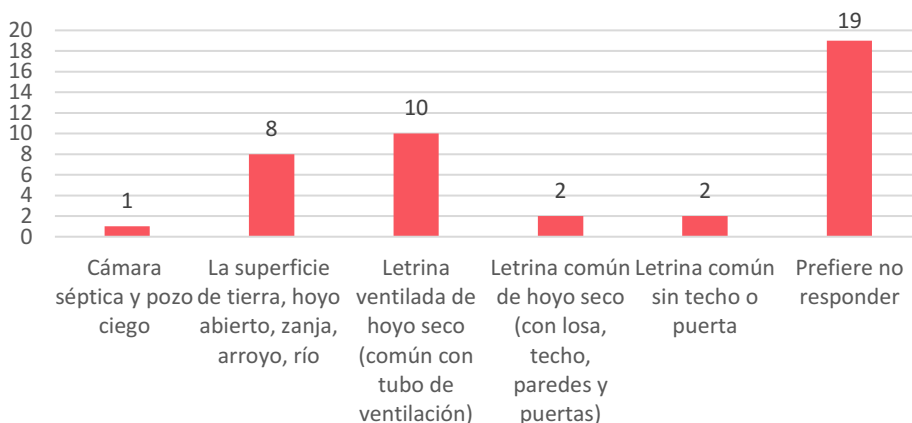
Poha ñana, it is a Guaraní word, which refers to the knowledge of the therapeutic properties of different medicinal herbs, vegetables, plants, roots, leaves, barks, and fruits, which are applied following the ancestral medical guidelines that are transmitted from generation to generation.

Shamanism, is a traditional way of healing, performed by the Tamoi (religious leader) Alberto Gómez, who uses prayers, chants, and tata pety (tobacco smoke) to alleviate the conditions of the members of his community who resort to him.

4.3.3.3.2.3. Sanitation.

The community does not have adequate hygienic services. On the contrary, Indigenous community only has precarious latrines, which in some cases, are made of metal sheets, and in others, are made of polyethylene.

Graph 9. Types of drains used by families in the Takuarita community.



Source: Own Elaboration based on the collected data.

The graph shows that most of the families do not have toilets or latrines. It should be noted that 45% of the families prefer not to answer the question.

4.3.3.3.2.4. *Waste management.*

Regarding waste management, the indigenous community states that their solid waste is buried or burned in the vicinity of the houses.

4.3.3.3.3. *Feeding.*

The food of the indigenous families is based on the availability of products from their farms. They feed mainly on cassava, beans, corn, peanuts and sweet potatoes; they are also supplied by hunting and fishing animals; and for the exchange of products between families.

Some indigenous people have money as a result of their work. Money used in the cacique's warehouse to buy food and basic household supplies, such as sugar, salt, oil, herb and soap, among other products. It is important to emphasize that the families diet is not varied, but on the contrary it is scarce and of low nutritional quality.



Photo: adult Indigenous woman.

Fieldwork revealed that, of the 235 people that make up the community, 7% declare eating only once a day, 36% mention eating twice a day, and 57% declare eating three times a day.

4.3.3.3.4. Housing.

In the community there are houses made of wood freshly cut from the trunk of the coconut tree, and other houses built with wooden boards. The roofs are made of straw and the floor is made of rammed earth.

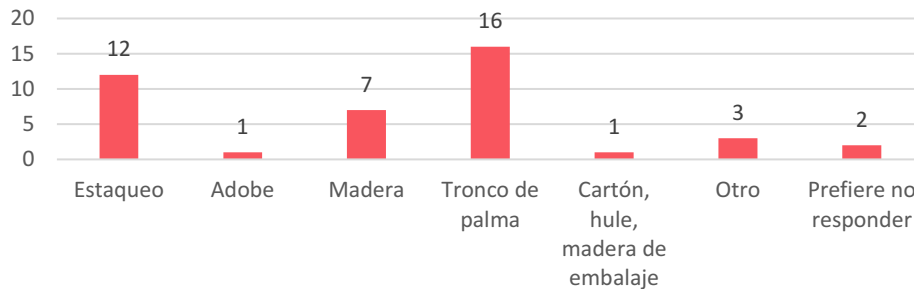


Photo: typical indigenous house.

The families themselves are in charge of building their homes. These are usually characterized by having a single bedroom in which the whole family sleeps. The bathroom in the house is, in this case, a latrine.

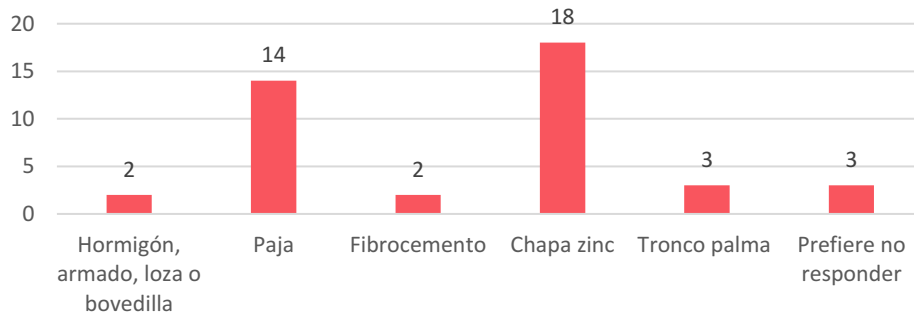
There are a total of 35 homes in the community. Most of them have families of 5 people; however, in some of the houses, there is more than one family. It is observed that not all homes have access to electricity.

Graph 10. Type of material used for the construction of the house.



Source: Own Elaboration based on the collected data.

Graph 11. Type of material used for the construction of the roofs of the houses.



Source: Own Elaboration based on the collected data.

The preceding graphs show that 38% of the houses are built with palm trunks, and 29% use stakes. 43% of the houses have zinc sheet metal roofs and 33% have thatched roofs.

4.3.3.3.5. *Social organization and own political institutions.*

In Takuarita, the social organization is developed around three institutions: the assembly, the political leader and the spiritual leader.

The most important instance in which community decisions are made is in the great *general assembly or aty guasu*. It is a participatory institution where all members of legal age in the community and regardless of gender, can give their opinion on matters that affect the well-being and sustainability of the community one of the main functions of the assembly is the election and removal of the leader. In the assembly, they also review projects, plan activities, analyze problems and evaluate possible solutions.



Photo: assembly held in the community.

The leader o cacique is a member of the community chosen as a representative of the voice of other members, whose functions as a political authority is to seek social cohesion, apply justice and govern within the community. The leader must be committed to the community; his or her duties are considered community service. The leadership can be an inherited or an elected role. In the case of the Takuarita community, leadership passed from father to son, because the previous leader is very old.

The religious leader, spiritual leader, or tamoi is who keeps alive the ancestral wisdom of the ethnic group. Their main activities are to contribute to the well-being of community members by providing them traditional medicine and to advise the political leader and community members to make decisions aligned with the values of their ethnic group. Spiritual leaders often transcend the boundaries of their community to travel to other communities to share their services in a humble way.

Table 14. Leaders of the Takuarita Indigenous community.

Role	Nome
Political leader	Florencio Garcete
Religious leader	Alberto Gómez

Source: Own elaboration based on the collected data.

To *resolve conflicts*, first, people ask the leader for help to find possible solutions through mediation. If the conflict continues, members of the community are required in the assembly. In this instance, they discuss issues that are not resolved through the usual channels of dialogue or go beyond the powers of the leader such as domestic violence, rape, robberies, and assaults. if it is considered that the problem can not be solved by the assembly, they can turn directly to the national police.

The *organization and institutional relations* are functions attributed to the community leader, who maintains a relationship for common objectives with public, private, and civil society institutions. The leader is aware that their relationships with different institutions are a good opportunity to advance in the development of the community, so they consider that relationships must be strengthened. In Takuarita, the leader Florencio Garcete was diligent and interested in

developing activities in collaboration with PARACEL. From the first moment he was contacted to develop this study, he facilitated spaces for conversation and was in charge of coordinating a high participation of the members of his community in the activities, meetings, interviews, and surveys.

The *indigenous supra-community organizations* that were identified in the department are Jotopa Yvy Maraney Rekavo and the Intercultural Commission of Indigenous Peoples of the department of Concepción - CIPOC. The Takuarita community is associated with the CIPOC.

The Intercultural Commission of Indigenous Peoples of the Department of Concepción (CIPOC) was created within the framework of the PRODERS project. It has a notarized Social Statute and is in process of registration to obtain legal status. The creation of CIPOC modified the organization among the Indigenous communities of Concepción (organized in 15 communities). The objective of CIPOC's grouping model is to be a functional, political, and intermediary institution between the demands of the communities and the state organizations. The General Assembly is the highest instance of power and decision-making.

In current days, it is important to have a *birth registration and identity card* to be part of modern society. Having the mentioned documents are essential to be fully able to exercise human rights. In the indigenous context, it is also necessary to obtain the indigenous identity card registration, which consists of a single and non-transferable registration provided by the INDI. It is important to mention that all indigenous people have the right to obtain an indigenous card. The lack of these records makes it difficult for the person to access different public services and finding a job or attending a health center. In the next chart is observed the distribution of birth records, identity card, and indigenous cards about the total population of the Takuarita community:

Table 15. Summary of birth records and identity cards of the Takuarita indigenous community.

Takuarita			
Total population	Birth registration	ID card	Indigenous ID card
235	40	146	156

Source: Own elaboration based on the collected data.

4.3.3.3.6. *Religious aspects, spiritual beliefs and cultural heritage.*

Regarding religion, ancestral practices and spiritual traditions, it is identified that these are practiced in the Opy, a ceremonial temple of the Mbya ethnic group in which rites, songs, and prayers are performed. Families report that their culture is being lost in time. They also say they have been without Opy for a while because some young people vandalized it. They have not built a new one because the Tamoi moved to a place within the same community, and they are waiting for the leader to settle down to build a new one.



Photo: Indigenous cemetery's grave.

The indigenous people state that they do not occupy land within PARACEL's undertakings for the performance of religious rites, traditions and practices. The cemetery is located within the indigenous community. According to some members of the community, funeral practices have been influenced by the Catholic and Evangelical religions, including the processes of mourning, burial, and the incorporation of tombstones in graves, similar to these religions. Another element that influenced the worldview of the community is the incorporation of Jesus Christ, to whom they usually refer to as Ñande Jara, which means "our lord". Besides, the indigenous people of the community often celebrate activities related to Christianity, such as Christmas and the New Year.

Some families make handicrafts, mainly for sale.

4.3.3.3.7. *Public services infrastructure.*

For the development of the indigenous communities is necessary to have access to public services. The field observation detected the following:

Water supply: they have an artesian font located in the area near the school of the indigenous community, but water distribution does not reach all families.

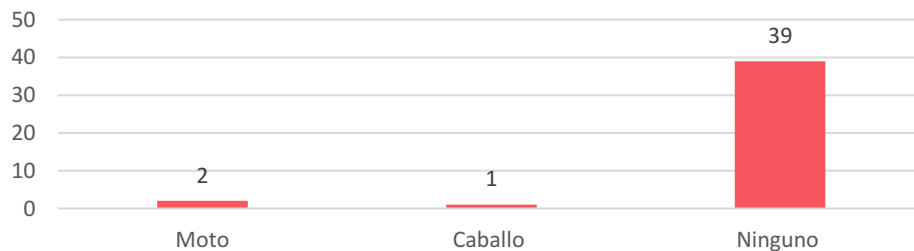
Electric power: there is an electric power service in the community, but it is distributed without official authorization from the National Electricity Association (ANDE), therefore, families do not pay for the service.

Transportation and road infrastructure: the means of public transportation do not reach the indigenous community. The bus that comes closest to the community passes 35 km away on the division of the road that connects the district of Sargento José Félix López with Paso Barreto. The most common ways to get around the community are walking or riding a motorcycle. The road infrastructure in and around the community is made up of dirt roads and trails that are traveled on foot, bicycles or motorcycles.



Photo: community's road.

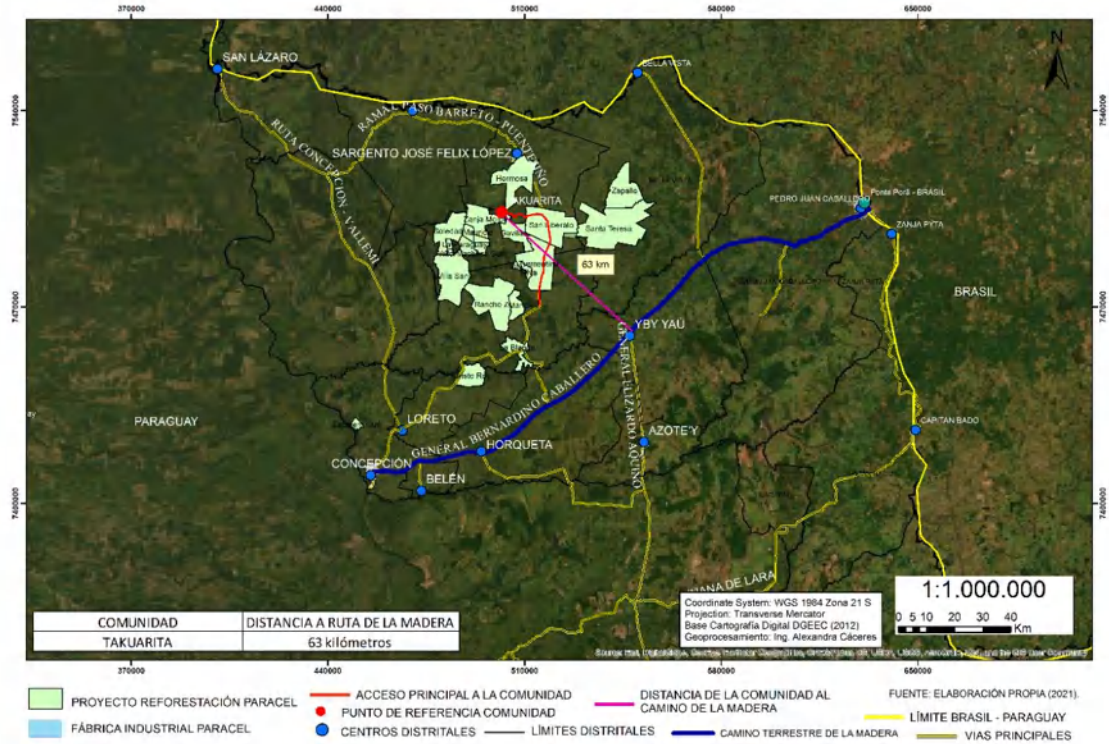
Graph 12. Means of transport used by the family.



Source: Own elaboration based on the collected data.

The graph "Means of transport used by the family" shows that 93% of families do not have any means of transport.

Map 18. Distance from the Takuarita community from the wooden land road.

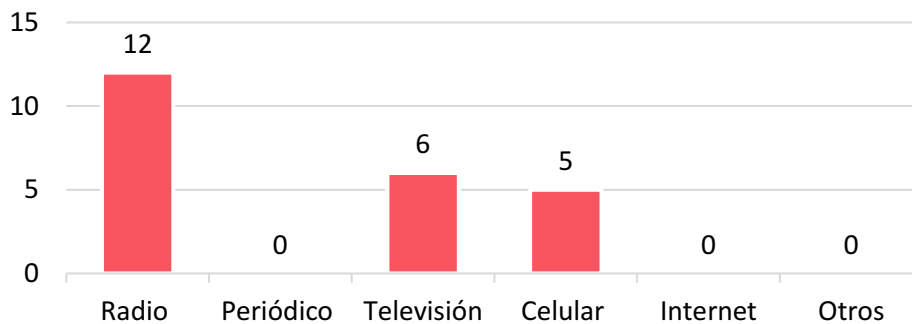


Source: Own elaboration.

The indigenous community is located 63 kilometers from the General Bernardino Caballero route, also called "the wood route". It is not identified that wood transport or increased traffic on the route will affect the community.

Communications: Participatory meetings are the main means of communication. They also have cell phones, but with a difficult coverage range in the area. In the community, only one house has a television.

Graph 13. Number of families with access to information sources.



Source: elaborated by authors based on the collected data.

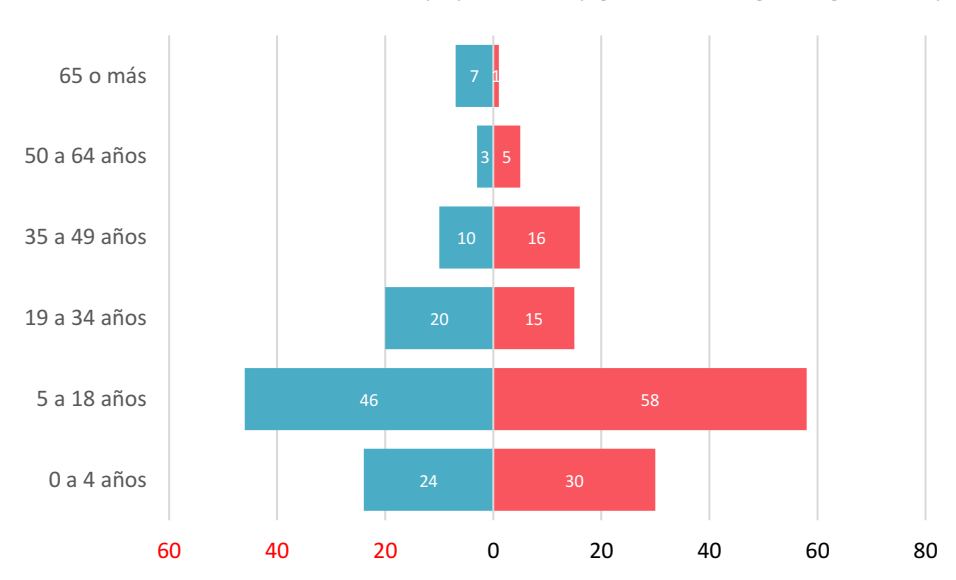
In the community, 29% of families accept using the radio as the main source of information; while 14% watch television and 12% mention that they use cell phones, respectively.

4.3.3.3.8. Demographic aspects.

Regarding demographic aspects, the number of people settled in the community is 235 people, distributed in 42 families. With an average of 5 people per household. Mostly made up of young couples.

In the community 53% of the people are women and 47% are men. The distribution by gender changes in each range, so it is not possible to distinguish a common pattern.

Graph 14. Distribution of the Takuarita population by gender and age range. Men | Women.



Source: elaborated by authors based on the collected data.

The population pyramid of Takuarita allows us to appreciate that 67% of the population is distributed between 0 and 18 years of age, denoting a positive demographic bonus that, with a good social investment, could become an opportunity for development and growth for the community.



Photo: children playing.



Photo: elderly woman.

In the indigenous community of Takuarita, only 8 people are aged 65 years or older is in which represents 3.4% of the total population and significantly lower than the 6.63% of the national population of Paraguay in the same age range (DGEEC, 2019). This reflects a lower life expectancy and, possibly, less access to quality health services and nutritious food sources.

4.3.3.3.9. Migration.

Pendular migration between Mbya Guaraní communities is a deeply rooted custom in the ethnic group; families often migrate from one community to another, mainly to get a job or to visit relatives.

Young people often migrate permanently from the community; many of them migrate to urban centers with the expectation of improving their standard of life. Another segment of young people migrate to establish their own families.

4.3.3.3.10. Genre.

The distribution of roles and responsibilities is a central theme in the family dynamics of Guarani mbya. The fieldwork revealed that in most cases, the man is in charge of tasks outside the home, such as going to work or hunting, while the woman is in charge of household chores.

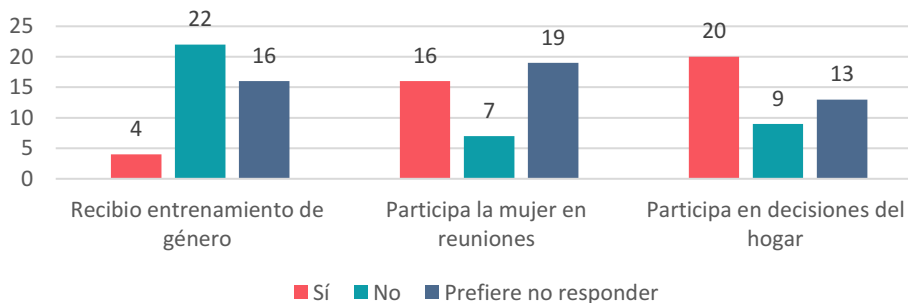
Graphic 15. Distribution of household chores.



Source: elaborated by authors based on the collected data.

As shown in the graph above, most families (25) mention that the woman is in charge of household chores, such as washing, cleaning and cooking. 33% of families preferred not to answer this question.

Graph 16. Participation of women in public and private activities.



Source: elaborated by authors based on the collected data.

In relation to women's participation, of the 42 families surveyed, 4 families mentioned having received some type of training on gender. 38 % of the families stated that women participate in discussions in public assemblies and 48% stated that women participate in household decisions. It should be noted that for these three questions there was a high percentage of families who preferred not to answer.

4.3.3.3.11. Human Rights.

Some indigenous people say that when they go to the city and have to interact with other people in supermarkets, public offices or hospitals, they feel that they are treated differently than non-indigenous people.

In terms of work, some people of working age report that they have sometimes received lower pay for doing the same work than other non-indigenous people. They also report that, from time to time, they do not receive food, while others do.

In general, it is observed that older children take care of their younger siblings and collaborate in household chores and work in the ranches, leaving aside their studies.

Although the police come to their aid when they have security needs that they cannot solve autonomously, the distance between the police station and the community and the lack of good roads cause the police to take a long time to arrive.

Regarding the right to privacy, there is a high level of overcrowding in the houses, due to the fact that families live in small houses with one or, in the best of cases, two rooms.

Respect for the right of nationality, families mention that the processes for obtaining birth certificates, identity card and indigenous card, are centralized through INDI with offices only in the city of Asunción. INDI usually carries out activities in the communities to prepare these documents, but these activities are not very frequent. Families often raise money to send the community leader to Asunción to manage multiple certificates on the same trip.

Families report that they do not trust political groups. They say that during election periods, some political groups come to the community and ask them to rent or lend them their ID cards to be used by other people to vote.

During the fieldwork, it was observed that a large number of the families do not have access to drinking water and sanitation. Sanitation conditions are precarious, and some families use the floor directly to relieve themselves.

4.3.3.4. Summary of the baseline of the Takuarita indigenous community.

The families of the indigenous community develop various activities to subsist, taking advantage of the natural resources available in the environment. Some of their activities are the storage of ecosystem services, gathering food, hunting, fishing, water extraction, and the collection of firewood and wood. They also apply agricultural production techniques, which are mainly used for food and barter.

The Takuarita community is not immune to the conditions of poverty and extreme poverty that affect the district. The community faces difficulties related to vulnerability and exclusion, such as the lack of access to public services, long distances to access health centers, and the inconsistency of the teachers who work in their school.

Families are especially susceptible to inclement weather, which can favor or harm their agricultural productions. Their main sources of economic income are through “changas” (a Paraguayan word that means a casual work) that they carry out in nearby farms, money that they usually use in the warehouse located in the chief’s house.

The social organization is established by three main institutions: the assembly, the political leader or cacique, and the spiritual leader or Tamoi, who collaborate to guide their community towards development and sustainability. Throughout the consultation and diagnostic process, community leaders and members have shown support and a high level of participation in the planning and execution of meetings and interviews, observing an atmosphere of enthusiasm and cooperation.

Concerning water and sanitation, it was detected that there is a group of families that do not have access to drinking water so they depends on the quality of the water in springs and streams. The houses are made of wood and have latrine toilets.

Religion is a fundamental cultural aspect for the community, which is led by a spiritual authority called Tamoi, who is in charge of carrying out ancestral activities and the administration of remedies prepared from products obtained from nature such as plants, flowers, branches, and wild honey.

4.4. Vy'a Renda and Takuarendyju Indigenous communities.

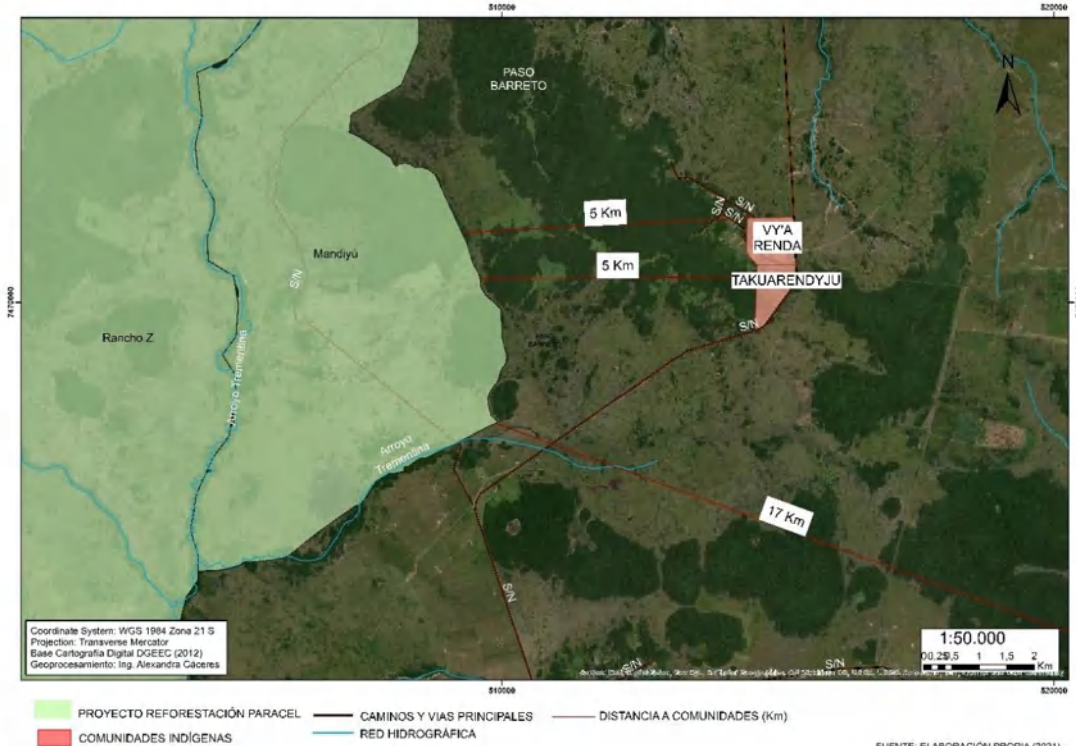
4.4.1. General characteristics of the Vy'a Renda and Takuarendyju communities.

The indigenous communities of Vy'a Renda and Takuarendyju are located approximately 107 km from the center of Concepción and 50 km from the district capital Paso Barreto, they share the same property title, and it is a total of 1,659 hectares.

The people of the community comment that there is a mutual verbal agreement to divide the property in half, but have not yet made a formal division of the land by a notary public.

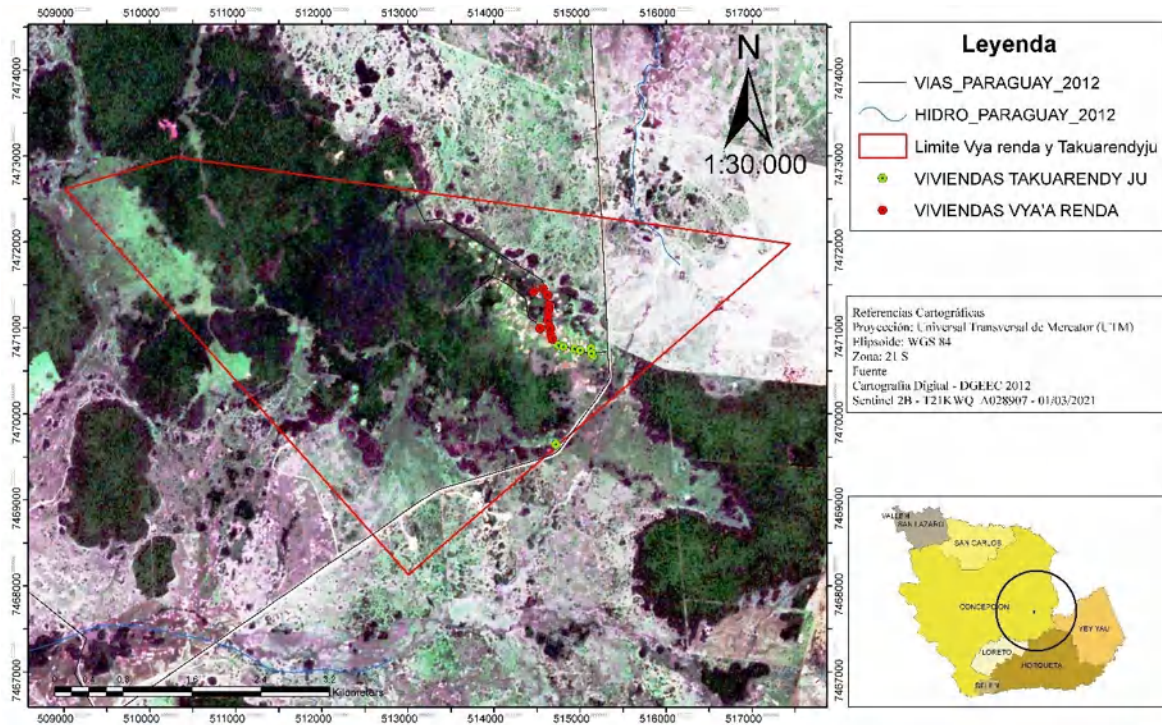
To get to the mentioned indigenous communities, people need to find Paso Barreto - Sgto. José Félix López (Puentesíño), and the entrance is on the side of the road.

Map 19. Location of the Vy'a Renda and Takuarendyju indigenous communities.



Source: Own elaboration.

Map 20. Location of the Vy'a Renda and Takuarendyju indigenous communities.



Source: elaborated by authors based on the collected data.

Table 16. Vy'a Renda indigenous community fact sheet.

Item	Description
Community name	Vy'a Renda (also known as Boquerón).
Area	1659 hectares (land shared with Takuarendyju)
Department	Concepción.
Recognized leader	Rufino Aquino. Leaders' resolution 451/11.
Population	217 people, distributed in 43 families.
Contact dates	November 24 and 25, 2020. December 8 and 17, 2020. February 14, 15 and 16, 2021.
Linguistic family	Guaraní. Guaraní is the main spoken language
Ethnicity	Mbya guaraní.
Type of community	Rural.
Geographical coordinates	Longitude (X) m, 514892,26 Latitude (Y) m, 7470716,51
Nearest PARACEL property	Mandiyú farm.
Distance from the nearest PARACEL property	5 kilometers.

Access roads to the community	The main road in common is the Concepción - Gral José F. López route, better known as Puentesíño.
Protected wilderness area (PWA)	The indigenous community is not located within a PWA and does not claim to interact with a PWA that is within PARACEL's properties.
Watercourses	The indigenous community is located one kilometer away from Trementina stream, which it's shared with PARACEL properties.
Traditions and customs	The indigenous community does not claim to carry out ancestral activities and rituals within PARACEL's properties, including prospected factories and farms. However, they claim to go hunting and or fishing inside and outside their territories.
Social indicators and expectation	The community is interested in improving their health, education, security, and economic conditions. The community people also foresee that the implementation of the factory and forestry projects could affect migratory activities with other communities, leading to an increase in the number of people within their community.

Source: elaborated by authors.

Table 17. Takuarendyju indigenous community's fact sheet.

Item	Description
Community name	Takuarendyju.
Area	1659 hectares (land shared with Vy'a Renda)
Department	Concepción.
Recognized leader	Mamerto Garcete. Leaders' resolution 346/07.
Population	25 people, distributed in 7 families.
Contact dates	November 24, 2020. December 08 and 18, 2020. February 14 and 16, 2020.
Linguistic family	Guaraní. Guaraní is the main spoken language.
Ethnicity	Pai Tavyterá.
Community type	Rural.
Geographical coordinates	Longitude (X) m, 514892,26 Latitude (Y) m, 7470716,51
Nearest PARACEL property	Mandiyú farm.
Distance from the nearest PARACEL property	5 kilometers.
Access roads to the community	The main shared road is the Concepción - Gral José F. López route, best known as Puentesíño.
Protected wilderness area (PWA)	The indigenous community is not located within a PWA and does not claim to interact with a PWA that is within PARACEL's properties.
Watercourses	The indigenous community is located 1 kilometer away from Trementina stream, which it's shared with PARACEL's properties.
Traditions and costumes	The indigenous community does not claim to carry out ancestral activities and rituals within PARACEL's properties, including the prospected factory and farms. Also, they

	do not practice hunting and/or fishing in this area, these activities do take place within their own territories.
Social indicators and expectation	The community is interested in improving their health, education, security, and economic conditions.

Source: elaborated by authors.

4.4.2. Description of the process in the Vy'a Renda community.

All the activities described in the Methodology section were carried out in the Vy'a Renda indigenous community. The record of the activities carried out is shown below.

Individual interviews and application of surveys	<ul style="list-style-type: none"> On February 14, 15 and 16, 2021, individual interviews were conducted with community leaders and families.
--	--



Photo: survey application.



Photo: survey application.



Photo: interview application.

Direct observation and key points	<ul style="list-style-type: none"> During all the visits, the community environment was explored by taking photos of the internal locations to observe the biophysical environment, to identify ecosystem services and key locations, and also as a way to verify information collected.
-----------------------------------	---



Photo: community warehouse.



Photo: place used by the community as a community center.

Permission to consult	<ul style="list-style-type: none"> On December 8, 2020, took place the meeting and signing of the minutes of the Permission to Consult.
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Foto Photo: FPIC signing.

Project socialization meetings (Aty Guasu)	<ul style="list-style-type: none"> On November 17, 24 and 25, and on December 8, 2020, were held socialization meetings about the project.
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Photo: indigenous participants.



Photo: indigenous participants.



Photo: socialization of the project.

Free, prior and informed consent	<ul style="list-style-type: none"> On December 17, 2020, was held the meeting and signing of the minutes of the Free, Prior, and Informed Consent.
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Photo: meeting or aty guasu.



Photo: project presentation.



Photo: signing of the FPIC.

Participatory Rural Appraisal Workshops	<ul style="list-style-type: none"> On February 16, 2020, was held the Participatory Rural Appraisal workshop.
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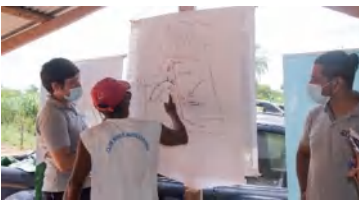


Photo: PRA workshop.

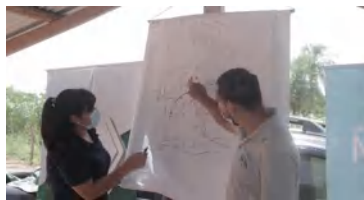


Photo: PRA workshop.

4.4.3. Description of the process in the Takuarendyju community.

In the Methodology section, all the activities carried out in the Takuarendyju indigenous community were described. In this section, you can see the record of the activities carried out.

Individual interviews and application of surveys	<ul style="list-style-type: none"> On February 14, 2021, surveys were applied to families in the community.
--	--



Photo: interview application.



Photo: interview application.



Photo: interview application.

<p>Direct observation and key points</p>	<ul style="list-style-type: none"> During all the visits, the community environment was explored by taking photos of the internal locations to observe the biophysical environment, to identify ecosystem services and key locations, and also as a way to verify information collected.
--	---



Photo: community premises.



Photo: Community neighborhood.

<p>Permission to consult</p>	<ul style="list-style-type: none"> On November 24, 2020, took place the meeting and signing of the minutes of the Permission to Consult.
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Photo: Consent signing.



Photo: meeting with the community leader.



Photo: community leader.

<p>Project socialization meetings (Aty Guasu)</p>	<ul style="list-style-type: none"> On December 8, 2020, were held socialization meetings about the project.
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Photo: socialization of the project.



Photo: meeting facilitators.



Photo: socialization of the project.

<p>Free, Prior and Informed Consent</p>	<ul style="list-style-type: none"> On December 18, 2020, was held the meeting and signing of the minutes of the Free, Prior, and Informed Consent.
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Photo: meeting with community leader.



Photo: INDI certifying officer.



Photo: meeting participants.

Participatory Rural Appraisal Workshops

- On February 16, 2020, was held the Participatory Rural Appraisal workshop.



Photo: PRA workshop.



Photo: PRA workshop.

4.4.4. Community diagnosis.

4.4.4.1. Environmental Area.

4.4.4.1.1. Physiographic characteristics.

4.4.4.1.1.1. Geological characterization.

According to the 1986 geological map of Paraguay, the communities are located within the derivations of the Upper Carboniferous with the Aquidabán formations, which cover an area of 12,097 km², in eastern Paraguay, in the Alto del Apa Region, where sandstones and shales of glacial sediments prevail.

4.4.4.1.1.2. Hydrological characterization.

Close to the indigenous communities is located Trementina stream, which is a tributary of the Aquidabán River. Within the communities` territory is possible to find nascent or ykua. It is identified that only the community of Vy`a Renda has an artesian well to supply water to families.

The watercourses where families generally fish are not used for navigation and will not be affected by PARACEL's river transfers.

4.4.4.1.2. Soil characteristic.

The soil texture is loamy-sandy and allows a productive capacity that meets the expectations of farmers. However, it is observed that with training and tools, families could use techniques to improve soil fertility, such as the incorporation of green fertilizers and appropriate management strategies.

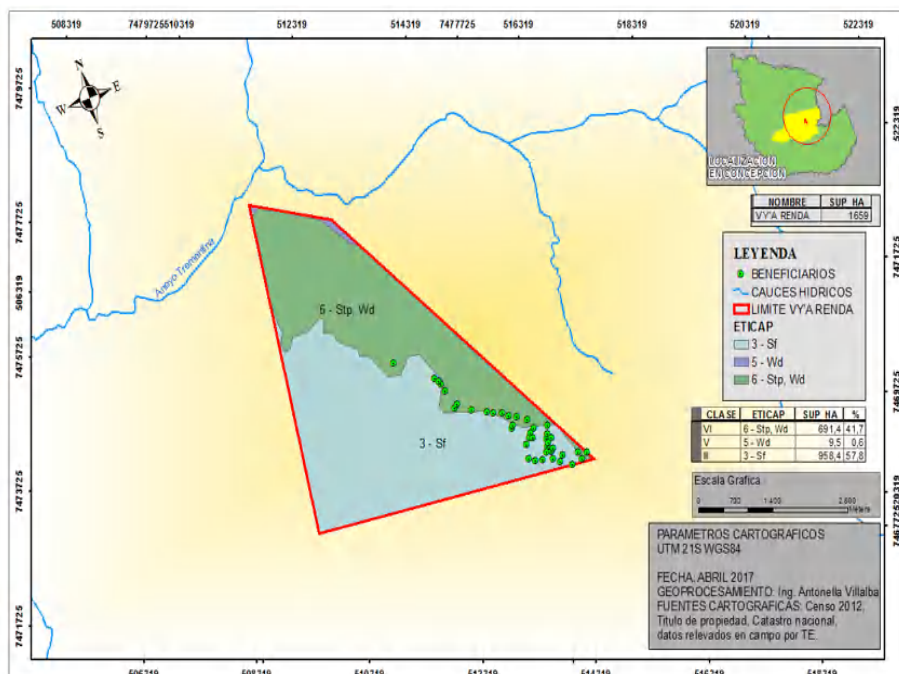
The soils according to the use capacity map are classified as follows:

Table 18. Values of land-use capacity.

ETICAP CLASS	Area HA	Percentage of the total area
VI - Stp, Wd	691,4	41,7
V - Wd	9,6	0,6
III - Sf	958,4	57,8

Source: Ministry of Agriculture and livestock, SRDP (2017).

Map 21. Land Utilization Capacity of vy'a renda and Takuarendiyu indigenous communities.



Source: Ministry of Agriculture and Livestock, SRDP (2017).

According to this classification, it is understood that a large part of the communities' lands is class III - Sf soils, which have 57.8% fertility limitations, so that agricultural production must be accompanied by practices of soil conservation, 41.7% of the total extension of the soil is Class VI-Stp, WD with limitations of moderate stoniness and slow permeability, where the soil remains water-saturated for short but considerable periods of time. In this type of soil, the production of smaller or larger livestock, native pastures, and reforestation are recommended, applying good soil management practices, trying to avoid controlled burning.

Finally, the V-Wd class covers a minimum area that represents 0.6% of the total 1659 Ha. These soils are characterized by having minimal or slow drainage capacity, which represents a limitation for their use in agriculture, making forestry and pastures difficult to develop.

4.4.4.1.3. Characterization of the Slope of the land.

The slope of the land is characterized by its ranges from flat to slightly wavy. Only 2% of the total area has a slope of 4% to 8%. The information is detailed in the table below:

Table 19. Values for slope characterization.

Slope	Ha Area	%
0-2	1237	75
2-4	388	23
4-8	34	2

Source: Ministry of Agriculture and livestock, SRDP (2017).

4.4.4.1.4. Current land use.

The community's land extension has 1659 Hectares. 64.6% is occupied by remnant and virgin forests; 21.8% is occupied by areas of small plots of crops, fallows, animal housing, and houses; and the remaining 13.6% is occupied by natural fields. For more information, look for the land use map.

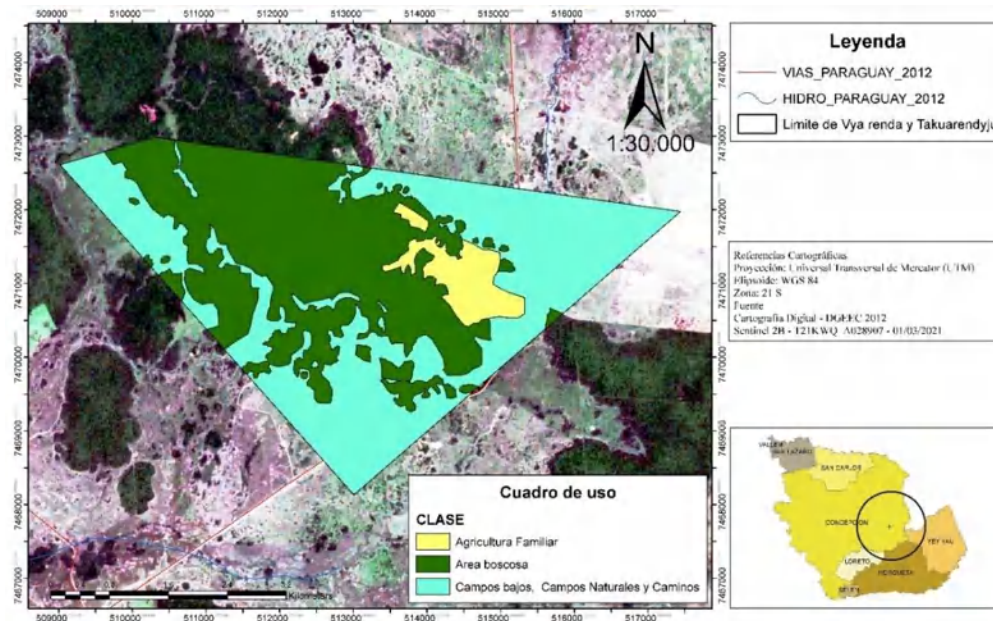
The land use of the communities is described below.

Table 20. Description of community land use.

Type	Ha Area	%
Family farming	361	21,8
Wooded area	1073	64,6
Low fields, Natural Fields and Roads	225	13,6

Source: Own Elaboration.

Map 22. Land use of vy'arenda and Takuarendiyu indigenous communities.



Source: Own Elaboration.

4.4.4.1.5. Water.

The communities are close to the north, east, and west of the Arroyo Trementina, which in turn is a tributary of the Aquidabán River. In times of rain, the stream overflows, making it difficult to access and leave the community and, in the worst case, causing their isolation.

The community of Vy'arenda has a well made by hand, which provides water for different uses and whose distribution system is through pipes and chanons that reach the homes. The depth of the water table in the area is 8 to 12 meters deep.

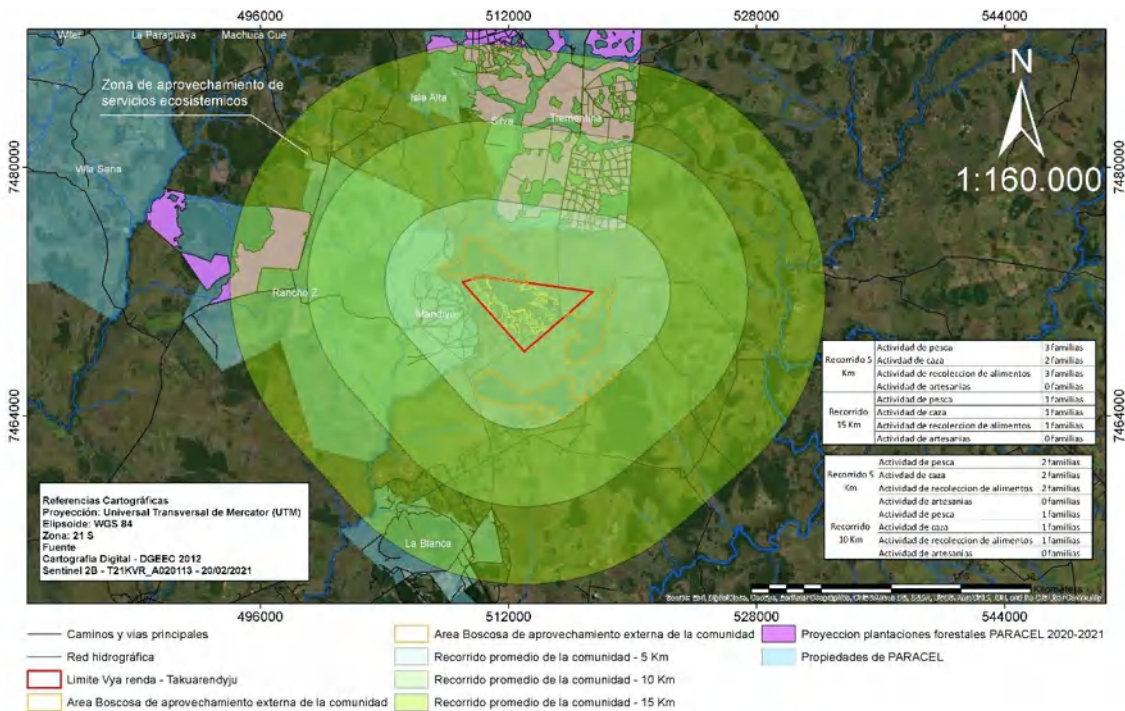


Photo: Takuarendiju girl drinking non-drinking water

The Takuarendiju community does not have a water distribution system or common wells. People are currently provided through community cutwaters and springs.

4.4.4.1.6. Use of ecosystem services for livelihoods.

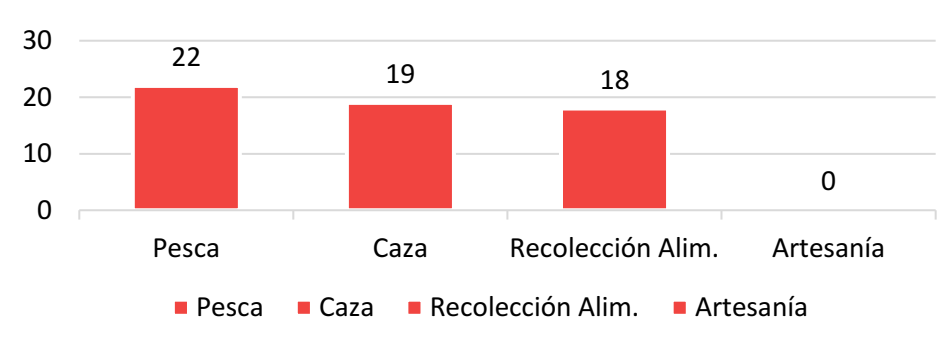
Map 23. Use of ecosystem services in the Vy'a Renda and Takuarendiju indigenous communities.



Source: elaborated by authors.

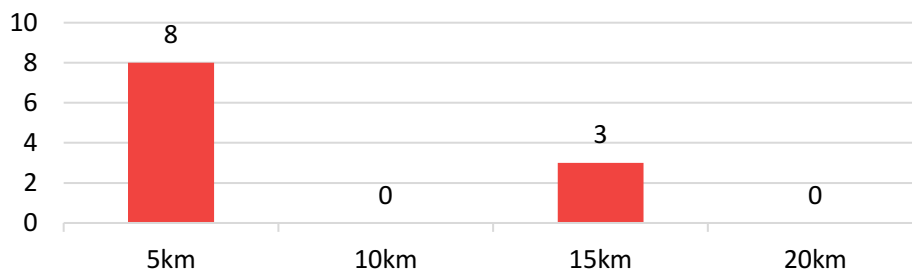
Hunting and fishing are some of the main sources of food for the families of these two indigenous communities. Some of these activities are often practiced with self-made tools, such as bows, arrows and spears, and firearms. In Vy'a Renda, families state that the animals they hunt are mostly mborevi, tatuhu and teju guasu. The frequency with which these activities are carried out varies among families; most of the people who were consulted stated that they practice these activities between one and three times a week. The animals they hunt and fish are used for self-consumption. In the Takuarendyju community, families mention that the animals they hunt are mborevi, tatuhu, teju guasu, guasu and tajy kati.

Graph 17. Families who make traditional livelihoods Vy'a Renda community.



Source: own elaboration based on the collected data.

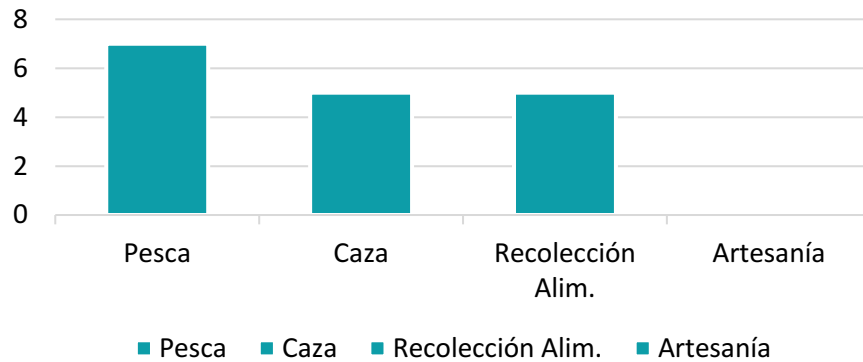
Graph 18. Maximum distance traveled by families of the Vy'a Renda community for traditional livelihoods.



Source: own elaboration based on the collected data.

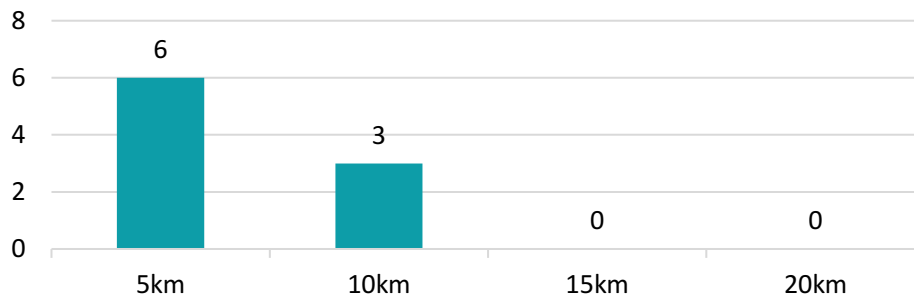
In the graph "Families who make traditional livelihoods - Vy'a Renda community", it is appreciated that there are still families in the community who practice traditional livelihoods for food generation, including fishing, hunting and harvesting. Subsequently, the graph "Maximum distance traveled by families in the Vy'a Renda community to carry out traditional livelihoods" shows that those families that practice traditional livelihoods and use ecosystem services tend to travel a maximum of 15 kilometers around their community.

Graph 19. Families who make traditional livelihoods- Takuarendyju community.



Source: own elaboration based on the collected data.

Graph 20. Maximum distance traveled by families of the Takuarendyju community for traditional livelihoods.



Source: own elaboration based on the collected data.

In the graph "Families who make traditional livelihoods - Takuarendyju community", it is appreciated that there are still families in the community who practice traditional livelihoods for food generation, including fishing, hunting and harvesting. Subsequently, the graph "Maximum distance traveled by families of the Takuarendyju community for traditional livelihoods" shows that families who practice traditional livelihoods and use ecosystem services tend to travel a maximum of 10 kilometers around their community.

In the fieldwork, it is identified that forty families of the Vy'a Renda indigenous community and two families of the Takarendyju indigenous community declare to use ecosystem services in the forests of the Trementina farm, mainly for hunting and fishing activities. However, it should be noted that PARACEL's forest nursery implementation plans and activities related to the project will not affect areas where these families carry out their livelihood activities.

4.4.4.1.6.1. Flora and fauna.

The flora and fauna are classified according to their natural community as described in the Biodiversity Baseline in PARACEL properties Study 2021, which specifies that the types of natural community and/or plant formation are the aquatic and marsh vegetation; the degraded high forest, and the riparian or marginal forest.



Photo: puma footprint.

The flora that exists is herbaceous vegetation with predominance of low-growing grasses. The arboreal vegetation corresponds to a great extension of sparse forests of high and low size, and virgin forests where is possible to find species such as Fabaceae, Myrtaceae, Lauraceae, etc.

Among the predominant forest species in the area are:

Table 21. Species of flora characteristic of the communities Vy'a Renda and Takuarendyju.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Guatambu	<i>Balfourodendron riedelianum</i>
2	Yvyra'ro	<i>Pterogine nitens.</i>
3	Yvyra Pyta	<i>Peltophorum dubium</i>
4	Guajayvi	<i>Patagonula americana</i>
5	Kurupa'yra	<i>Parapiptadenia rigida</i>
6	Laurel hu.	<i>Nectandra megapotamica</i>
7	Inga guasu	<i>Inga vera</i>
8	Tata jyva	<i>Maclura tinctoria</i>
9	Timbo	<i>Enterolobium contortisiliquum</i>
10	Peterevy	<i>Cordia trichotoma</i>
11	Ka'aoveti	<i>Luehea divaricata</i>
12	Laurel guaika	<i>Ocotea puberula</i>
13	Tajy	<i>Tabebuia sp.</i>
14	Jua'y sy'y	<i>Nectandra lanceolata</i>

Source: own elaboration based on the collected data.

And among the fauna species are:

Table 22. Species of fauna characteristic of the Vy'a Renda and Takuarendyju communities.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Cuervo	<i>Corvus sp.</i>
2	Tortolita	<i>Columbina sp</i>
3	Jeruti	<i>Ceptotila verreauxi</i>
4	Pycasu	<i>Zenaida auriculata</i>
5	Piririta	<i>Guira guira.</i>
6	Tatu poju	<i>Euphractus sexcintus</i>
7	Tatu hu	<i>Dasypus novemcintus</i>
8	Aguara´i	<i>Cerdocyon thous</i>
9	Coati	<i>Nasua nasua</i>
10	Guasu vira	<i>Mazama gouazoubira</i>
11	Apere´a	<i>Covia Aperea</i>
12	Akuti	<i>Dsyprocta azarae</i>
13	Kure´i	<i>Tajassu tajasu</i>
14	Tapiti	<i>Dsyprocta sp.</i>
15	Teju Guasu	<i>Tupinambis mericanae.</i>

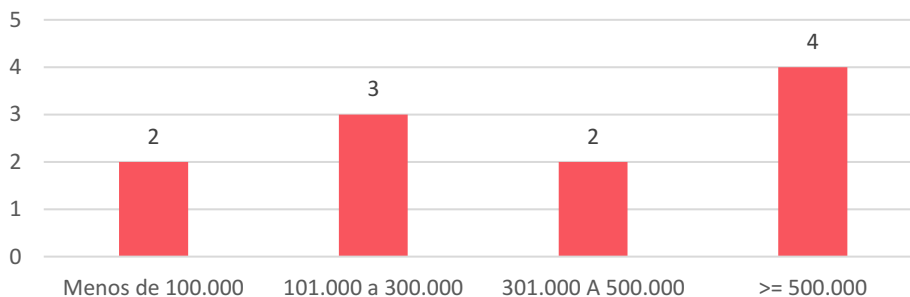


Photo: Child andcoati pet.

Source: own elaboration based on the collected data.

4.4.4.2. Economic Area.

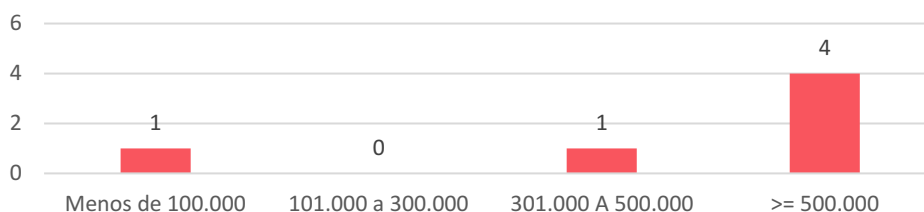
Graph 21. Number of people distributed by weekly economic income from the Vy'a Renda community (in guaranies).



Source: own elaboration based on the collected data.

Among the entire population of Vy'a Renda, 12 people have paid jobs; 4 people have weekly incomes of more than Gs 500,000; 2 people have weekly incomes between Gs 301,000 and Gs 500,000; 3 people have incomes between Gs 101,000 and Gs 300,000; and 2 people have weekly incomes of less than Gs 100,000.

Graph 22. Number of people distributed by weekly economic income from the Takuarendyju community (in guaraníes).



Source: own elaboration based on the collected data.

Among the entire population of Takuarendyju, 6 people have a paid job; 4 people have a weekly income of more than Gs 500,000; 1 person has a weekly income of between Gs 301,000 and Gs 500,000 and 1 person has a weekly income of less than Gs 100,000.

4.4.4.2.1. Primary Production.

The main economic activities of indigenous communities are located in the primary sector, developing agricultural, livestock, and forestry activities and, to a lesser extent, providing peonage services in nearby farms.

4.4.4.2.1.1. Agricultural.

The members of the communities mention that their main work activities are cleaning, plowing, planting, and harvesting their farm. The land destined for family farming ranges between 0.25 and 2 hectares and its production is mainly destined for self-consumption. The most widely planted species are cassava, sweet potato, beans, white corn and tupi, banana, broad bean, spurge, among others. Cassava harvest represents the most important activity for families. Its production is intended for food and barter, exchanged for meat or other foods, with the people who currently manage the same farms that will be used by the PARACEL project, mainly the Trementina farm.

About the tools necessary to cultivate, it was found that most people have basic tools to prepare the land, such as a shovel, machete, and ax, among others. From their perspective, they feel that their tools are insufficient in quality and quantity to carry out a good preparation of the land and to improve their production capacity. Although most of the families dedicate themselves to their own farm (kokué - pe, in Guaraní), they also do daily "changas" in livestock establishments, carrying out agricultural peonage activities, such as cleaning and harvesting tasks. the payment they usually receive varies among employers, but they state that it ranges from Gs 70,000 to Gs 100,000 guaraníes per day in a "dry" format, which means that it does not include food.

4.4.4.2.1.2. Livestock.

In the community of Vy'á renda, the vast majority of families have small animals such as goats, sheep, pigs and birds in quantities necessary for personal consumption. Some families have larger animals, acquired thanks to the extra income obtained from the sale of agricultural products or from work in neighboring farms. Community cattle acquired through a state project are currently almost entirely pregnant.

In the Takuarendyju community it is observed that five families have chickens, pigs and ducks.

4.4.4.2.1.3. Forest.

The forested area of the community lands is approximately 1073 hectares and is cover with native species. For the community, forests are important because they provide ecosystem service such as wood, for the construction of houses; fauna for self-consumption hunting, and flora for the collection of food (honey and fruits) and traditional medicine.

4.4.4.2.1.4. Work force.

In both communities, family members do most of the work. Families do not own animal traction power to carry out agricultural work.

In the community of Vy'a Renda, 16 indigenous people work in the PARACEL pilot plantations, while in the community of Takuarendyju there are not people who work with PARACEL, but they expressed their interest in doing so.

4.4.4.2.1.5. Machinery and equipment.

In both communities is observed that families use manual agricultural tools, such as a machete, sickle, hoe, shovel, ax, and planter.

4.4.4.2.1.6. Technology

The indigenous families conventionally sow the land by burning weeds and manually working the area that will be cultivated. A common practice in all farms is the productive association of crops between corn and cassava, cassava and beans, as well as corn and beans.

The use of mechanized technology for production, such as tractors, certified seeds, or transgenic seeds, is not detected. Neither is observed the use of chemical products. Indigenous people state that they are unaware of other crops or soil management strategies, such as the use of green manure and the crop rotation strategy.

The indigenous community of Vy'a Renda told during the PRA workshop that a few weeks ago they had brought a backhoe machine to help build a pool.

4.4.4.2.1.7. Commercialization of primary sector products.

Both communities state that they usually visit Colonia Huguá Ñandu for informal commercial activities. To a lesser extent, they carry out commercial activities in neighboring farms where they are supplied with Tupi corn and cassava at an average price of G 2,500 (guaraníes) per kg.

Some families often sell wild honey that they collect in the community forests or in nearby farms. Honey is sold between Gs 20,000 to Gs 25,000 (guaraníes) per liter.

4.4.4.2.1.8. *Production supplies and materials.*

Indigenous families store seeds produced during the previous season, to cultivate them during the next natural production cycle. Another traditional custom of the families is the barter of seeds among the same members of the community.

4.4.4.2.2. *Secondary production.*

There is no evidence of secondary production in the community, such as processing of raw materials for sale or self-consumption, nor the generation of higher value-added products.

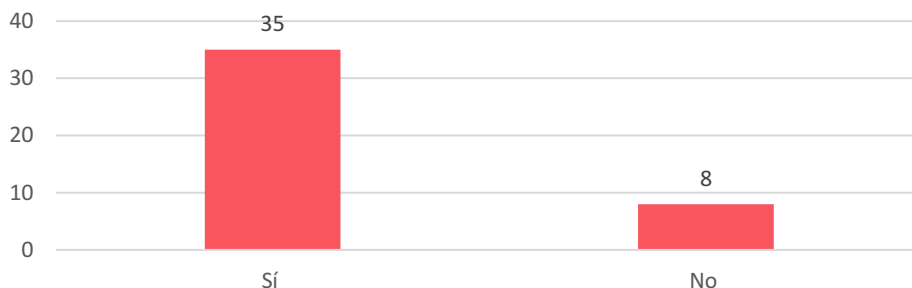
4.4.4.2.3. *Services.*

4.4.4.2.3.1. *Technical assistance.*

Regarding technical assistance, families express that, historically, they have not been helped by public organizations because they did not receive technical assistance to improve their productive capacity. The Vy’a Renda community was benefited in 2016 by the Sustainable Rural Development Project of the Ministry of Agriculture and Livestock, which ended in December 2020. However, the Takuarendyju community was not benefited by this Project.

On the other hand, most families have the economic subsidies of the Tekoporã programs and the Food Alimony Pension for Older Adults provided by the Ministry of Social Development.

Graph 23. Number of Families in the Vy'a Renda community receiving MDS grants.



Source: own elaboration based on the collected data.

Regarding social assistance, in the Vy’a Renda community there are 35 families (which represent 81% of the total number of families), which declare that they receive a monthly economic subsidy from the Ministry of Social Development, such as the Tekoporã program and the Food Alimony Pension for Older Adults program. In Takuarendyju was identified only one person that receives the MDS subsidy from the Tekoporã program.

4.4.4.2.3.2. *Commercialization of services.*

It was not detected the commercialization of services.

4.4.4.2.3.3. Production financing.

Each family plans and finances its own production according to its economic, territorial, technical, and social possibilities. It is not identified financial support from the public and private institutions.

4.4.4.3. Social Area.

4.4.4.3.1. Education.

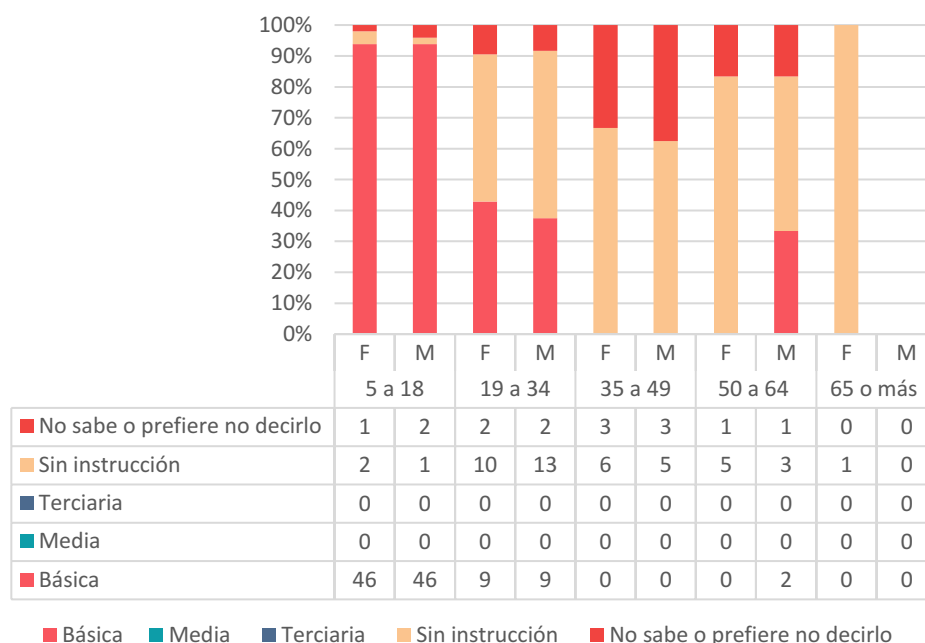
In the indigenous community of Vy'a Renda, there is only a community school whose construction is more than 10 years old, and it only has 5 classrooms; its blackboards and desks are quite precarious. The water that supplies the school is drawn from the community water tank.

In the school, there are 6 teachers, 2 of them are from the indigenous community. The girls, boys, and adolescents who attend school are distributed from the first to the ninth grade of elementary school education in two shifts, in the morning and in the afternoon. The Ministry of Education and Science provides students with school kits and snacks.

According to the educational status of the population of Vy'a Renda between school-age children and adults, it has been distinguished that the population is distributed according to the academic level as follows:

Graph 24. Distribution of Vy'a Renda population by age range and gender according to education condition.

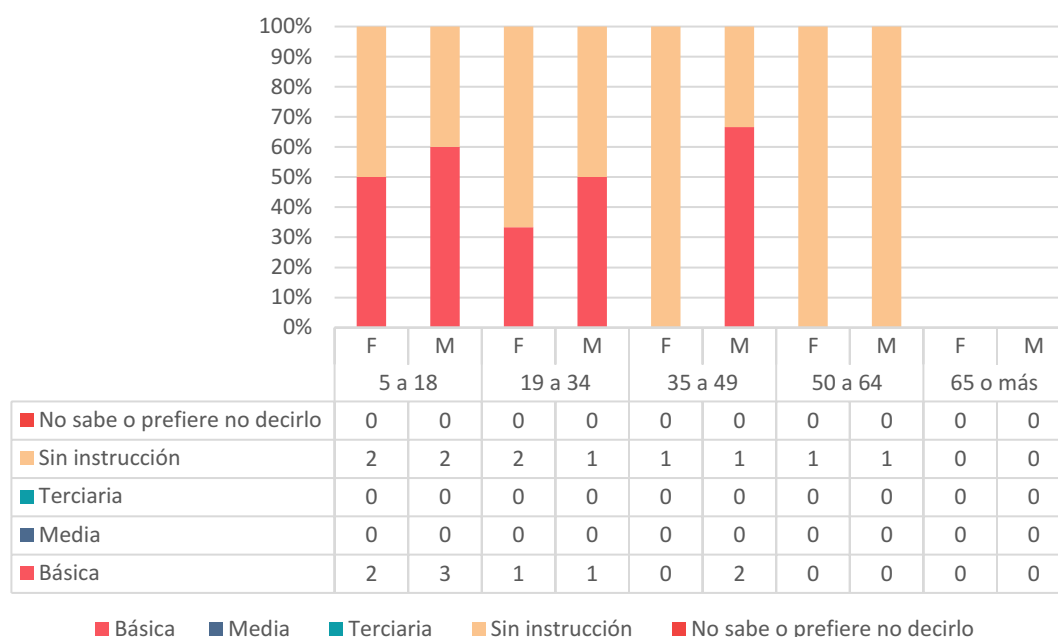
F= female | M= male.



Source: elaborated based on the collected data.

Thanks to the fieldwork completed in the indigenous community of Vy'a Renda, was identified that the educational status of men and women is usually similar throughout all age ranges, which implies that both genders face the same level of formal education. However, if we compare the generational groups is possible to appreciate that the new generation of children and young people between 5 and 18 years old has experienced a significant change in schooling. 94% of this segment is enrolled in primary or secondary education; this is an important improvement compared to 40% of their predecessor generation, which today is between 19 and 34 years old. Both are great progress compared to the previous generation between 35 and 49 years old, who have 0% school enrollment.

Graph 25. Distribution of Takuarendyju population by age range and gender according to educational status. F= female | M= male.



Fuente: elaboración propia en base a la recolección de campo.

On the other hand, in the indigenous community of Takuarendyju (which shares land with the indigenous community of Vy'a Renda), it is observed that, of the population of girls, boys, and adolescents, only 56% attend school. It is important to express that the Takuarendyju community does not have a school in their community. Children also do not attend the Vy'a Renda community school because they belong to different ethnic groups. The children have to walk every week to the Jeguahaty community, which is approximately 12 kilometers away. These communities share ethnic and family ties, so children often stay at the homes of uncles and brothers to attend school.

4.4.4.3.2. Health and sanitation.

4.4.4.3.2.1. Health and conventional medicine.

The indigenous people of both communities mention that they are visited monthly by the doctor who attends the health post of Huguá Ñandu, to provide them medical assistance. On the other hand, families also state that, on occasions, the doctor does not visit them for several months. Families go directly to the Huguá Ñandu health post to receive medicine and to get vaccinated. They have two ways to get to the health post, walking or on a motorcycle; if the case is serious, the health post refers to the patient to the Regional Hospital of Concepción or some public hospital in Asunción.

The most common conditions that affect indigenous people are headache, stomach ache, earache, fever, cough, toothache, tesá rasy (conjunctivitis), vomiting, diarrhea, and internal and external parasites (such as lice and *kuru*).

4.4.4.3.2.2. Health and traditional medicine.

Indigenous communities do not occupy lands of forest enterprises to collect what is necessary for their traditional medicine. The traditional medicine of the Vy'a Renda community shows two fundamental aspects:

Poha ñana, is a Guaraní word that refers to the experience of applying the therapeutic properties of different vegetables, roots, leaves, barks, and fruits. To apply this knowledge must be followed the ancestral medical guidelines that are transmitted from generation to generation.

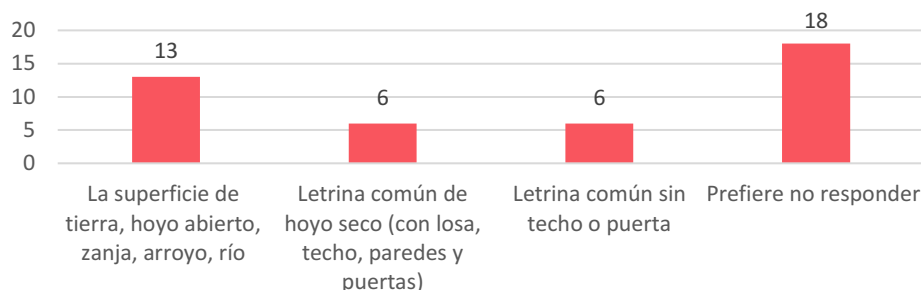
Shamanism is a traditional way of healing. In this community, Tamoi (political and religious leader) Rufino Aquino uses prayers, chants, and tata pety (tobacco smoke) to alleviate the affections of the members of his community who resort to him.

Regarding the traditional medicine of the Takuarendyju community, they mentioned that they currently do not have a healer and only use the *poha ñana* according to their own knowledge.

4.4.4.3.2.3. Sanitation.

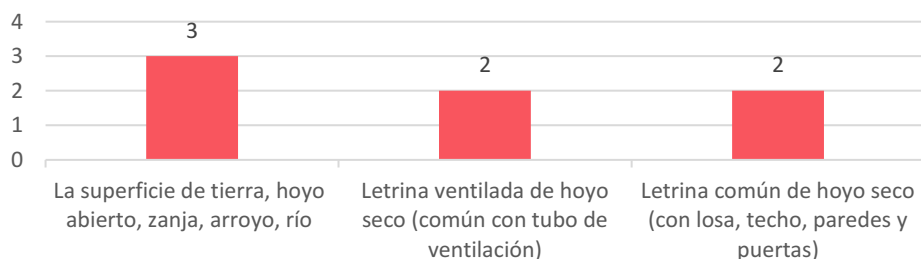
Both communities do not have adequate toilets. They only have precarious latrines, which are made of galvanized sheet metal or made of polyethylene.

Graph 26. Types of drains used by families in the Vy'a Renda community.



Source: own elaboration based on field collection.

Graph 27. Types of drains used by families in the Takuarendyju community.



Source: own elaboration based on field collection.

Both graphs show that most families relieve themselves in a latrine or directly on the surface of the ground. It is worth mentioning that in the Vy'a Renda community there were 18 families who preferred not to answer this question.

4.4.4.3.2.4. *Waste management.*

Regarding waste management, both communities affirm that they bury or burn solid waste in the vicinity of their homes.

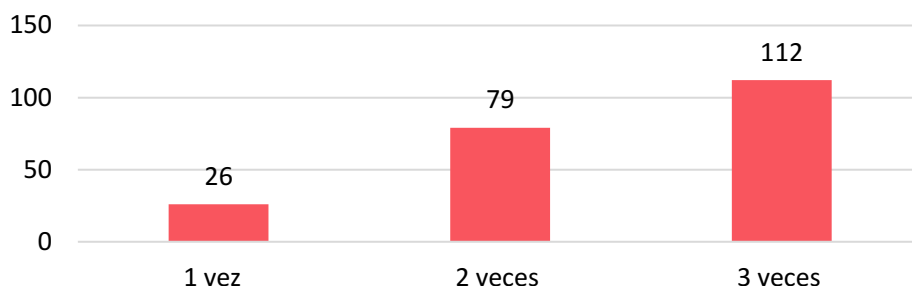
4.4.4.3.3. *Feeding.*

The diet of the indigenous families of both communities is based on the products they grow from their farms, hunting, and fishing; and for the exchange of products between families. Their diet consists mainly of cassava, beans, corn, peanuts, and sweet potatoes.

Some indigenous people who work have money to buy basic household supplies. Purchases are made in Hugua Ñandú stores and in neighboring farms where they also barter to provide themselves with sugar, salt, oil, flour, among other products.

In both communities families have different feeding frequencies per day; while some of them eat 3 times a day, others only eat once. Below is the distribution of people in the community according to the frequency of feeding per day:

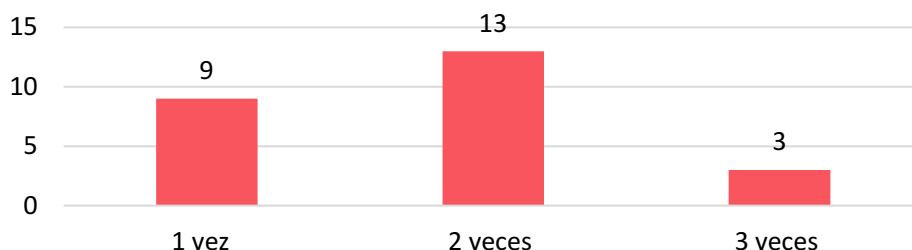
Graph 28. Frequency of food consumption per day in Vy'a Renda community.



Source: elaborated based on the collected data.

According to the information gathered in interviews and surveys, 52% of the population eats 3 times a day, 36% eats twice a day and 12% eats only once a day. It is important to emphasize that the food of the families is not varied, but on the contrary, it is scarce and of low nutritional quality.

Graph 29. Frequency of food consumption per day in Takuarendyju community.



Source: elaborated by authors based on the collected data.

As found in interviews and surveys, 12% of the population eats three times a day, 52% eats twice a day, and 36% eats only once a day.

Although the diet of the indigenous people of Vy'a Renda is a little better than the diet of the families of Takuarendyju, it is important to emphasize that the diet of the families is not varied, but on the contrary, it is scarce and of low nutritional quality.

4.4.4.3.4. Housing.

In the Vy'a Renda community, there are 40 houses and in the Takuarendyju community, there are only 5 houses that are built of coconut wood and wooden planks. The roofs are made of straw and some of them are built using the galvanized sheets. It was observed that the floor is made using a technique called earth rammed. Some of the families use tents and plastics to reinforce the insulation.

The families themselves are responsible for the construction of their homes; they generally have only



Photo: Vy'a Renda indigenous woman washing

one bedroom where the whole family sleeps. The bathrooms in the houses are latrines.

In some houses in Vy'a Renda community is possible to find a refrigerator for cooling food. In both communities, families stated that women are the ones that do handwashing laundry taking advantage of sources of water available.



Photo: typical houses made of coconut wood.

4.4.4.3.5. Social organization and political institutions.

In the vy'a Renda community, social organization is developed around three institutions: the assembly, the political leader and the spiritual leader.

Assembly, the, great general assembly, or aty guasu is the highest instance of power and decision-making in the community. It is a participatory institution where all members of legal age in the community and regardless of gender, can give their opinion on matters that could affect the well-being and sustainability of the community. One of the main functions of the assembly is the election and removal of the leader. In the assembly, indigenous people review projects, plan activities, analyze problems, and evaluate possible solutions.

The leader or community, leader is a member of the community chosen as a representative of the voice of other people, whose functions as a political authority are to seek social cohesion, apply justice and govern within the community. The leader must be committed to the community; his or her duties are considered community service. In the case of the Vy'a renda community, two leaders are recognized but currently, the responsibility for this position falls on one of the leaders, Rufino Aquino; since the other leader, Isidro Fernández, is deprived of his liberty, due to an alleged violation process.

Table 23. Leaders of the Vy'a Renda and Takuarendyju Indigenous community.

Role	Nome	Community
Religious and political leader	Rufino Aquino	Vy'a Renda
Political leader	Mamerto Garcete	Takuarendyju
Spiritual leader	Teresa Britz	Takuarendyju

Source: elaborated by authors based on the collected data.

The religious leader or spiritual leader differs in both communities because they belong to different ethnic groups.

In Vy'a Renda, the community practices the religion of the Mbyá ethnic group. The religious leader, spiritual leader, or tamoi is who keeps alive the ancestral wisdom of the ethnic group. Their main activities are to contribute to the well-being of community members by providing them traditional medicine and by advising the political leader and community members to make decisions aligned with the values of their ethnic group. Spiritual leaders often transcend the boundaries of their community to travel to other communities to share their services in a humble way.



Photo: Teresa Britez, Jaryi de Takuarenyju.

In the Pai Tavyterá ethnic group (which belongs to the Takuarenyju community) the indigenous leader is called Teko'a Ruvicha. Nowadays this role is occupied by Mrs. Teresa Britez known as Jaryi that means grandmother.

To *resolve conflicts* people ask the leader for help to find possible solutions. If the conflict continues, members of the community are required in the assembly. In this instance, they discuss issues that are not resolved through the usual channels of dialogue or go beyond the powers of the leader such as domestic violence, rape, robberies, and assaults. If it is considered that the problem can not be solved by the assembly, they can turn directly to the national police. The community is shocked because a mother and her daughter were raped by another community member, a former recognized leader, who is currently being prosecuted by the police for this crime.

Organization and institutional relationships are functions attributed to the community leader, who maintains a relationship for common objectives with public, private, and civil society institutions. The leader is aware that their relationships with different institutions are a good opportunity to advance in the development of the community, so they consider that relationships must be strengthened. In both communities, the leaders were diligent and interested in developing activities together with PARACEL. From the first moment they were contacted to develop this study, they facilitated spaces for conversation and were in charge of coordinating the participation of the members of his community in the activities, meetings, interviews, and surveys.

In the DRP workshop held in the Vy'a Renda community, it was identified that its leaders often interact with the following organizations: INDI, Mbya reko'a Apy Association of the Concepción Department, PARACEL, Natán Foundation, Estancia Trementina and Mandyju farm.

In the DRP workshop held in the Takuarenyju community, it was identified that their leaders usually interact with the following organizations: INDI, Concepción Government, Paso Barreto Municipality, PARACEL, Natán Foundation and Ñuapa farm.

The indigenous supra-community organizations that were identified in the department are: Jotopa Yvy Maraney Rekavo and the Intercultural Commission of Indigenous Peoples of the department of Concepción - CIPOC. The Vy'a Renda community is associated with the CIPOC. However, Takuarenyju community is not associated with none of the mentioned institutions.

The Intercultural Commission of Indigenous Peoples of the Department of Concepción (CIPOC) was created within the framework of the SRDP project. It has a notarized Social Statute and is in process of registration to obtain legal status. The creation of CIPOC modified the organization among the Indigenous communities of Concepción (organized in 15 communities). The objective of CIPOC's grouping model is to be a functional, political, and intermediary institution between the demands of the communities and the state organizations. The General Assembly is the highest authority and decision-making body.

In current days, it is important to have a *birth registration and identity card* to be part of modern society. Having the mentioned documents are essential to be fully able to exercise human rights. In the indigenous context, it is also necessary to obtain the indigenous identity card registration, which consists of a single and non-transferable registration provided by the INDI. It is important to mention that all indigenous people have the right to obtain an indigenous card. The lack of these records makes it difficult for the person to access different public services and to get a job or attending a health center. In the next chart is observed the distribution of birth records, identity card, and indigenous card registration in relation to the total population of the Vy'a Renda and Takuarendyju community:

Table 24. Documentation in the Vy'a Renda and Takuarendyju communities.

Vy'a Renda			
Total population	Birth registration	ID card	Indigenous ID card
217	50	135	157
Takuarendyju			
Total population	Birth registration	ID card	Indigenous ID card
25	5	11	14

Source: elaborated by authors based on the collected data.

4.4.4.3.6. Religious aspects, spiritual beliefs and cultural heritage.

The indigenous people say that they do not occupy land within PARACEL's undertakings for the performance of religious rites, traditions and practices.

Both indigenous communities state that their spiritual beliefs are influenced by Western religions, mainly Catholic and Evangelical because they included traditions such as mourning, burial, and the incorporation of tombstones in graves, similar to these religions. Another element that influenced the worldview of the community is the incorporation of Jesus Christ in their culture. They usually refer to him as Ñande Jara, which means "our lord". Besides, the indigenous people of the community often celebrate activities related to Christianity, such as Christmas and the New Year.

A religious duality is observed in the community of Vy'a Renda. On the one hand, ancestral activities and spiritual traditions related to the Opy are practiced (a ceremonial temple of the Mbya ethnic group destined for the performance of rites, songs, and prayers). On the other hand, a Catholic priest (paí in Guaraní) occasionally attends to perform masses.

In the Takuarendyju community, people mentioned that they have ancestral beliefs and traditions that differ from those of their neighbors, the Mbya Guaraní community.

The community did not mention what these activities were about.

4.4.4.3.7. Public services infrastructure.

For the development of the indigenous communities is necessary to have access to public services. According to what was observed in the field was detected:

Water supply: Vy’a Renda community has an artesian font located in the area near the school of the indigenous community, but its distribution does not reach all families.

The Takuarendyju community is supplied with water through cutwaters and springs that are far from the houses.

Electric power: there is an electric power service in the Vy’a Renda community, but it is distributed without official authorization from the National Electricity Association (ANDE), therefore, families do not pay for the service.

Although the public power line is located 50 meters from the entrance of the community of Takuarendyju, they do not have electricity.

The communities are located on the side of the division that connects the district of Sargento José Félix López with Paso Barreto. In this road, usually pass the bus that goes from the city of Concepción to Puentesíño and vice versa. Despite this, people usually walk or ride motorcycles. The road infrastructure in the community is made up of dirt roads that require traction vehicles and trails that people travel on foot, by bicycles or motorcycles.



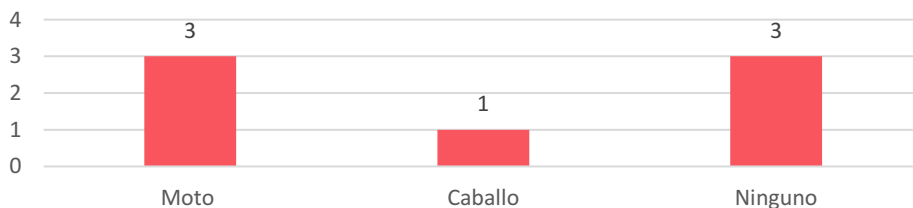
Photo: Man on motorcycle at Vy'a Renda.

Graph 30. Means of transport used by families in Vy'a Renda.



Source: elaborated by authors based on the collected data.

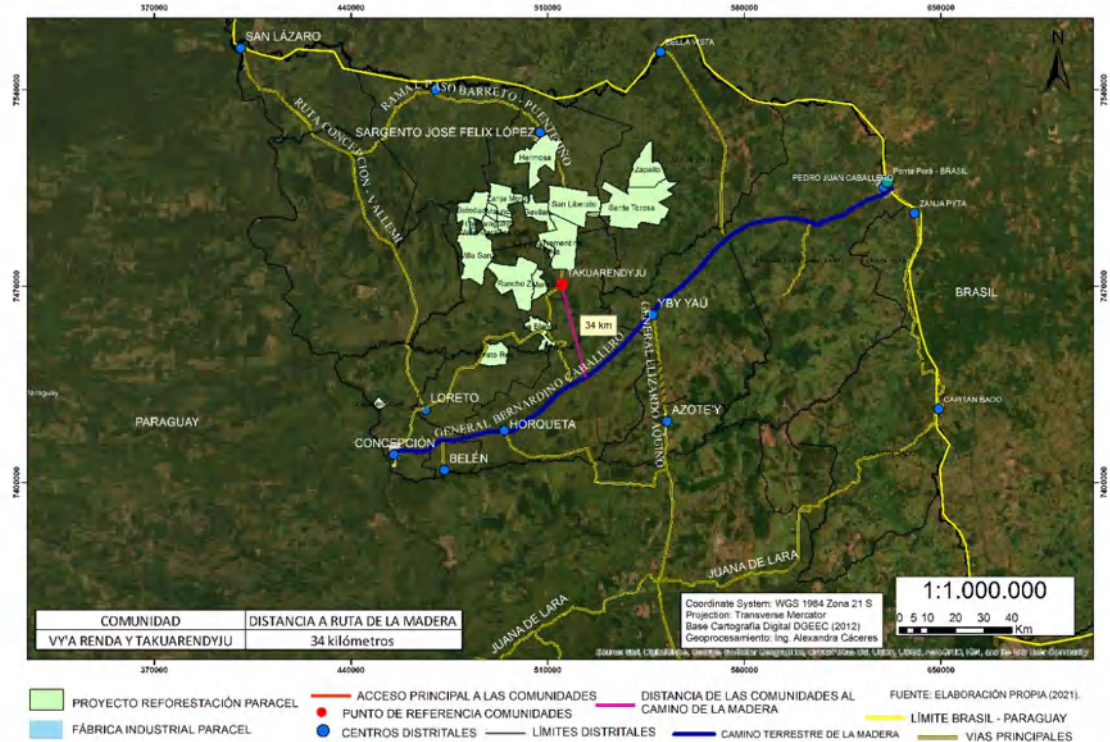
Graph 31. Means of transport used by families in Takuarendyju.



Source: elaborated by authors based on the collected data.

The graph "Means of transportation used by the family" shows that in the Vy'a Renda community 37% of the families use motorcycles and 63% do not have any means of transportation. While in Takuarendju, 3 families use motorcycles, 1 family rides a horse and 3 families do not have any means of transportation.

Map 24. Distance from Vy'a Renda and Takuarendju indigenous communities from the wooden land road.



Source: elaborated by authors.

Indigenous communities are located 45 kilometers from the General Bernardino Caballero route, also called "the wood route". It is not identified that the transport of wood or the increase in traffic on the route will affect the community.

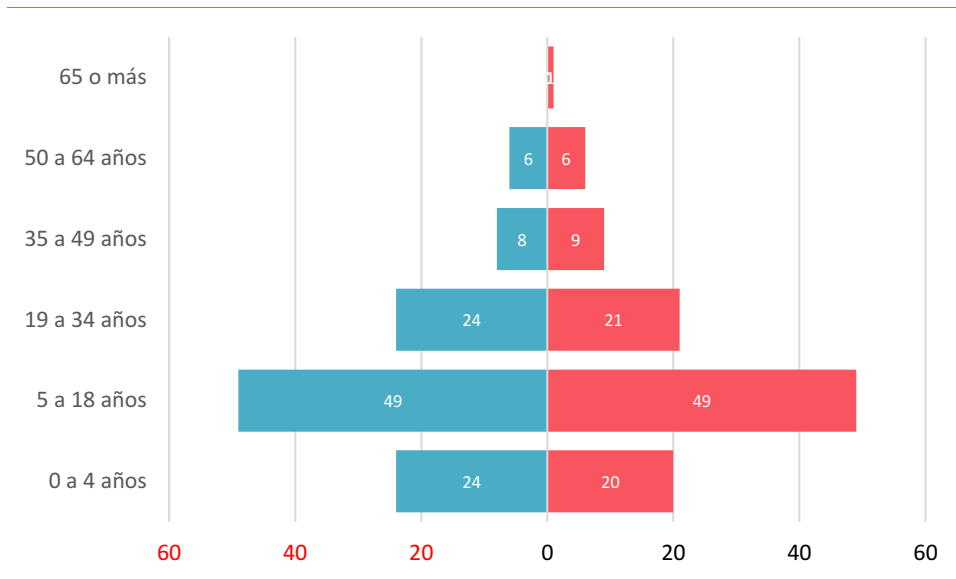
Communications: participatory meetings are the main means of communication among members of the Vy'a Renda community. They also have cellphones with good signal coverage. It was observed that some families have televisions and radios in their homes.

The Takuarendju community does not have electricity, so they do not have the same electronic devices except for cellphones.

4.4.4.3.8. Demographic aspects.

217 people live in the community of Vy'a Renda, distributed in 40 houses.

Graph 32. Distribution of the population of Vy'a Renda by gender and age range. Men | Women.



Source: elaborated by authors based on the collected data.

In the graphics of the population pyramid, there is a regular distribution of the population by gender. It is important to point out that 65% of the total population is mostly young considering that corresponds to the group from 0 to 18 years old. This shows that their demographic bonus can provide them with a great opportunity for future development if the right social investment is made.

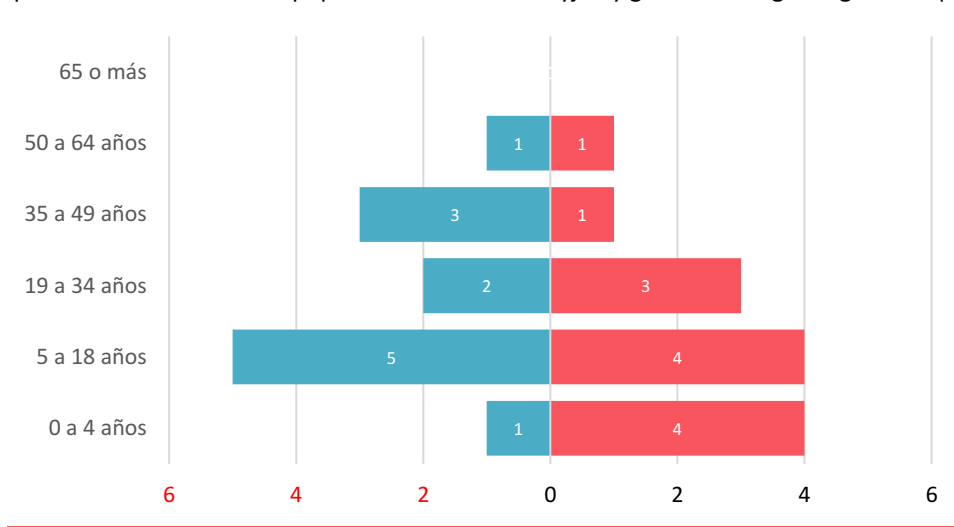


Photo: Takuarendiju girl drinking non-drinking water

In Vy'a Renda, and in the rest of rural indigenous communities is recognized that older sisters tend to take care of their younger brothers, by accompanying them and worrying about them while they play and explore the world around them. Some indigenous people mention that, on occasions, the girl who accompanies them is their mother.

The community of Takuarendyju is home to 25 people distributed in 7 families, most of whom are close relatives.

Graph 33. Distribution of the population of Takuarendyju by gender and age range. Men | Women.



Source: elaborated by authors based on the collected data.

In the community of Takuarendyju, the population pyramid is similar throughout the distribution by gender and age range, except in early childhood where the ratio of girls to boys is 4:1.

4.4.4.3.9. Migration.

Although the two communities belong to different ethnic groups, in both the pendular migration is very ingrained. It is common for individuals or entire families to migrate from a community searching for better job opportunities or visiting relatives without losing roots in their community of origin.

4.4.4.3.10. Genre.

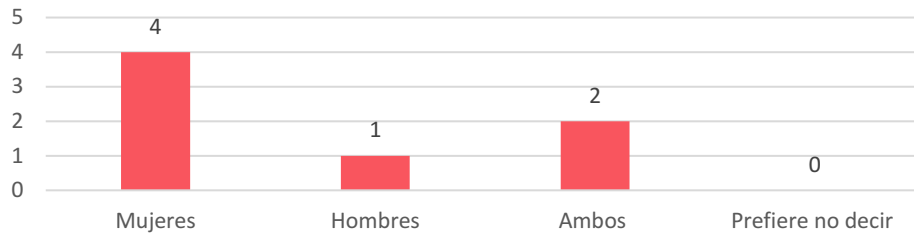
In relation to the role-distribution between men and women, it is observed that women are more associated with household chores, while men are more associated with work outside the community, such as "changas" (word used to refer to casual works) hunting and fishing.

Graph 34. Distribution of household chores in the Vy'a Renda community.



Source: elaborated by authors based on the collected data.

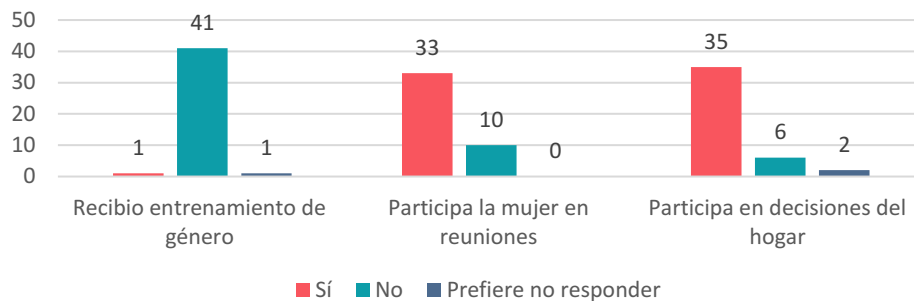
Graph 35. Distribution of household chores in the Takuarendyju community.



Source: elaborated by authors based on the collected data.

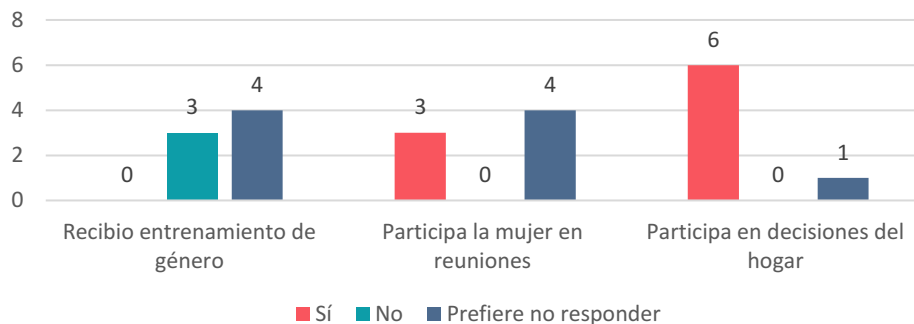
The graphs above show that in the Vy'a Renda indigenous community, 84% of the families delegate domestic chores such as cleaning, cooking and washing clothes to women, while in Takuarendyju, 57% do the same.

Graph 36. Participation of women in public and private activities in Vy'a Renda.



Source: elaborated by authors based on the collected data.

Graph 37. Participation of women in public and private activities in Takuarendyju.



Source: elaborated by authors based on the collected data.

In both communities, education with a gender perspective practically does not exist. In the indigenous community of Vy'a Renda, families believe that 77% of women participate in public meetings and 81% participate in household decisions. While in Takuarendyju, families believe that 43% of women participate in public meetings and 86% participate in household decisions.

4.4.4.3.11. Human Rights.

In both communities, some indigenous people say that when they go to the city and have to interact with other people, whether in supermarkets, public offices or hospitals, they feel that they are treated differently than non-indigenous people.

In both communities, some working-age people report that, on occasion, they have received lower pay for doing the same work than other non-indigenous people, and also from time to time, they do not receive food, while others do.

In Vy'a Renda, some people mention that they usually stay in the Chaco for a few months of the year to work on ranches, where they receive a salary, lodging and food; the salary is usually around Gs 400,000 per month, which is below the minimum wage. The indigenous people state that their employers justify the low salary by deducting lodging and food.

In general, in both communities it is observed that the older children take care of their younger siblings and collaborate in household chores and work on the farm, leaving aside their studies.

In both communities, although the police come to their aid when they have security needs that they cannot resolve autonomously, the distance between the police station and the community and the lack of good roads cause the police to take a long time to arrive.

Regarding the right to privacy, in both communities there is a high level of overcrowding due to the fact that families live in small houses with one or, in the best of cases, two rooms.

Respect for the right of nationality, in both communities families mention that the processes for obtaining birth certificates, identity card and indigenous card, are centralized through INDI with offices only in the city of Asunción. INDI often conducts on-site activities in communities to produce these documents, but these activities are rare. Families often raise money to send the community leader to Asunción to manage multiple certificates on the same trip.

In both communities, families say that they do not trust political groups because during election periods, some political groups go to the community to ask them to rent or lend them their identity cards to be used in the electoral process by other people.

Fieldwork showed that a large number of families do not have access to drinking water and sanitation. Sanitation conditions are precarious, with some families using the floor directly to relieve themselves.

In the Takuarendyju community, there was no access to electricity.

4.4.4.4. Summary of the baseline of the Takuarendyju and Vy'a Renda indigenous community.

The families of the de Vy'a Renda and Takuarendyju indigenous community develop various activities to subsist, taking advantage of the natural resources available in the environment. Some

of their activities are the storage of ecosystem services, gathering food, hunting, fishing, water extraction, and the collection of firewood and wood for building houses. They also apply agricultural production techniques, which are mainly used for food and barter.

Both communities are not safe to the conditions of poverty and extreme poverty that affect the district. The communities face difficulties related to vulnerability and exclusion, such as the lack of access to public services, long distances to access health centers, and the irregular assistance of the teachers who work in their school.

Families are especially vulnerable to weather conditions, which can favor or harm their agricultural productions. Their main sources of economic income are through “changas” (a Paraguayan word that means casual work) that they carry out in nearby farms. The money earned is usually spent in the Huguá ñandú colony for buying what they need. Young people from the Vy’a Renda community are working with PARACEL.

Social organization of Vy’a Renda community is established by three main institutions: the assembly, the political leader or cacique, and the spiritual leader or Tamoi, who collaborates to guide their community towards development and sustainability. The Takuarendyju community social organization is established only by the assembly and a political leader or cacique.

Throughout the consultation and diagnostic process, community leaders and members have shown support and a high level of participation in planning and execution of meetings and interviews; observing an atmosphere of enthusiasm and cooperation.

Concerning water and sanitation, it was detected that there is a group of families that do not have access to drinking water so they depend on the quality of the water in springs and streams; with greater emphasis on the community of Takuarendyju. The houses are made of wood and have latrine toilets.

Religion is a fundamental cultural aspect for the Vy’a Renda community, which is led by a spiritual authority called Tamoi, who is in charge of carrying out ancestral activities and the administration of remedies prepared from products obtained from nature such as plants, flowers, branches, and wild honey. In the community of Takuarendyju, the figure of spiritual authority is not present.

4.5. Redención indigenous community.

4.5.1. General characteristics of the community.

The indigenous community of Redención is located in the urban area of the Concepción district and has an approximate area of 1 Hectare, specifically 1132 Mts². The community has a property title granted by the Bishopric of the Diocese of Concepción. To access to the community, indigenous people travel through gravel roads that allow them to access on foot and by vehicle.

Map 25. Location of the Redención indigenous community I.



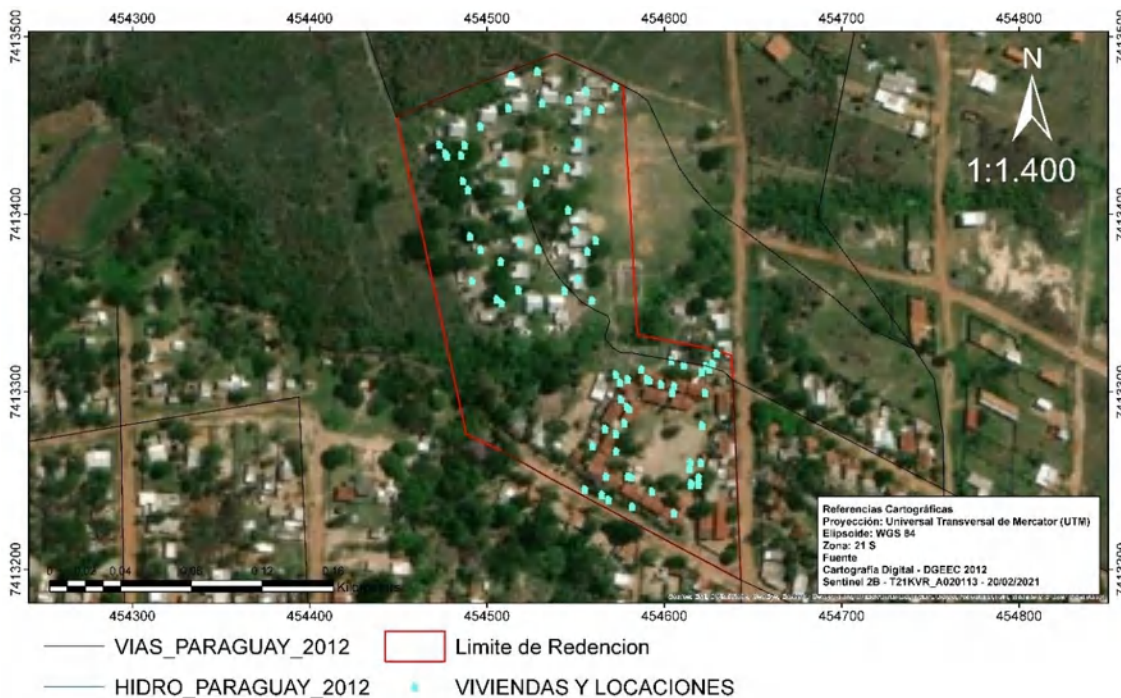
Source: mapped by authors.

Map 26. Location of Redención indigenous community II.



Source: mapped by authors.

Map 27. Locations in the indigenous community of Redención.



Source: mapped by authors based on the collected data.

Table 25. Redención indigenous community description sheet.

Item	Description
Name of the community	Redención.
Area	1 Hectare
Department	Concepción.
Recognized leader	Jacinta Pereira Nicret. Leader resolution 593/08.
Population	483 inhabitants, distributed in 105 families.
Dates of contact	November 05, 27, and 28, 2020. December 11 and 18, 2020. February 5, 6, 7, 8, 9, 10 and 22, 2021.
Linguistic family	Maskoy and Pai Tavyterá. The language they mainly speak is Guarani.
Ethnicity	Multicultural.
Type of community	Urban.
Geographical coordinates	Longitude (X) m 454545,18 Latitude (Y) m, 7413348,57
Nearest PARACEL property	Prospected industrial factory, located in Zapatero Cué.
Distance from the nearest PARACEL property	13 kilometers.

Access roads to the community	Main highways that pass through Concepción city, naming the best known, General Bernardino Caballero, Concepción Vallemí road.
Protected wilderness areas (PWA)	The indigenous community is not located within a PWA and does not claim to interact with PWA within PARACEL's properties.
Watercourses	The indigenous community is 2 kilometers away from the Paraguay River, where effluents from PARACEL's wastewater treatment plant will be littered. The residents claim to practice fishing livelihood in the Paraguay River.
Costums and traditions	The indigenous community does not claim to carry out ancestral activities and rituals within PARACEL's properties, including prospected factories and farms. They also do not report hunting or collecting subsistence plants for domestic use, such as food and healing therapies inside and outside of their territories.
Social indicators and expectations	The community is interested in improving their health, education, security, and economic conditions. Because the indigenous community lives in vulnerable conditions, the increase of people and the economic development of Concepción could increase the risk of delinquency, drug addiction, child exploitation, indigenous prostitution and human trafficking. (CLACSO, 2013)

Source: elaborated by authors.

4.5.2. Process description.

In Redención indigenous community, were carried out all the activities described in the Methodology section. The record of the activities done is described below:

Individual interviews and application of surveys	<ul style="list-style-type: none"> On February 5, 6, 7, 8, 9 and 10, 2021, surveys were applied to families in the community.
--	--



Photo: survey application.



Photo: survey application.



Photo: survey application.

Direct observation and key points	<ul style="list-style-type: none"> To check the information gathered during workfield about the community environment, we visited and took photos of the internal locations to observe the biophysical environment, the identification of ecosystem services, and key locations.
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Photo: Community's USF.



Photo: Virgin's grotto.



Photo: children in the community field.

<p>Permission to consult</p>	<ul style="list-style-type: none"> On November 5, 2020 the meeting was held and the minutes of the Permission to consult were delivered. The signed document was received on November 28, 2020.
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Photo: Consent signing.



Photo: meeting or aty guazu.



Photo: community leader.

<p>Project socialization meetings (Aty Guasu)</p>	<ul style="list-style-type: none"> On November 5, 27 and 28 , 2020 and on December 10, 11 an 18, 2020, were held socialization meetings about the Project.
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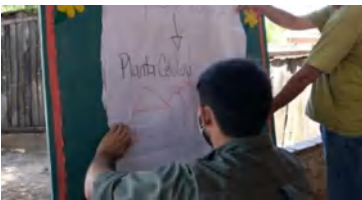


Photo: socialization of the Project.



Photo: socialization of the project.



Photo: PARACEL public hearing.

<p>Free, Prior and Informed Consent</p>	<ul style="list-style-type: none"> On December 18, 2020, was held the meeting and signing of the records of the Free, Prior, and Informed Consent.
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Photo: FPIC meeting.



Photo: FPIC meeting.



Photo: INDI certifying officer.

<p>Participatory Rural Appraisal Workshops</p>	<ul style="list-style-type: none"> On February 22, 2021, was held the Participatory Rural Appraisal workshop.
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Photo: PRA workshop.



Photo: PRA workshop.



Photo: PRA workshop

4.5.3. Community diagnosis.

4.5.3.1. Environmental Area.

4.5.3.1.1. Soil characteristics.

4.5.3.1.1.1. Current land use.

The indigenous community of Redención uses its soils for housing and recreation.

4.5.3.1.2. Water.

The indigenous community has an artesian well that provides drinking water to all homes. It was also found a stream that crosses the community's land that accumulates solid waste.

4.5.3.1.3. Use of Ecosystem Services.

Indigenous people say their relationship with nature has changed over time; they recount that years ago they used to go frequently to the Paraguay River to fish, but that they currently only do so from time to time. A minority group within the community states that it maintains this tradition and that they only do so at those times of the year when they are experiencing economic problems and need to get their own food. Some indigenous people travel to Chaco to collect wild honey.

4.5.3.1.3.1. Flora and Fauna.

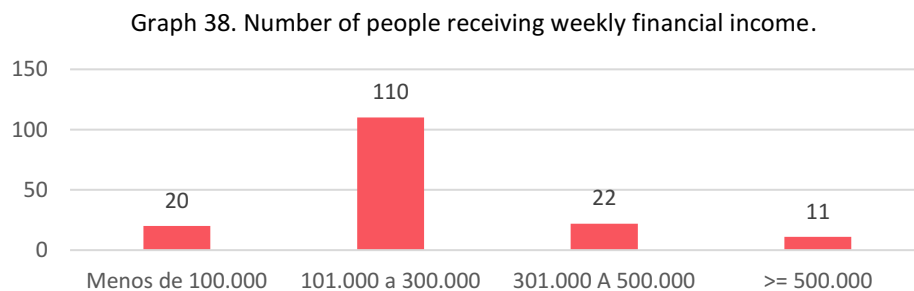
There are no flora and fauna species relevant to the community, since they lack forest remnants because they are located in the urban area.

4.5.3.2. Economic Area.

This community located in the urban area does not have an area for crops and livestock, so they are mainly dedicated to the sale of gambling tickets and domestic services cleaning houses.

PARACEL undertaking has become a new source of economic income for some young people from the Redención community. Nowadays, 6 young people are receiving scholarships to study and train as future operators of the plant.

Redencion is a community of 483 people distributed in 105 families. Among them, it was found that 163 people are receiving income from their work.



Source: elaborated by authors based on the collected data.

110 people are working, which is equivalent to 67% of the total community. They receive weekly income in the range of Gs 101,000 to Gs 300,000 guaraníes.

The main jobs that the indigenous people of the community mention doing are:

- Sale of gambling cards and/or newspapers.
- Domestic employment.
- Sale of refreshing remedies or pohá ñaná.
- Sale of handicrafts.
- Sale of honey obtained from the Chaco.
- Sale of fish obtained from the Paraguay River.
- Laborers mainly on farms in the Chaco.

4.5.3.2.1 Primary Production.

The main economic activities of the indigenous community are located in the secondary and tertiary or services, providing laborers services in Chaco farms and creating handicrafts.

Regarding the primary sector, it was only possible to detect the eventual production of poultry.

4.5.3.2.1.1. Agricultural.

The land area is insufficient for developing Agricultural activities.

4.5.3.2.1.2. Livestock.

Some families raise chickens. These animals are not caged and are fed with corn and human food scraps.

4.5.3.2.1.3. Forest.

The community does not have a forest remnant so they do not do forestry activities.

4.5.3.2.1.4. Work force.

There are 237 people between the ages of 18 and 64 who constitute an interesting potential for preparation to include them in labor activities.

4.5.3.2.1.5. Commercialization of primary sector productos.

Some families report that they sell wild honey collected from the Chaco. A natural resource that they sell along the roads near the city of Concepción at a price of around Gs 30,000 to Gs 40,000 (guaraníes) per liter.

4.5.3.2.2. Secondary production.

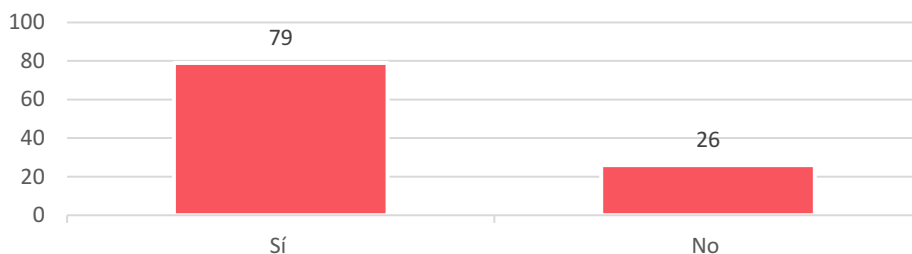
The number of indigenous people dedicated to creating handicrafts has decreased over time as declared by indigenous people in interviews. The few remaining artisans usually use traditional raw materials to create their works, such as wool, cotton, takuapi, wood, and karanda'y leaf. The products are usually sold mostly at Easter to resellers who sell them on the streets and different points of sale distributed throughout the city.

4.5.3.2.3. Services.

4.5.3.2.3.1. Technical assistance.

Regarding technical assistance, the indigenous people state that they do not usually receive it. Of the 105 families surveyed, 79 receive a monthly economic subsidy from the Ministry of Social Development, among which are the Tekoporã program and the Alimony Pension for Older Adults program.

Graph 39. Number of people in the Redención community who receive a subsidy from the MDS.



Source: elaborated by authors based on the collected data.

4.5.3.3. Social Area.

4.5.3.3.1. Education.

In the indigenous community was detected a school that has a more solid infrastructure than the others. The building walls are made of bricks; it has a tile roof and a tiled floor. The school has 7 classrooms, modern bathrooms separated by gender, an office for administration, and basic equipment such as tables, chairs, blackboards, chalk, and fans. There is also built a community kitchen and dining room area used by schoolchildren, and a shed used by indigenous people for holding their meetings. The indigenous people mentioned that they periodically receive kits and school meals sent by the Ministry of Education and Science.

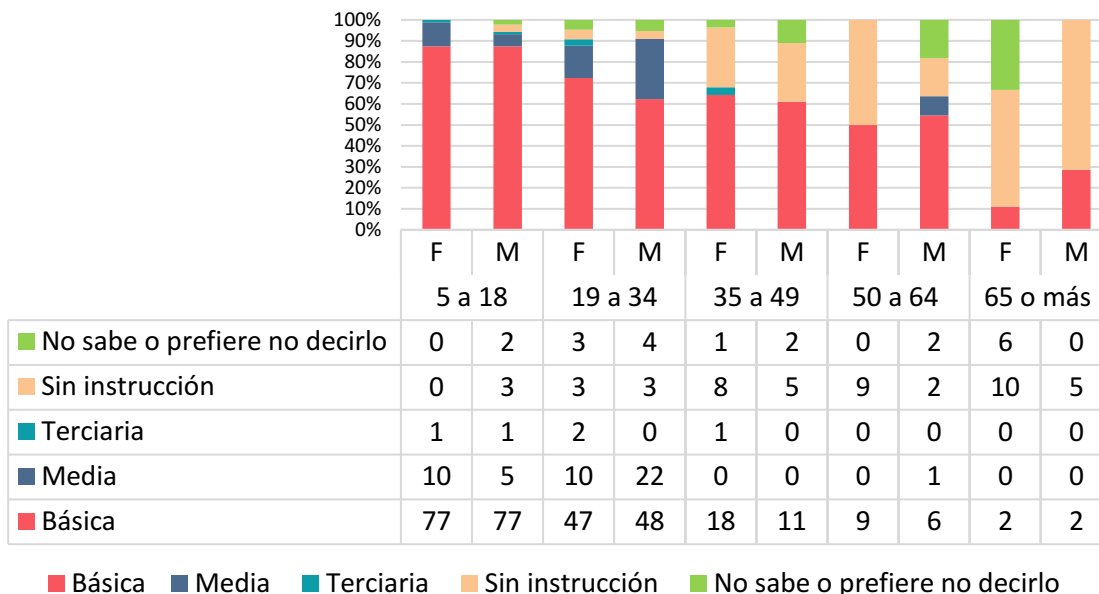
The school offers pre-school, elementary, middle school, and adult education classes in two shifts: day and evening. According to the school's director, education is provided by 16 teachers, 2 of whom are indigenous.

In the fieldwork conducted, especially in the DRP workshop and during interviews with key informants, it was discovered that most of the people who drop out of formal school education do so after 6th grade. The main reasons that lead them to make this decision are the need to work to increase family income, alcoholism, disinterest, migration to other cities, and absence of parental support.

It is observed that the students of the Redención community (unlike the indigenous students who graduate from rural schools) have the opportunity to continue their technical or professional studies, thanks to the fact that the community is within the city of Concepción. Some of them state that they are currently participating in the free training provided by the National Service for Professional Promotion (SNPP) in partnership with PARACEL. 22 people mention having graduated from the Home Electricity Course offered by PARACEL. There is another group that is starting the Heavy Machinery course (tractor driving).

In relation to the educational status of the school-age and older population, it has been found that the population is distributed as follows according to their academic level:

Graph 40. Distribution of the population by age range and gender according to educational condition in the Redención community. F = female | M = Male.



Source: elaborated by authors based on the collected data.

Thanks to the fieldwork, it is possible to appreciate that the education status of men and women is usually similar throughout all age ranges. Except in the 19-34 age range, where the number of men is twice as likely as women to have received a middle school education. On the other hand, generationally, there is a drastic and favorable increase in enrollment in formal education in the generation between 5 and 18 years of age, where 89% are enrolled in formal education compared to the previous generation between 19 and 34 years of age, where only 69% of the group continues or continued their studies in basic, secondary or further education.

In addition to the contribution to formal education made by the school, are carried out extracurricular activities aimed at improving the social problems of the members of the community, such as workshops on prevention and alleviation of drug use.

The community leader said that the Mexican Embassy provides them with resources for the school every year.

4.5.3.3.2. Health and sanitation.

4.5.3.3.2.1. Health and conventional medicine.

In the community of Redención, there is a Family Health Unit (USF) where the Primary Health Care Program (APS) is carried out. Its purpose is the prevention and health promotion of vulnerable groups within the communities.

The USF has an office with a doctor, two nurses, an obstetrician, and an administrator. The indigenous people who participated in the DRP mentioned that the USF does not fulfill all the tasks that should perform. They express that doctor only attends on Mondays, Wednesdays, and Fridays, even though it should attend from Monday to Friday; the doctor does not visit each of the families in the community; the clinical records of the members of the indigenous community are not kept up to date. Indigenous people feel that there is a lack of indigenous professionals who can understand their needs and culture.

78% of the population surveyed in the community declares that they regularly attend the USF when they have a health condition, mainly to receive medical treatment to alleviate conditions such as headache, fever, diarrhea, and the common cold.

4.5.3.3.2.2. Waste management.

In the interviews, people comment that the waste management and garbage collection system is deficient because the frequency of the service and the collection capacity of the truck are not enough to remove all the garbage bags that accumulate in a point destined for this, reason why sometimes they are forced to bury or burn the garbage that the garbage truck does not take away.



Photo: garbage accumulated outside a home.

4.5.3.3.2.3. Sanitation.

According to what was affirmed by the indigenous people during DRP workshop, interviews, and what was observed directly; it is verified that a large number of households do not have the infrastructure for the disposal of wastewater; the cesspool requires maintenance and the infrastructure around the stream needs to be improved to prevent flooding from rains that may affect nearby families.



Photo: garbage in the water stream.

Furthermore, it was found that the stream that crosses the community accumulates garbage that the indigenous people throw around it, polluting the natural environment and affecting ecosystem services.

4.5.3.3.3. Feeding.

The indigenous people of the community depend mostly on their own income for buying food. They buy it in markets within the city of Concepción. Those families with higher incomes and, therefore, greater savings capacity, can buy larger food packages that they tend to keep in their refrigerators and cupboards.

Community members also receive monthly donations of meat delivered by Frigorífico Concepción, which is used to make “karu guazu” (popular pots). They also receive food assistance from the INDI, who occasionally send family baskets with food to people, and finally, assistance from the Salesian Church of Concepción, which occasionally donates utensils and dishes.

There are indigenous families whose daily diet varies between those who manage to eat 3 times a day, and families who only eat once. The distribution of people according to their frequency of food consumption per day is presented below:

Graph 41. Frequency of food consumption per day.



Source: elaborated by authors based on the collected data.

According to what was found in interviews and surveys, 32% of the population eats 3 times a day, 48% eats twice a day and 20% eats only once a day.

During the fieldwork, it was found that the indigenous people maintain some recipes characteristic of their culture, such as the mburukuja, a fruit boiled with honey filling, and chicha, a drink made from corn sweetened with yatei honey.

4.5.3.3.4. Housing.

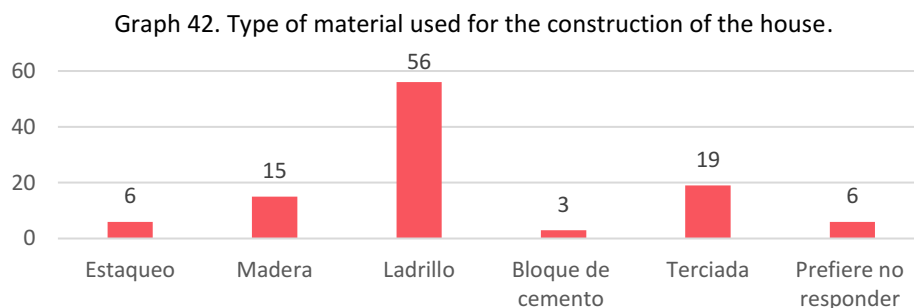
The community has a wide variety of housing types, built of different materials and sizes. Among the construction materials used are brick, plywood and rustic coconut tree trunks; their constructions are characterized by tile, zinc or thatch roofs, and brick, tile or rammed earth floors.



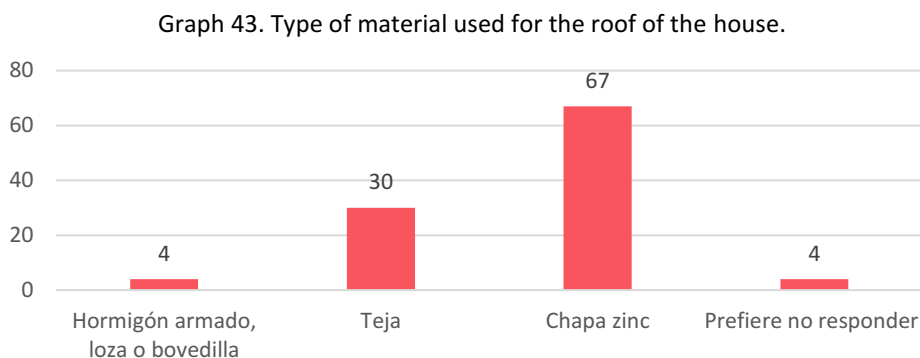
Photo: Brick house.

Regarding the distribution of spaces in the houses, some of them have one room and others have two rooms; 60% of the houses have latrines and 40% have a modern bathroom that drains into a well or directly into the ditch.

Some houses are overcrowded. In terms of electricity, although the property has electricity installations, some houses still do not have electricity connections. According to some residents, some houses were built with the support of companies, others with assistance from the Ministry of Urbanism, Housing and Habitat (MUVH previously known as SENAVITAT), and others, with the self-management of the inhabitants.



Source: elaborated by authors based on the collected data.



Source: elaborated by authors based on the collected data.

The preceding graphs show that 53% of the houses are built with bricks, 64% of the houses have zinc sheet roofs and 26% have tile roofs.

4.5.3.3.5. Structures of social organization.

In the Redención community, social organization is developed around three institutions: the assembly, the political leader, and the spiritual leader.

The most important instance in which community decisions are made is in the great general *assembly or aty guasu*. It is a participatory institution where all members of legal age in the community and regardless of gender, can give their opinion on matters that affect the well-being and sustainability of the community. One of the main functions of the assembly is the election and removal of the leader. In the assembly, they also review projects, plan activities, analyze problems and evaluate possible solutions.

The leader or cacique is a member of the community chosen as a representative of the voice of other people, whose functions as a political authority is to seek social cohesion, apply justice and govern within the community. The leader must be committed to the community; his or her duties are considered community service. The leadership can be an inherited or an elected role. In the case of the Redención community, there are two recognized leaders, one of whom is a political and religious leader.

Table 26. Leaders of the Redención Community.

Role	Name	Community
Political leader	Jacinta Pereira	Redención
Political and religious leader	Joaquín Bogarín Fernández	Redención

Source: elaborated by authors based on the collected data.

The *religious leader or spiritual leader* is an institution that keeps interested in indigenous religiosity alive. Since Redención is a multiethnic indigenous community, the religious leader plays a more symbolic than the practical role and is usually in charge of guiding the performance of those rituals and ceremonies that have managed to reconcile the members of the community, despite the religious differences and the distance from their places of origin.

To *resolve conflicts*, people ask the leader for help to find possible solutions. If the conflict continues, members of the community are required in the assembly. In this instance, they discuss issues that are not resolved through the usual channels of dialogue or go beyond the powers of the leader such as domestic violence, rape, robberies, and assaults. If it is considered that the problem can not be solved by the assembly, they can turn directly to the national police.

The *organization and institutional relations* are functions attributed to the community leader, who maintains a relationship for common objectives with public, private, and civil society institutions. The leader is aware that their relationships with different institutions are a good opportunity to advance in the development of the community, so they consider that relationships must be strengthened. In the community, the leader was diligent and interested in developing activities together with PARACEL. From the first moment she was contacted to develop this study, she facilitated spaces for conversation and was in charge of coordinating the participation of the members of her community in the activities, meetings, interviews, and surveys.

In current days, it is important to have a *birth registration and identity card* to be part of modern society. Having the mentioned documents are essential to be fully able to exercise human rights.

In the indigenous context, it is also necessary to obtain the indigenous identity card registration, which consists of a single and non-transferable registration provided by the INDI. It is important to mention that all indigenous people have the right to obtain an indigenous card.

The lack of these records makes it difficult for the person to access different public services and finding a job or attending a health center. In the next chart is observed the distribution of birth records, identity card, and indigenous card about the total population of the Redención community:

Table 27. Documentation in the Redención community.

Redención			
Total population	Birth registration	ID card	Indigenous ID card
483	358	396	399

Source: elaborated by authors based on the collected data.

4.5.3.3.6. *Cultural aspects.*

The indigenous people state that their culture is being lost over time as year after year they become more similar to the values and habits of the country's dominant culture, being influenced by religious, educational, social, labor, and political institutions and organizations. Fieldwork revealed that the indigenous people usually carry out activities typical of the country's dominant culture, such as celebrating a woman's 15th birthday.



Photo: 15-year-old party celebration.

They also adapted to the music they listen to, and we even met an indigenous man from the community who plays the role of a disc jockey (DJ) for the parties. However, some people mention maintaining some traditions, such as religious rites and the performance of traditional musical pieces based on playing the flute and bell instruments.

An alarming aspect expressed by some key informants is the use of drugs among the youth population, especially marijuana and shoemaker's glue, which they obtain from people outside the community. Other problems identified that are typical of vulnerable urban groups are delinquency and alcoholism.



Photo: Community DJ.

Some secondary sources from the Governor's Office of Concepción and according to some key informants outside the community, there are young indigenous women in the community who practice prostitution. Although this was denied by the leader and there was no specific information about it during the DRP workshop and interviews, it is not entirely clear which version is correct.

Some indigenous people feel that the population of the cities, in general, discriminates and rejects them. People usually have preconceived ideas that should not be generalizable to the entire indigenous population; prejudices related to indigenous people being thieves and lazy, this make them feel sad and difficult the access to get better job opportunities.

4.5.3.3.7. Religious aspects, spiritual beliefs and cultural heritage.

The indigenous people state that they do not occupy land within PARACEL's undertakings for the performance of religious rites, traditions and practices.

Although the indigenous people state that they maintain certain rites from their original cultures, interviews and field observations show that their culture is influenced by Christian religions. Currently, they have a grotto dedicated to the Virgin of Caacupé and declare that they celebrate her commemorative day annually on December 8.

The indigenous people stated that the main rites that they perform are; the "choqueada" which proposes is to obtain predictions about weather conditions; the "rain dance" which aims to influence weather conditions of rain; the "liberation" which proposes is to influence social events that occur within and outside the community; and "healing" which aims to improve the health conditions of one or more people.

In the event of a community member's death, he or she is buried in the municipal cemetery. According to some community members, funeral practices have been influenced by Catholic and evangelical religions, including mourning, burial, and the incorporation of tombstones in the graves, similar to these religions.

Some families create handicrafts, mainly for sale.

4.5.3.3.8. Public services infrastructure.

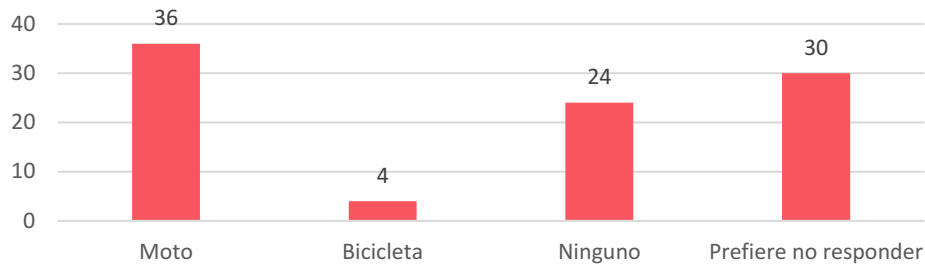
For the development of the indigenous communities is necessary to have access to public services. The field observation detected the following:

Water supply: The water supply comes from an artesian font that distributes water to all the houses.

Electricity: Approximately 80% of the homes are connected to electricity and families pay their monthly consumption bill to ANDE.

Transportation and road infrastructure: As the indigenous community is located within the city, they have access to public transportation. Some families own motorcycles.

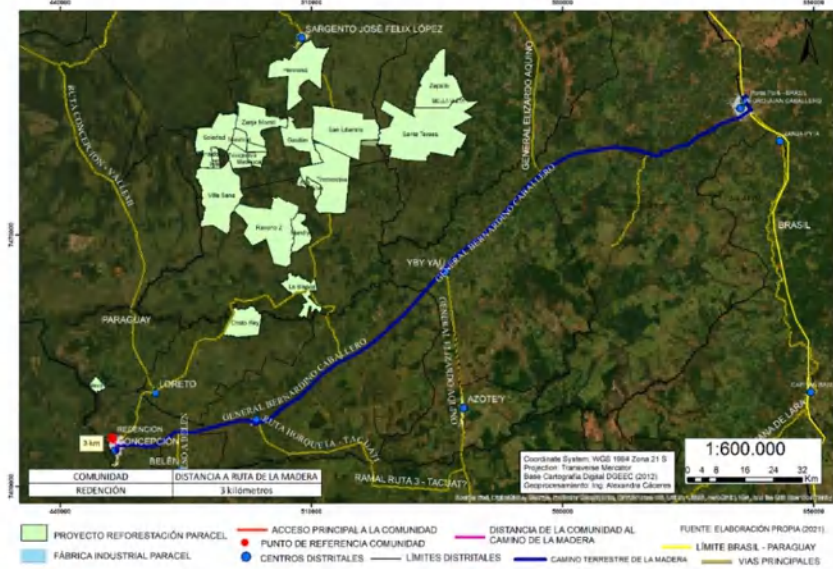
Graph 44. Means of transport used by the family.



Source: elaborated by authors based on the collected data.

The graph "Means of transport used by the family" shows that 38% of families use motorcycles as a means of transport, 4% ride bikes, 26% do not have any means of transport, and 32% prefer not to respond.

Map 28. Distance from the Redención community from the wooden land road.

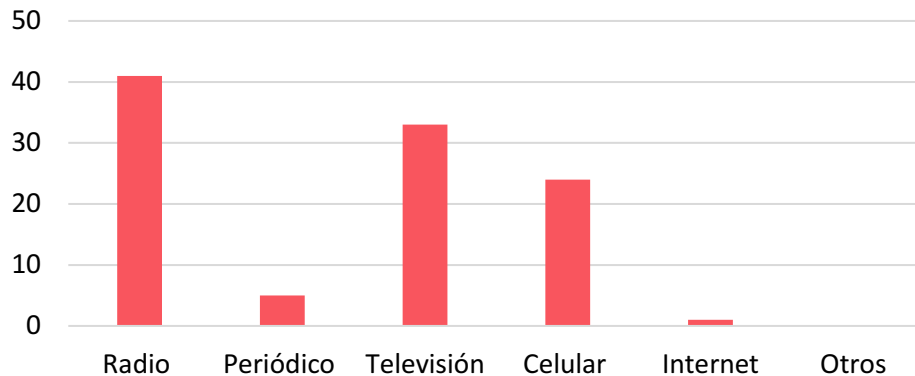


Source: mapped by authors.

The Indigenous Community Redención is located 3 kilometers from the General Bernardino Caballero route, also called "the wood route". The indigenous community of Redemption may be affected by the transport of wood or the increase in traffic on the route.

Communications: Meetings are the main form of communication among families. The vast majority have radio and television.

Graph 45. Number of families with access to sources of information.



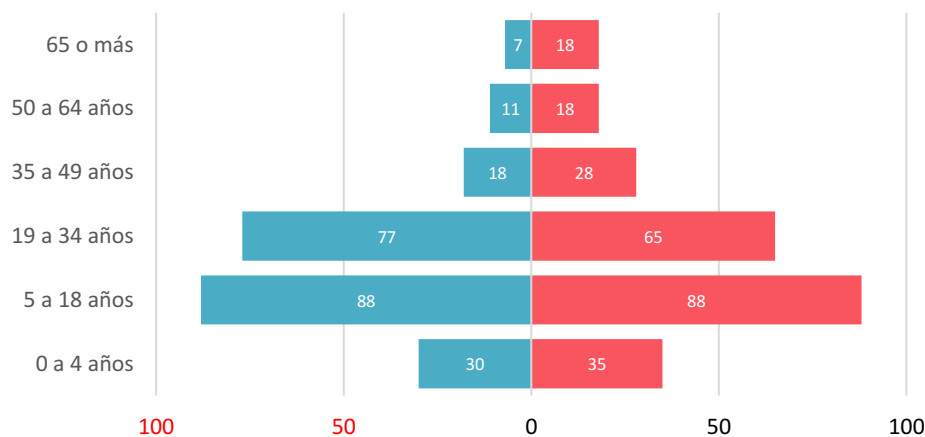
Source: elaborated by authors based on the collected data.

80% of the population states that they have access to one or more sources of information. The most used means of communication in the community is the radio, which is accessed by 41 families (representing 39% of the total). In the community, 24 families declare that they have a cell phone, which represents 23% of all families.

4.5.3.3.9. Demographic aspects.

There are 483 people living in the Redención community, distributed in 105 families. The distribution of the population by gender and age ranges is shown below.

Graph 46. Population distribution by gender and age range. Men | Women.



Source: elaborated by authors based on the collected data.

The graphic presents that, during childhood and adolescence, there is an equal distribution of the population by gender. There is a slight increase in the segment of men in the generation from 19 to 34 years of age compared to women. It can be seen that from the age of 35 onwards, the group of women is significantly larger than that of men, with 2.57 more women for every man.

It is important to note that the population is mostly young, with the 0-18 age group representing 50% of the total number of people in the community; this shows that their demographic bonus can provide them with a great opportunity for development in the future if the right social investment is made.

A predominant vulnerable group worldwide is the population of people with disabilities; in the case of indigenous people, a disability can mean living in a condition of double vulnerability. The following is the number of people identified as having a disability, according to the perception of community members:

Graph 47. People who declare some type of disability.



Source: elaborated by authors based on the collected data.

Two people with disabilities were identified within the indigenous community of Redención: an 8-year-old person with a physical-motor walking disability and a 4-year-old person with an intellectual disability due to microcephaly. No document was found that accredits the diagnosis or assessment of the disabilities.

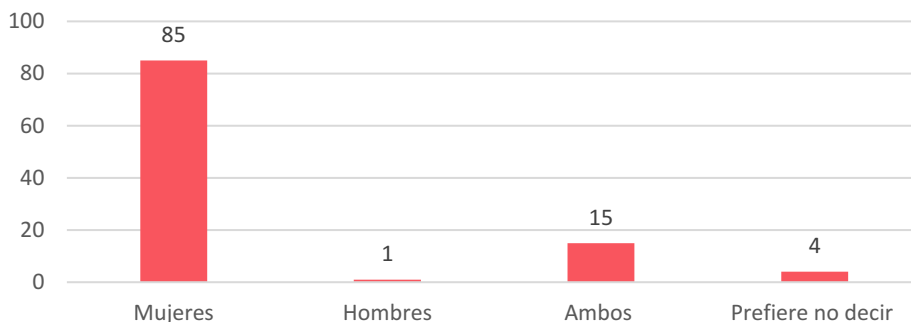
4.5.3.3.10. Migration.

Some families report that, in order to work for a while, they move to the Chaco for a few months of the year. The vast majority mention feeling rooted in their community and seems to have no intention of migrating.

4.5.3.3.11. Genre.

During the fieldwork, it was observed that in most of the families it is the woman who assumes the role of household chores.

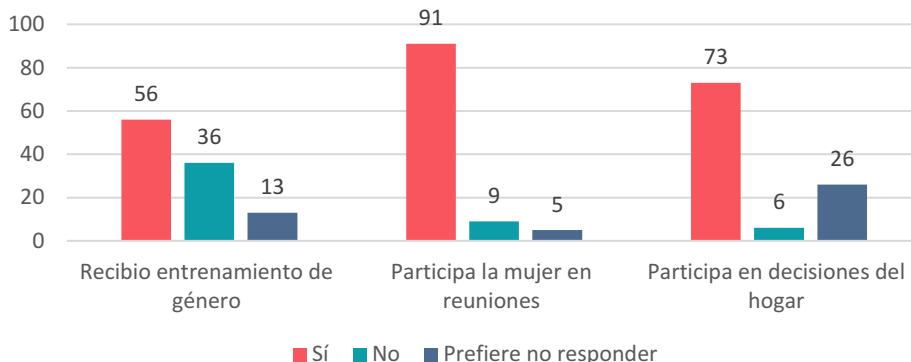
Graph 48. Distribution of household chores.



Source: own elaboration based on field collection.

As can be seen in the previous graph, 81% of the families say that it is the woman who is in charge of household chores, such as washing, cleaning and cooking. In 14% of the families, it is the man and the woman together who are in charge of household chores.

Graph 49. Participation of women in public and private activities.



Source: own elaboration based on field collection.

Regarding women's participation, of the 105 families that participated in the surveys, 53% of them stated that they had received some type of gender education, 87% of the families stated that women participate in public activities such as meetings and assemblies, and 70% of the families stated that women participate in household decisions.

4.5.3.3.12. Human Rights.

Some indigenous people say that when they go to the city and have to interact with other people in supermarkets, public offices or hospitals, they feel that they are treated differently than non-indigenous people.

In terms of work, some working-age people comment that they have sometimes received lower pay for doing the same work than other non-indigenous people and that, from time to time, they do not receive food, while others do.

Some people mention that they usually stay in the Chaco for a few months of the year to work

on ranches, where they receive a salary, lodging and food as compensation for their work, the salary is usually around Gs 400,000 per month, which is not even the minimum wage. The indigenous people state that their employers justify the low salary by deducting lodging and food.

Regarding child labor, it was identified that there are children and adolescents who work selling games of chance in the streets; some of them sell alone and others with their families. Some key informants mentioned that there are adolescents in the community who prostitute themselves and commit crimes.

In relation to the right to privacy, there is a high level of overcrowding of families living in small houses of one or, in the best of cases, two rooms.

Respect for the right of nationality, families mention that the processes for obtaining birth certificates, identity card and indigenous card, are centralized through INDI with offices only in the city of Asunción. INDI usually conducts on-site activities in communities for the preparation of these documents, but these activities are rare. Families often raise money to send the community leader to Asunción to manage multiple certificates on the same trip.

The fieldwork showed that a large number of families do not have access to drinking water and sanitation. Sanitation conditions are precarious, as some families use the floor directly to relieve themselves.

4.5.3.4. Summary of the baseline of the Redención indigenous community.

The families that belong to the indigenous community of Redención mainly carry out informal work activities such as selling gambling tickets on the streets of Concepción or doing masonry work; they do not carry out activities to take advantage of ecosystem services, such as harvesting, fishing, or agriculture. The community's water supply comes from an artesian well.

Community members report that they live in conditions of poverty, hopelessness and social rejection. Living in the city gives them access to public services, such as health centers, educational centers, professional technical centers, legal institutions and the national police.

Although inclement weather temporarily affects their living conditions, especially the flooding of the stream due to rain, it does not seem to determine their well-being and quality of life.

In the Redención community, the form of social organization is established by three main institutions: the assembly, the political leader, and the spiritual leader, who collaborate to guide their community towards development and sustainability.

Throughout the consultation and diagnostic process, the community leader showed interest and support for the project; a high level of participation in the planning and execution of meetings and interviews facilitated the establishment of an atmosphere of enthusiasm and cooperation.

The people of the community stated that their original culture is being displaced by the predominant western culture, acquiring practices typical of the people of the city, such as the

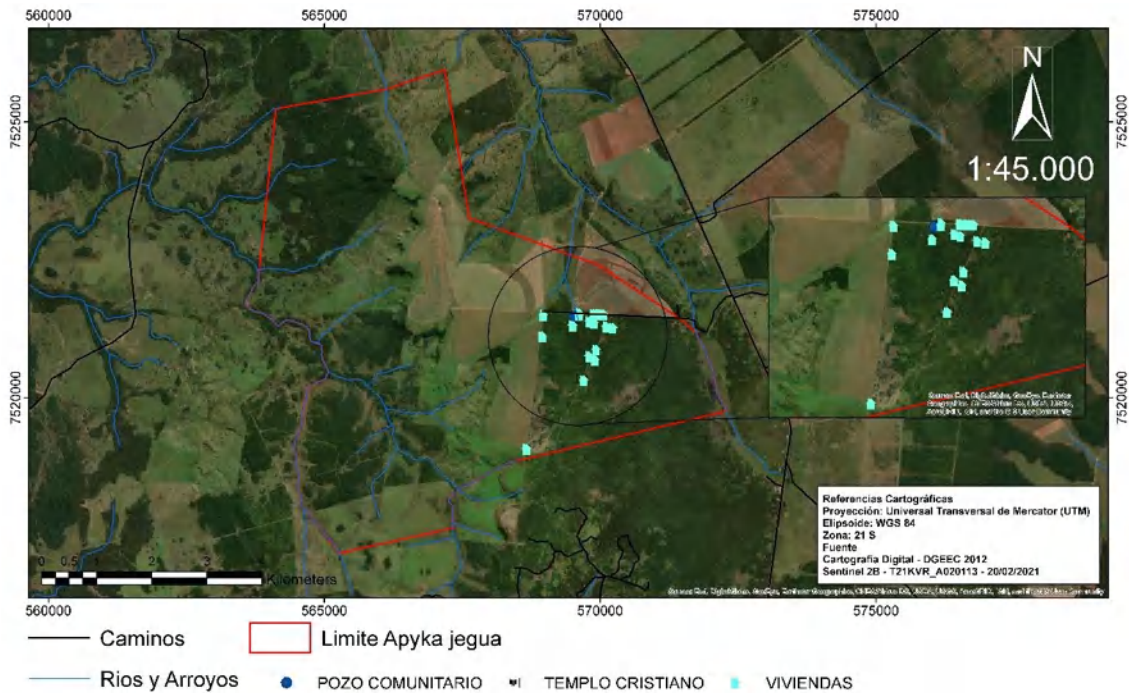
celebration of festivals and the Christian religion. Among the negative aspects that affect the integrity of community members, some interviewees mentioned drug addiction, delinquency, alcoholism, and prostitution.

4.6. Apyka Jegua indigenous community.

4.6.1. General characteristics of the community.

The Apyka Jegua community has an area of 4019,96 Ha, is located 35 Km from its district capital, Bella Vista, to which it belongs, 95 km from the Pedro Juan Caballero, which is the capital of the Department of Amambay, the same located on route 3 (Bella Vista crossroad). To get to the community, you must travel along route No. 5 that connects Concepción with Pedro Juan Caballero, the community is entered 35 km north of the Bella Vista Crossing. The community is located 17 km in a straight line from Estancia Zapallo where it is planned to carry out forest plantations of the PARACEL Company.

Map 29. Location of the Apyka Jegua indigenous community.



Source: own elaboration based on field collection.

Table 28. Apyka Jegua indigenous community descriptive file.

Item	Description
Community name	Apyka Jegua.
Surface	4019 hectares.
Department	Amambay.
Recognized leader	Basilio Fernandez.
Population	66 people, distributed in 18 families.
Contact dates	December 12, 13 and 15 of the year 2020 and March 16 of the year 2021.
Linguistic family	Guaraní. The language they mainly speak is Guaraní.
Ethnicity	Paí Tavyterá.
Community type	Rural.
Geographical coordinates	Longitude (X) m, 567133.36
Nearest PARACEL property	Latitude (Y) m, 7521361.40
Distance from the closest PARACEL property	Zapallo Farm.
Pathways to the community	17 kilometers.
Protected wild areas (ASP)	It has land access, it is entered on the side of the Bella Vista Crossing route that connects the Bella Vista District with International Route No. 5, which it shares with PARACEL vehicle traffic.
Watercourses	The indigenous community is not located inside an ASP and does not claim to interact with an ASP that is within PARACEL's properties.
Traditions and customs	The Te de Noe stream crosses through the indigenous community, channels related to other streams that it shares with PARACEL properties.
Social indicators and expectations	The indigenous community does not report carrying out ancestral activities and rituals within PARACEL's properties, including the prospected factory and farms. The community claims to practice hunting and/or fishing inside and outside their territories and the collection of plants for domestic use activities, such as food and healing therapies, but not within PARACEL's lands.

Source: self made.

4.6.2. Process description.

<p>Individual interviews and implementation of surveys</p>	<ul style="list-style-type: none"> On March 16, 2021, data collection, individual surveys of families were carried out.
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Photo: survey application.

<p>Direct observation and key points</p>	<ul style="list-style-type: none"> During all visits, the community environment was explored and photos were taken of internal locations for observation of the biophysical environment, identification of ecosystem services and key locations, and as a way of verifying the information gathered.
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Photo: community family.



Photo: residence of a family



Photo: kitchen at floor level.

<p>Authorization to consultation and socialization of the project (Aty guasu)</p>	<ul style="list-style-type: none"> On December 13, 2020, the meeting and signing of the minutes of the Authorization to Consult and the socialization of the project took place.
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Photo: socialization of the project.



Photo: request for permission to consult.

Free, prior and informed consent	<ul style="list-style-type: none"> On December 15, 2020, the meeting and signing of the minutes of the Free, Prior and Informed Consent was held.
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Photo: CCLPI meeting.



Photo: Minister of Faith of the INDI.



Photo: presentation of the project.

Participatory Rural Diagnosis Workshops	<ul style="list-style-type: none"> On March 16, 2021, Participatory Rural Diagnosis Workshops was held.
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Foto: Taller DRP.



Foto: Taller DRP.



Foto: Taller DRP.

4.6.3. Community diagnosis.

4.6.3.1. Environmental Area.

4.6.3.1.1. Physiographic characteristics.

Physiographically, the Apyka Jegua indigenous community has a steep slope from the access by route 3. However, when arriving at the houses it can be seen that the relief is semi-flat to flat, with some gentle slopes. The community has areas of good drainage and others of moderate to poor, reaching levels between 60 and 200 meters above sea level.

4.6.3.1.1.1. Geological characterization.

The geological formations of the community are Precambrian and Paleozoic, occupying physiographic configurations that are preferentially developed on residual soils derived from sandstone.

4.6.3.1.1.2. Hydrological characterization.

The community has two main streams that cross the property, tributaries of the Aquidabán River. These streams are used as sources of water and as wells for community use; there is no potable water.

The water courses in which the families fish are not used for navigation and will not be affected by the river transfers that PARACEL will carry out.

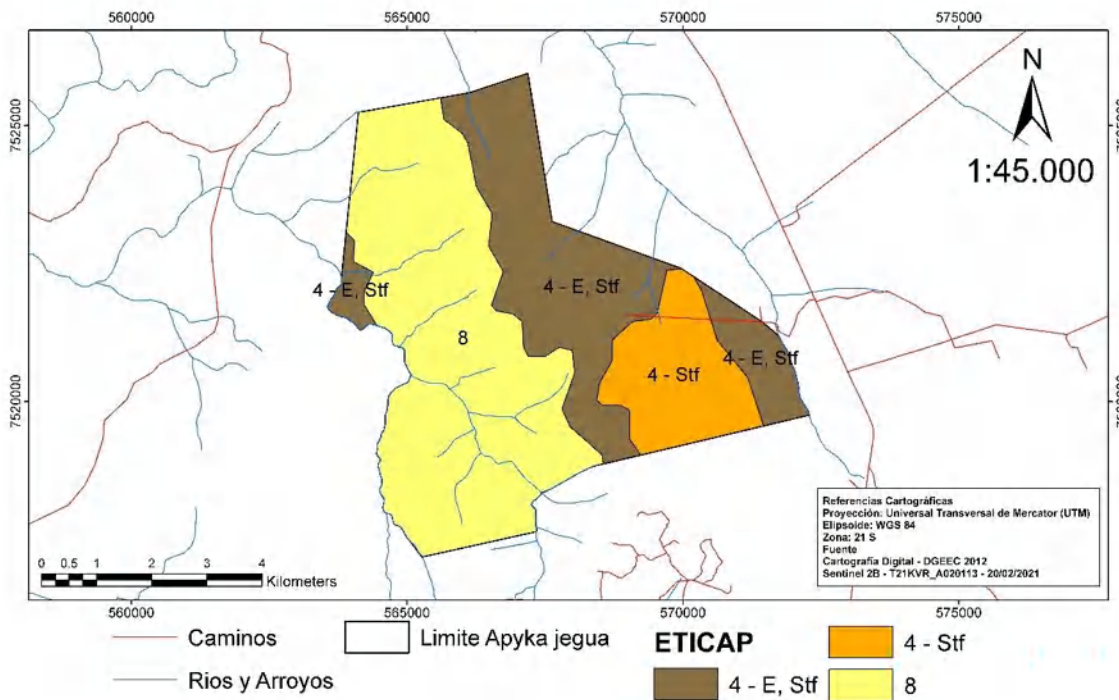
4.6.3.1.2. Climatic characteristics.

According to the Municipal Development Plan of Bella Vista, the indigenous community is located in a geographical area with a pleasant climate, thanks to the altitude of the Department of Amambay. The average annual temperature is 21 ° C, with minimums reaching 1 ° C and maximums reaching 35 ° C.

Regarding rainfall, it is worth mentioning that they are abundant, reaching 1.700 to 1.900 mm per year. The season with the highest rainfall is between the months of January and March, and the season with the highest drought is in the month of August.

4.6.3.1.3. Soil characteristics.

Map 30. Land Utilization Capacity of the Apyka Jegua community.



Source: self made.

According to the Utilization Capacity Map prepared by the Natán Foundation technical team, the soils of the Apyka Jegua community are classified as follows:

Table 29. Land use capacity of the Apyka Jegua community.

USAGE CAPACITY (USDA)	AREA (Ha)	% OF TOTAL AREA
IV 4 - E, Stf	1324,68	33
IV 4 - Stf	571,68	14
VIII 8	2123,6	53
Total	4019,96	100

Source: self made.

From this classification it can be observed that a large part of the lands is comprised of class IV E and Stf soils (47%), most of the lands are suitable for the development of agricultural activities of annual crops, with fertility restrictions according to indicates the Stf sub class, and it is recommended to take soil management measures such as the use of green manures and other corrective measures.

Type VIII soil (53%) presents very severe limitations for general agricultural uses; in crop management the option is very limited. Conservation practices must be special and the general classification of the land is non-arable, generally rocky.

4.6.3.1.4. *Current land use.*

The area suitable for agricultural crops is approximately 464 Ha. The families of the community are mainly engaged in family agriculture for their own consumption, they sow cassava, corn, beans and sweet potatoes, basically in small areas.

The community has approximately 1.763 Ha of mountains, where there are remnants of trees that regenerate again, forming small forests from where they are supplied with firewood and other wood for different types of buildings and, in cold seasons, used as firewood to make bonfires and alleviate the precarious thermal insulation of their homes. Also, the coverage of natural fields and pastures is 1.153 Ha, which are used by the neighbors, who enter their animals for grazing, with the authorization of the community members, the conditions of the land loan were not specified by the community.

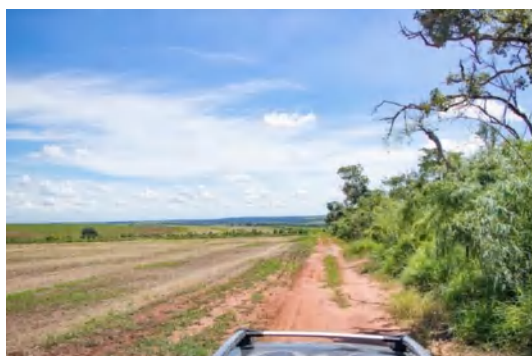
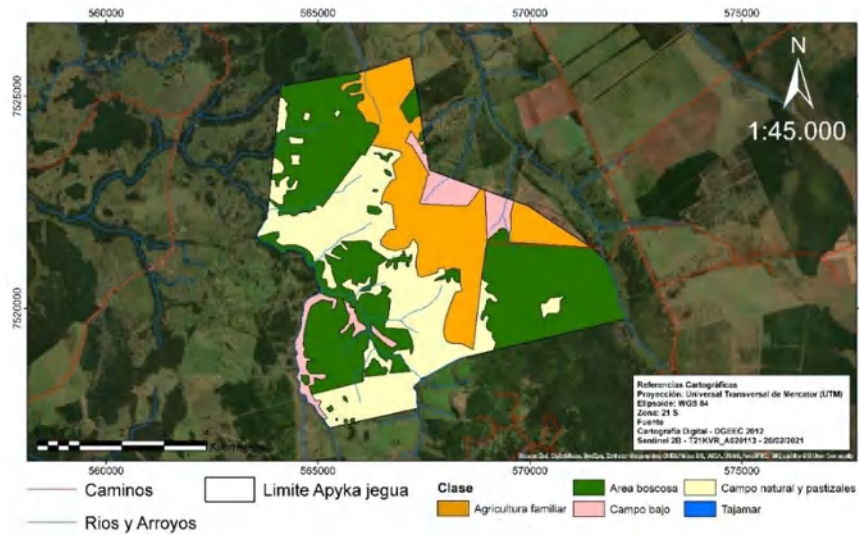


Photo: boundary between the community forest and the neighbor's soy cultivation .

Map 31. Land use of the Apyka Jegua community.



Source: self made.

Table 30 Distribution of land use in the Apyka Jegua community.

N°	Classification	Surface in Ha	% that represents
1	Family Agriculture	864,29	21,50 %
2	Wooded Area	1763,75	43,87 %
3	Low Fields	237,72	5,91%
4	Natural fields and pastures	1153,97	28,71%
5	Cutwater	0,23	0,01%
	Total	4019,96	100%

Source: Participatory Rural Diagnosis and individual interviews of this EISA.

4.6.3.1.5. Water.

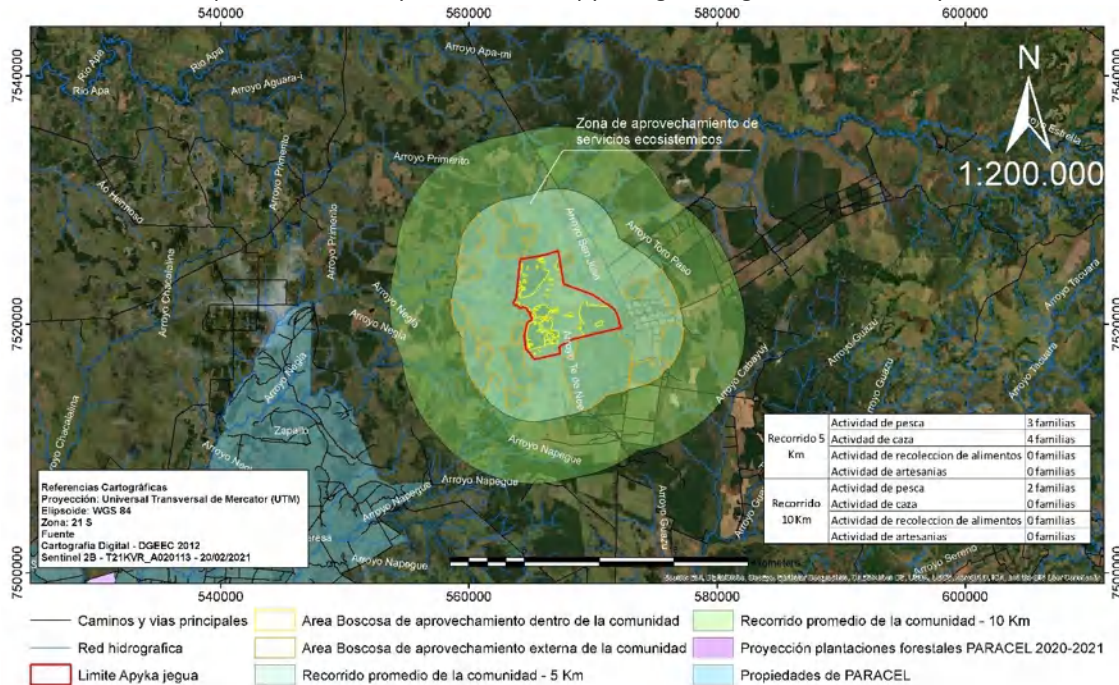
The community does not have potable water distribution, people drink from springs (ykua) and from two streams that cross the community and that are tributaries of the Aquidabán River, which is the main water resource from which they extract food through fishing. They also have a common font, which they use for water consumption.



Photo: common water font.

4.6.3.1.6. Use of ecosystem services for livelihoods.

Map 32. Use of ecosystem services Apyka Jegua indigenous community.



Source: self made.

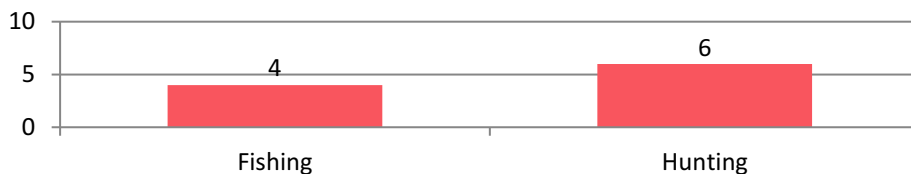
The Apyka Jegua indigenous community is located within the life zone called by Holdridge (1969) as “humid temperate forest” and central forest by Tortorelli (1966). Within this are several forest formations, determined by the different soils and differences in precipitation and average annual temperature. These forests are traveled by indigenous communities for the use of ecosystem services as a means of subsistence.

Depending on the vegetation, the region shows a predominance of tall forest, still rich in species or varieties of species, as well as areas occupied by medium and low growth vegetation in the vicinity of the river.

The high forest is composed of species of commercial value and of high size and with dense understory, the general vegetation of the area is classified as of the type "High forest of the temperate - warm climate", reaching up to 30 m. high in the upper part of good drainage, completing the structure with lianas, herbs, ferns, shrubs and epiphytes.

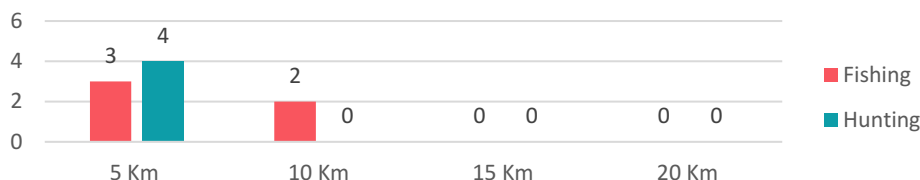
The middle forest is composed of a large number of species of less commercial value with an average height of 12 to 18 m., Generally more spaced with somewhat tortuous trunks, among which are the species of curupay râ, tiliaceae, laurels, timbo, among others such as guayaivi, yvyra ovi, among others, which are traditionally more limited in use.

Graph 50. Families that carry out traditional means of subsistence in the Apyka Jegua community.



Source: own elaboration based on field collection.

Graph 51. Maximum distance traveled by the families of the Apyka Jegua community for the realization of traditional means of subsistence.



Source: own elaboration based on field collection.

In the graphic “Families that carry out traditional means of subsistence - Apyka Jegua community”, it can be seen that there are still families in the community that practice traditional means of subsistence for the generation of food, mainly fishing and hunting. Subsequently, in the graph "Maximum distance that the families of the Apyka Jegua community travel for the realization of traditional means of subsistence" it can be seen that those families that practice means of subsistence and use of ecosystem services usually travel a maximum of up to 10 kilometers around of the community.

4.6.3.1.6.1. Flora.

According to Tortorelli (1969), this area is located within the “central jungle” forest formation, characterized by the presence of a certain number of deciduous tree species, together with evergreen families, typical of these forests (Myrtaceae, Lauraceae, etc.).

López, JA (1987), describes the forests of the Eastern Region of Paraguay as A) High Forests: "these forests seem to be typically formed by 3 main floors or strata that are dominant, intermediate and oppressed"; B) Riparian Forest: "they are generally low forests and are clearly delimited by the natural vegetation that extends along the streams and rivers"; C) Low humid forest: "similar to the riverine forest, but it differs because they are distributed in the form of islets in the fields ..." and; D) Savanna Forest (Cerrado): "composed of low scrub pastures, small forests ...". The first 2 types of forests, described by López, are characteristic forests of the high forest and the riverine forest,

The families resort to the forests of their own indigenous community for the extraction of wood, fruits, honey, herbs and vegetable fibers, which are used for food, medicine, construction and as fuel for cooking or shelter on the coldest days.

Among the predominant forest species in the community:

Table 31. Characteristic flora species of the Apyka Jegua community.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Yvyra pyta	Peltophorum dubium
2	Tajy	Tabebuia sp
3	Yvyra'ro	Pterogine nitens.
4	Cocotero	Acrocomia totai
5	Kurupay	Anadenanthera colubrina var.
6	Kurupa'yra	Parapiptadenia rigida
7	Incienso	Plectranthus Coleoides
8	Urunde'y	Astronium balansae
9	Tata jyva	Maclura tinctoria
10	Timbo	Enterolobium contortisiliquum
11	Peterevy	Cordia trichotoma
12	Aguai	Chrysophyllum gonocarpum

Source: own elaboration based on the DRP.

4.6.3.1.6.2. Fauna.

The families fish in the stream that runs through the community, which is a tributary of the Aquidabán River. Among the species they fish are tarey'i, surubi, carimbata and pira pyta among others.

Families also hunt in the forests within their community, hunting wild animals such as kure'i, deer, tajy kati, tapir, capybara, armadillo, and others. Outside their community, they practice the Hunt in Cerro Amambay and in Estancia Santa Teresa, the latter is owned by PARACEL.

The frequency of carrying out these activities varies between families, most of the people consulted they say they practice it between one to three times a week. The animals that hunt and fish are destined for self-consumption.

Considering the great extension of forests, it can be considered as the habitat of a great variety of native fauna. Among the fauna species that exist, the following species can be mentioned:

Table 32. Fauna near Apyka Jegua.

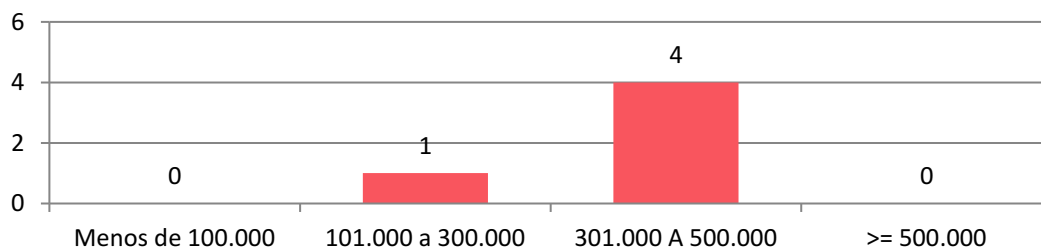
N°	COMMON NAME	SCIENTIFIC NAME
1	Teju Guasu	Tupinambis mericanae
2	Tortolita	Columbina sp
3	Jeruti	Ceptotila verreauxi
4	Pycasu	Zenaida auriculata
5	Piririta	Guira guira.
6	Tatu poju	Euphractus sexcintus
7	Tatu hu	Dasyopus novemcintus
8	Aguara´i	Cerdocyon thous
9	Coati	Nasua nasua
10	Guasu vira	Mazama gouazoubira
11	Apere´a	Covia Aperea
12	Akuti	Dsyprocta azarae
13	Kure´i	Tajassu tajasu
14	Tapiti	Dsyprocta sp.

Source: DRP Apyka Jegua 2021, El Zapallo 2020.

4.6.3.2. Economic area .

In Apyka Jegua there are very few people who frequently leave their community to work in exchange for money, only 5 people were found. Some families practice bartering in nearby estates to obtain products they need.

Graph 52. Number of people distributed by weekly income from the Apyka Jegua community (in Guaraníes).



Source: own elaboration based on field collection.

Among the entire population of the community, 5 people are doing paid work, of which 4 people receive weekly income that fluctuates between Gs 301.000 and Gs 500.000 and 1 person receives income between Gs 101.000 and Gs 300.000.

4.6.3.2.1. Primary production.

4.6.3.2.1.1. Agricultural.

The Community members mention that their main work activity is related to cleaning, plowing, planting and harvesting activities on their own farm. The land destined for family farming ranges between 0.25 Ha and 2 Ha and its production is mainly intended for home consumption. The families mentioned that there is a tacit agreement in the community that, if any of them wishes to allocate more area for cultivation, they can do so without causing problems for the other families in the community. The main production items are cassava, corn in the white and tupi varieties, beans, sweet potatoes and squash.



Photo: cassava cultivation.

Some indigenous people in the community mention using basic tools to prepare the land, such as shovel, machete and ax, among others, from their perspective they feel that their tools are insufficient in quality and quantity to carry out a good preparation of the land and to improve its productive capacity.

People who are dedicated to carrying out daily trades in neighboring communities or livestock establishments, mainly in the MM ranch, sporadically carry out cleaning, livestock management and harvesting tasks on the farms, receiving a daily payment of around Gs 60.000 to 70,000 Gs.

4.6.3.2.1.2. Livestock.

The members of the Apyka Jegua community do not have cattle, however, in the community you can see the neighbor's cattle grazing. Some of the families raise home poultry in minimal quantities and mention that the main problem for raising animals is the lack of water in the houses.

4.6.3.2.1.3. Forest

The forested area of the community lands reaches approximately 1763,75 Ha, corresponding to 43.87% of the total area, is of a natural type with native species. Lack of care and tree felling practices are something to consider because families do it without a proper management plan.

4.6.3.2.1.4. Work force.

The agricultural work and the raising of poultry animals are activities commonly carried out by the ladies in the company of their children, at the same time that the women take care of the housework and the raising of the children, creating an over-occupation to the same. The majority of men are engaged in off-farm work, such as hunting and fishing, and doing paid work in neighboring farms.

4.6.3.2.1.5. Machinery and equipment.

The agricultural implements identified are the machete, foisas, hoe, shovel, and manual seeders. Most of these tools date back 4 or 5 years of use and need to be renewed, it is observed that the number of tools per family is insufficient to carry out all agricultural tasks.

According to the capacity to use the soil, they have enough land for agricultural practices, however, in direct observation it was found that there is a proliferation of cutter ants.



Photo: nest of ysaú (cutter ants)

4.6.3.2.1.6. Technology.

The use of state-of-the-art technology for production, such as heavy machinery and certified or transgenic seeds, is not detected. The sowing system practiced is the conventional one, with the clearing of the area to be cultivated and subsequent burning of the weeds, to sow with a hoe or yvyra hakua (a pointed stick that serves to pierce the ground and place the seeds in each hole).

A common practice in all farms is the association of items between corn - cassava, cassava - beans and corn - beans. The use of chemicals such as pesticides is not observed.

4.6.3.2.1.7. Marketing of primary sector products.

According to the perceptions collected in the Participatory Rural Diagnosis, the indigenous people feel that the poor condition of the roads into / out of their community makes it difficult for them to market their products. Some families think that some alternatives that could help them generate more income are the production of honey and the sale of wild animals obtained through hunting.

4.6.3.2.1.8. Production supplies and materials.

The seeds used are from their own production, as a result of the storage of grains from the previous season and the exchange of seeds that are not available on the farm (post-harvest), the use of chemical or natural products for production is not detected. The quantities of available seeds are not sufficient for the extension of the surface, since they generally consume the crops in quantities almost in their entirety.

4.6.3.2.2. Secondary production.

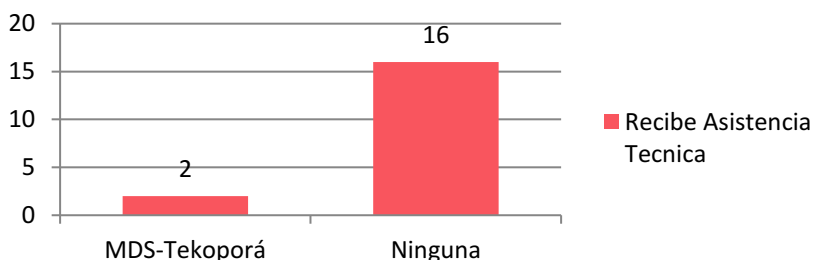
No secondary production was found in the community.

4.6.3.2.3. Service.

4.6.3.2.3.1. Technical assistance.

In the community they do not receive technical assistance and training in the agricultural area and only two families receive the subsidy from the Tekopora program of the Ministry of Social Development.

Graph 53. Number of people in the Apyka Jegua community that receive a subsidy from the MDS.



Source: own elaboration based on field collection.

It can be seen that 2 families declare that they receive the economic subsidy from the Tekoporã program of the Ministry of Social Development (MDS) and that 16 families do not receive any type of subsidy from the MDS or the Ministry of Finance.

4.6.3.2.3.2. Commercialization.

Marketing is informal and is carried out in nearby settlements and in neighboring ranches, some of which are adjacent to the community. The main items that are marketed are tupi corn and cassava, both at a price of around 1.500 Gs / Kg.

Families perceive a deterioration in the terms of trade, in the sense that the products they sell are getting cheaper and those they buy are getting more and more expensive.

The lack of means of transportation, the small planting area and the little training in marketing are problems that hinder the commercial development of the community.

4.6.3.2.3.3. Financing.

Each producer family plans and finances its production according to its possibilities. No institution accompanies families in financing for production and they do not have access to public or private loans.

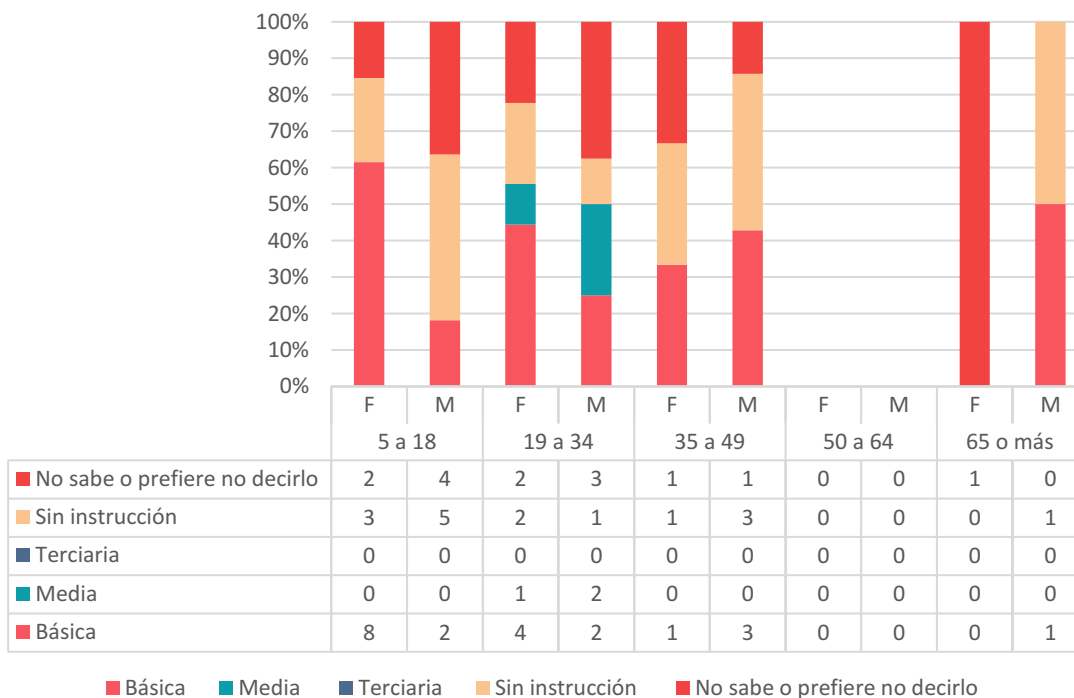
4.6.3.3. Social area.

4.6.3.3.1. Education.

In the Apyka Jegua community there is no public school, children must travel 15 kilometers to attend a school for “Paraguayans”, the way they refer to people of Paraguayan nationality and who are not indigenous, sometimes this same form is used to name people of other nationalities that are not indigenous either.

Regarding the distribution of the population by age range and gender, it can be observed that there is a majority of young people between 5 and 34 years old who are studying or who have completed basic school education and that there is a minority in this same segment without education, as can be seen in the following graph:

Graph 54. Distribution of the population by age range and gender according to education status in the community of Apyka Jegua. F = female | M = male.



Source: own elaboration based on field collection.

Thanks to field work, it was possible to appreciate that the educational status of men and women in the indigenous community of Apyka Jegua is usually similar throughout all age ranges, which means that both genders face similar gaps in formal education. Although an increase in schooling can be observed in the youngest segments, only 42% of girls, boys and young people between 5 and 18 years of age declare that they are studying or have completed basic or secondary education.

4.6.3.3.2. Health and sanitation.

4.6.3.3.2.1. Health and conventional medicine.

Regarding the basic health service, the families state that months ago they received periodic visits from the nearest Health Post on a monthly basis, but that since the COVID-19 pandemic began in March 2020 these visits stopped.

Families mention that the most frequent illnesses are cough, toothache, diarrhea, tesá rasy (conjunctivitis), vomiting, aká rasy (headache), stomach pain, ear pain, fever, and Parasites.

Dental problems are frequent, many of the indigenous people have a great deterioration in their oral health and a large number of missing teeth. In the case of suffering pain in a tooth, they extract their teeth themselves or wait for it to fall.

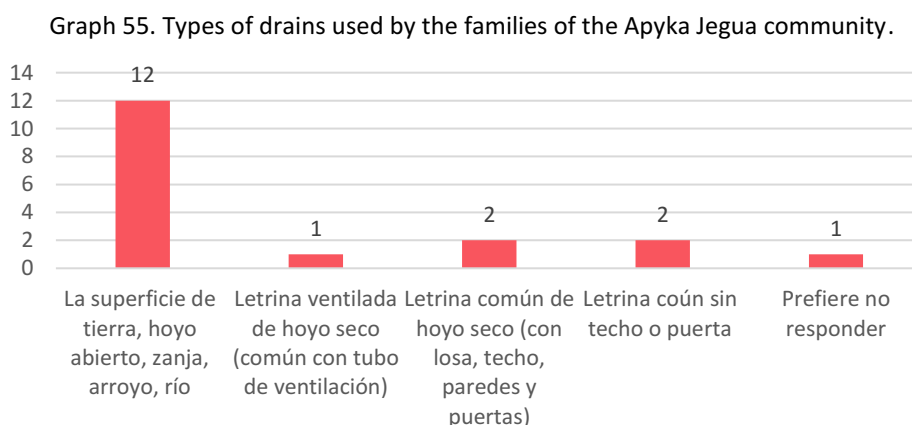
4.6.3.3.2.2. Health and traditional medicine.

The traditional medicine of the community is based mainly on the use of natural remedies with therapeutic properties that are extracted from the flora of the forests and that are administered by the elderly.

Within the indigenous community, shamanic practices are also carried out to achieve cures for the affections of the body and spirit.

4.6.3.3.2.3. Sanitation.

In the Apyka Jegua community there are precarious toilets and in some cases the disposal of feces is done in holes or in the open.



Source: own elaboration based on field collection.

As can be seen in the graph, most of the families do not have toilets or latrines, 67% of the families use the same surface of the land, a small shallow hole, a ditch, the stream or the river to make their needs.



Photo: precarious bathroom.

4.6.3.3.2.4. Waste management.

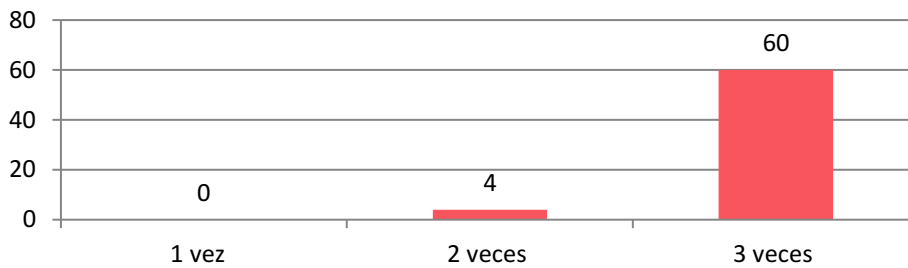
Solid and liquid domestic waste is deposited around the houses, in many cases solid waste is burned and there is no adequate treatment for this type of waste.

4.6.3.3.3. Feeding.

The families' diet is proportional to the availability of food produced in the family farms, where cassava, beans, corn, peanuts and sweet potatoes predominate. Also, families carry out hunting and fishing activities that help supplement and diversify the food they eat.

Purchases for basic household supplies are made in a warehouse near the community, where sugar, salt and oil are supplied, among other things.

Graph 56. Frequency of feeding according to number of people.



Source: own elaboration based on field collection.

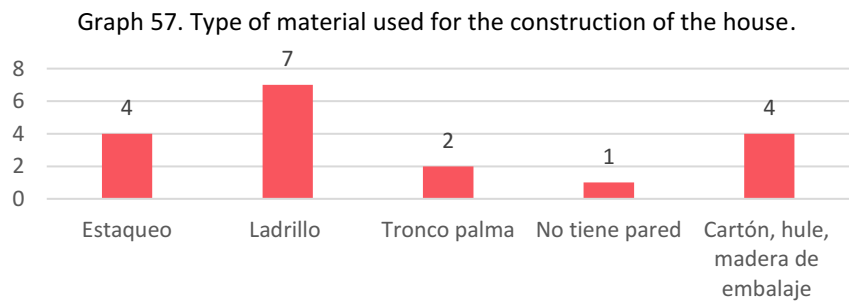
The families comment that they eat 2 to 3 times a day (breakfast, lunch and dinner). According to what the families mention, 94% of the people in the community eat 3 times a day. The diet is mainly composed of hypercaloric foods and the variety of foods is limited. They do not normally consume fruits, vegetables and dairy.

4.6.3.3.4. Housing.

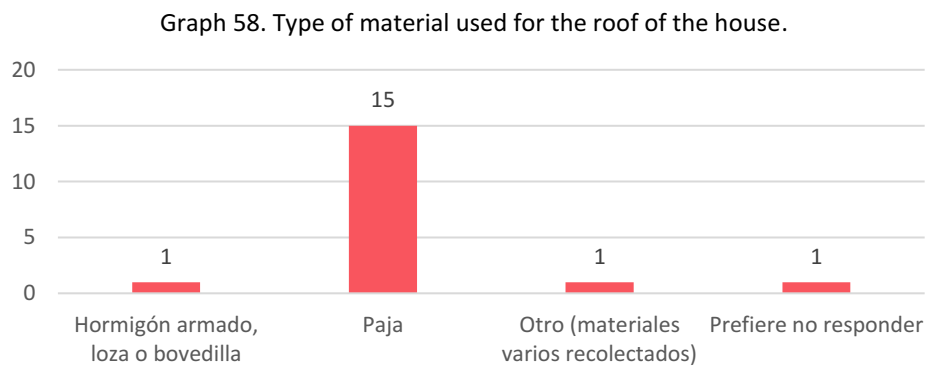
The houses are characterized by being precarious constructions, with boards on the walls and thatched roofs and dirt floors. The houses have 1 bedroom, which generates overcrowding and prevents the intimacy of the couple. They also do not have appropriate kitchens for food preparation, which are often cooked flush with the floor.



Photo: indigenous Kitchen.



Source: own elaboration based on field collection.



Source: own elaboration based on field collection.

In the preceding graphs, it can be seen that 39% of the homes are built with bricks, while the rest are made with lower quality materials. And 83% of the houses use thatch roof.

100% of the homes lack basic services of electricity and drinking water.



Photo: palm trunk house.

4.6.3.3.5. Safety.

Regarding security in the vicinity of the community, the members of Apyka Jegua mentioned that until late at night the neighbors have “gunmen”, who intimidate them if they appear on their properties. Regarding the internal security of the community, they mentioned that thanks to the pastors who come to evangelize them, there are no major disturbances.

4.6.3.3.6. Social organization and own political institutions.

In the community they have a system of community organization where there is a leader elected in assembly, whose mandate is revoked only when he dies or because the community finds that he is in serious fault. The leaders are called caciques and in Apyka Jegua there are two, both are recognized by resolution of the executive power through the INDI and have functions of representing, managing and defining actions in the community, among other activities before any entity or institution.

In the community they do not have a religious leader, but one of the caciques, Basilio Fernández, usually officiates in this role directing the prayers that are carried out collectively.

Table 33. Leaders of the Apyka Jegua Indigenous community.

Rol	Nombre
Political leader	Basilio Fernández
Political leader	Aurelio Fernández

Source: own elaboration based on field collection.

For every Paraguayan citizen, it is necessary to obtain the Birth Certificate and the Identity Card. In addition to the two documents mentioned, indigenous people must obtain their Indigenous Card to fully enjoy all the benefits, programs and public policies that the State has provided for the indigenous population. However, not all members of the community have this documentation.

Next, it is observed in the following Table that, of a total of 66 people residing in the community, how many affirm to have these documents.

Table 34. Record of identification documents in Apyka Jegua.

Birth certificate	Indigenous card	ID
22	57	38

Source: own elaboration based on field collection.

Some people claim to be in the process of negotiations with the INDI to obtain the Identity Card and Indigenous Card.

4.6.3.3.7. Institutional aspects.

The Apyka Jegua indigenous community is recognized by the INDI and has its own land and all legal documentation (recognition of leader, legal status, among others).

No internal conflicts were detected between members of the community or with adjacent populations.

The community regularly interacts with external institutions such as the MSPBS, MEC, the Municipality of Bella Vista and, as a result of this study, PARACEL. The community is also related to a lesser extent with the INDI, an Evangelical Church that comes to the community to pray, the Government, the police station and the La Elvira farm.

4.6.3.3.8. Cultural heritage.

In the Community there is an influence of religious sects, which built an evangelical temple within the community grounds, and receive visits from an evangelizer.

On the other hand, the community continues to practice Pai Reko, a set of knowledge and practices that are at the basis of Paî life and that are expressed in various aspects: Teko Katu, Teko Porã, Teko Joja, Teko Upyty, Teko Johayhu, Teko Piro'y and Teko Marane'y.

Among the traditions that are still practiced are the mitâ pepy (male initiation ritual), the avatykyry (celebration of corn) and the ñembo'e. The Paî usually dress in a traditional way with cotton or wool clothes that are worn with fringes and feather crowns and ritual objects and musical instruments. The community makes handicrafts that are occasionally sold.

4.6.3.3.9. Religious aspects and spiritual beliefs.

The members of the community state that they do not occupy land within the PARACEL enterprises for the performance of religious rites, traditions and practices.

Most of their rites and prayers are performed inside the "oypysy" or great temple. In the community they do not have a "Tekoaruvicha" or religious leader.

Some families feel that evangelical religious influence has done them good and that it has helped reduce conflict within the community.



Photo: evangelical temple in the community.

4.6.3.3.10. Public services infrastructure.

Water supply: in the community they do not have potable water distribution and they have a common well for community use. They consume water from two streams that cross the community. This problem urgently needs to be remedied. The main complaint was made by the women, who are in charge of transporting the water.

Electric power: there is no electricity service in the community.

Transport and road infrastructure: they do not have means of public transportation to the community, their main means of transportation is the motorcycle and walking. To leave or enter the community, you must travel 3 km of an internal road from Route 3.

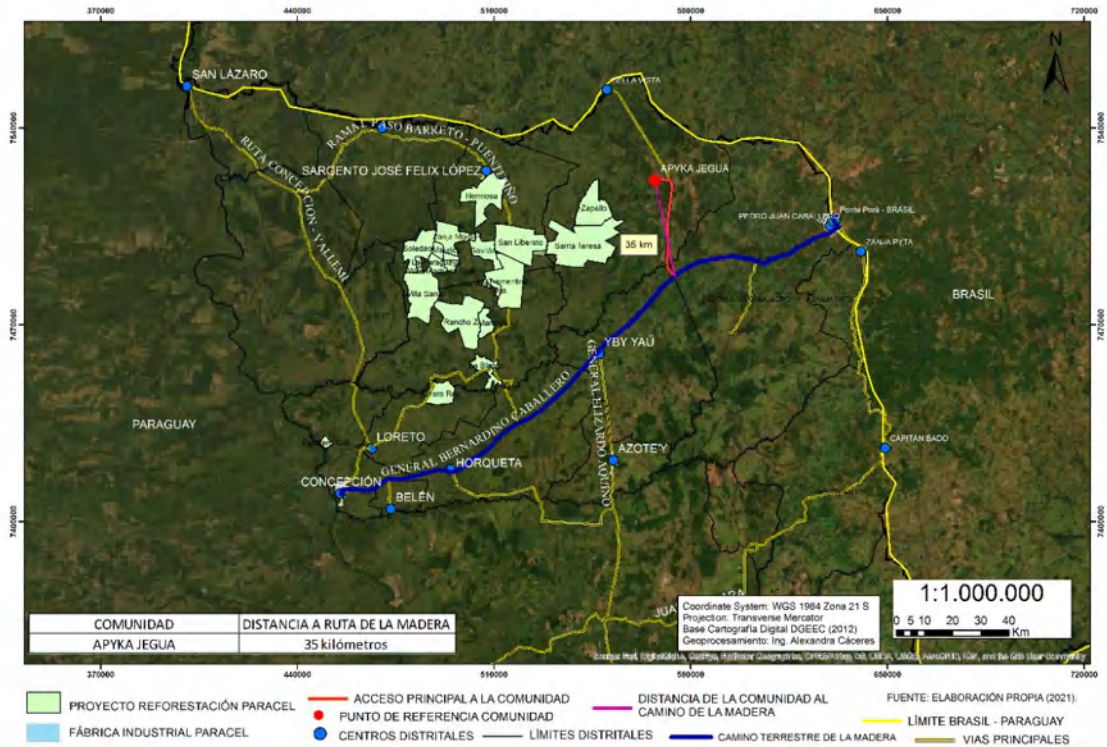
Graph 59. Means of transport used by the family.



Source: own elaboration based on field collection.

The graph “Means of transport used by the family” shows that 61% of families use the motorcycle as a means of transport.

Map 33. Distance of the Apyka Jegua community with respect to the terrestrial timber road.



Source: self made.

The Apyka Jegua indigenous community is located 35 kilometers from the General Bernardino Caballero route, also called “the wood route”. It is not identified that the transport of wood or the increase in traffic on the route will affect the community.

Communications: the mass media are participatory meetings. Some indigenous people use cell phones and radios that connect to radio stations in the area.

4.6.3.3.11. Demographic aspects.

The area occupied by homes and family farms is progressively expanding at the same rate as the population density within the community increases.

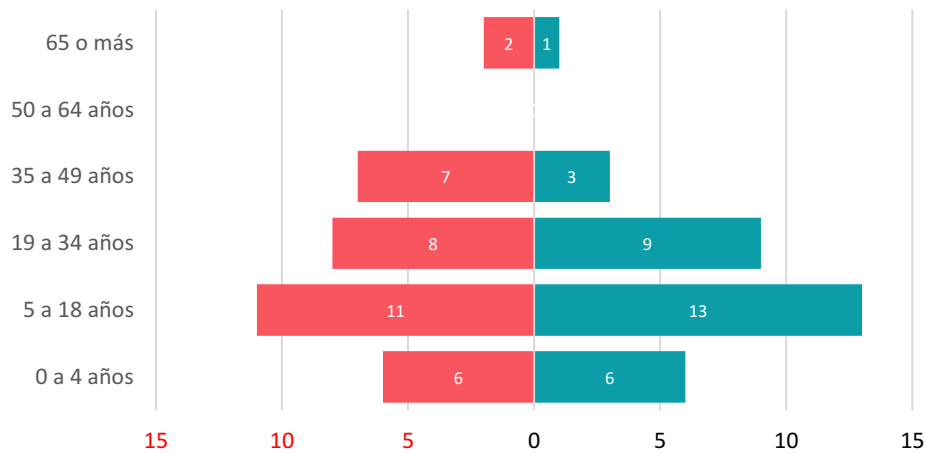
Regarding demographic aspects, the number of people settled in the Apyka Jegua community is 66 people in total, distributed in 18 families.

Table 35. Total population distributed by gender, Apyka Jegua indigenous community.

Apyka Jegua		
Total population	Men	Women
66	34	32

Source: own elaboration based on field collection.

Graph 60. Distribution of the population by gender and age range for the Apyka Jegua Indigenous Community. Men | Women.



Source: own elaboration based on field collection.

The Apyka Jegua population pyramid shows that 55% of the population is distributed between 0 and 18 years of age. It is especially striking to find that there are no people in the range of 50 to 64 years in the indigenous community.



Photo: couple of girls from the community.

4.6.3.3.12. Migration.

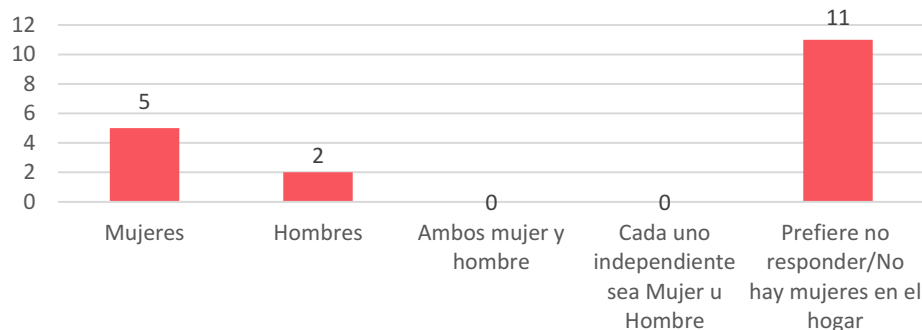
Pendular migration between Pai Vavytera communities is a tradition deeply rooted in the ethnic group, families often migrate from one community to another, mainly for reasons of job search or to visit relatives.

Young people are the group that most often migrate permanently from the community, many of them migrate to urban centers with the expectation of improving their standard of living. Another segment of young people who migrate does so to establish their own families.

4.6.3.3.13. Gender.

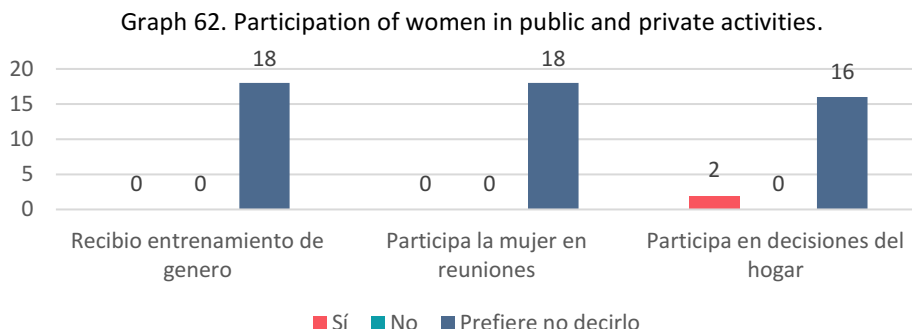
In relation to the distribution of roles of men and women, families were rather elusive in talking about this issue. As can be seen in the following graph, 61% of the families preferred not to answer about who was in charge of the distribution of household chores.

Graph 61. Distribution of tasks at home.



Source: own elaboration based on field collection.

In relation to family planning, it was detected that in couples it is the woman who is mainly responsible for the use of contraceptive methods. In the field work, 4 women reported using injectable contraceptives and 1 woman reported using natural remedies (forest herbs).



Source: own elaboration based on field collection.

Regarding the participation of women, of the 18 families surveyed, in no case was it found that women had received any type of training on gender or participated in public meetings and community assemblies. Only in 2 of the 18 families does it mention that women participate in household decisions.

4.6.3.3.14. Human rights.

Some indigenous people state that when they go to the city and have to interact with other people in supermarkets, public offices or hospitals, they feel that they receive a different treatment compared to the treatment received by people who are not indigenous.

Regarding work, some people of working age comment that it has happened to them that they have received a lower payment for doing the same work than other people who are not indigenous and that, from time to time, they do not receive food, while the others do receive.

In general, it is observed that older children take care of their younger siblings and that they collaborate in housework and work on the farm, putting aside their studies.

Although the police come to their aid when they have a security need that they cannot solve independently, the distance between the police station and the community and the lack of good roads means that the police take a long time to arrive.

Regarding the right to privacy, a high level of overcrowding of families is observed in small houses with one or, in the best of cases, two rooms.

Regarding the right to nationality, the families mention that the processes for obtaining birth certificates, identity cards and indigenous cards are centralized through the INDI with offices only in the city of Asunción. The INDI usually activities in situ in the communities for the preparation of these documents, but these activities are infrequent. Families usually collect money to send the chief to Asunción to manage several certificates in the same trip.

The families state that they do not feel trust in the political groups and that, during election periods, some political groups go to the community to request that they rent or lend them their identity cards so that they can be used in voting by other people.

It can be observed in the field work, that a large number of families do not have access to drinking water and sanitation. Sanitation conditions are precarious, with families who use the flat directly to relieve themselves.

Access to electricity was not observed in the community.

4.6.3.4. Summary of the baseline of the indigenous community.

The families of the Apyka Jegua community develop various livelihood activities, taking advantage of the natural resources available in the environment and the provision of ecosystem services, such as gathering food from forests, hunting and fishing, extracting water and the collection of firewood as fuel and for the manufacture of houses, as well as taking advantage of the application of agricultural production techniques for their subsistence, which are mainly used for food and barter.

The communities are not alien to the conditions of poverty and extreme poverty of the district in which they are located and face difficulties related to vulnerability and exclusion, such as lack of access to public services, long distances to access health centers and risk of being attacked at night by the shooting of a "gunman" from a nearby room.

In relation to the soil, they have class IV, which means that they have slight problems of fertility and depth, however, agricultural activities are carried out. The community needs to implement sustainable production systems with technical assistance, focused on training them in better agricultural techniques for consumption and income.

Most of the families feel that the influence of evangelical sects has been positive for the community. It would be advisable to establish alliances with the INDI and the MEC, to develop programs to promote the maintenance of the culture of this community, provided that the families themselves choose it, respecting at all times the right to self-determination.

In the Apyka Jegua community, the form of social organization is established by two main institutions: the assembly and the political leader or cacique, who collaborate to guide their community towards the development and sustainability of their town.

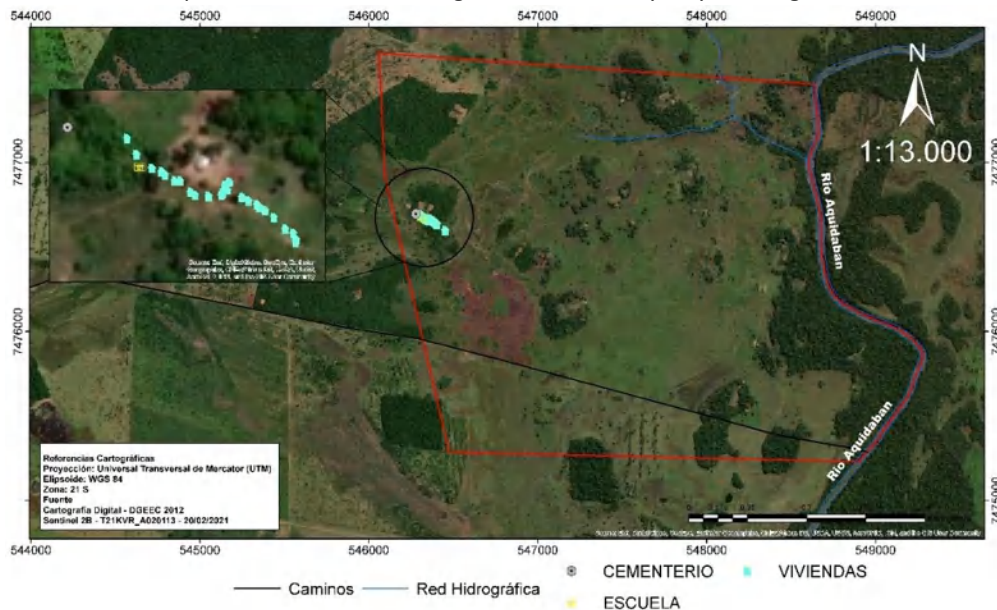
Throughout the diagnosis stage, the community leaders and members supported all the work, actively participating in the informative meetings, the planning and the Participatory Rural Diagnosis, always in an atmosphere of enthusiasm, cooperation and respect.

4.7. Guyra Ñe'egatu Amba Indigenous Community.

4.7.1. General characteristics of the community.

The Guyra Ñe'egatu Amba community has an area of 600 Ha, is located in the Amambay Department, Bella Vista district, 30 km from Yby Yaú, Concepción district. To get to the community, it is necessary to go along Route 5 until reaching the Cerro Memby area, from there you enter a dirt road for about 15 km, crossing several private farms.

Map 34. Location of the indigenous community Guyra Ñe'egatu Amba.



Source: own elaboration based on field collection.

Table 36. Guyra Ñe'egatu Amba indigenous community descriptive file.

Item	Description
Community name	Guyra Ñe'engatu Amba
Surface	600 hectares.
Department	Amambay.
Recognized leader	Andrés Ramírez.
Population	113 people, distributed in 24 families.
Contact dates	December 13 and 16 of the year 2020 and March 17 of the year 2021.
Linguistic family	Guaraní. The language they mainly speak is Guaraní.
Ethnicity	Paí Tavyterá.
Community type	Rural.
Geographical coordinates	Longitude (X) m, 547 531.71 Latitude (Y) m, 7476389.72
Nearest PARACEL property	Santa Teresa Farm.
Distance from the closest PARACEL property	13 kilometers.
Pathways to the community	The main common road is Route 5, 10 kilometers from the Yby Yauú district, it is crossed by private ranches that do not belong to PARACEL. Through route N ° 5 the community shares with PARACEL vehicle traffic.
Protected wild areas (ASP)	The indigenous community is not located inside an ASP and does not claim to interact with an ASP that is on PARACEL's properties.
Watercourses	The indigenous community is 1 kilometer from the Aquidabán river, which it shares with the properties of PARACEL
Traditions and customs	The indigenous community does not claim to carry out ancestral activities and rites within PARACEL's properties, including the prospected factory and ranches. The community claims to practice hunting and / or fishing within and outside their territories and the collection of plants for activities of domestic use, such as food and curative therapies, but it does not do so within PARACEL's territories.
Social indicators and expectations	The community expresses interest in improving their health, education, security and economic conditions.

Source: self made.

4.7.2. Process description.

<p>Individual interviews and implementation of surveys</p>	<ul style="list-style-type: none"> On March 17, 2021, individual surveys were conducted with the families of the community.
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Photo: survey application.



Photo: survey application.

<p>Direct observation and key points</p>	<ul style="list-style-type: none"> During all visits, the community environment was explored and photos were taken of internal locations for observation of the biophysical environment, identification of ecosystem services and key locations, and as a way of verifying the information gathered.
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Photo: group of indigenous people gathered.



Photo: indigenous children.



Photo: motorcycle of an indigenous person.

<p>Authorization to consultation and socialization of the project (Aty guasu)</p>	<ul style="list-style-type: none"> On December 13, 2020, the meeting and signing of the minutes of the authorization to consult and the socialization of the project took place.
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Photo: Permission to Consult.



Photo: socialization of the project.

<p>Free, prior and informed consen</p>	<ul style="list-style-type: none"> On December 16, 2020, the meeting and signing of the minutes of the Free, Prior and Informed Consent was held.
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Photo: CCLPI meeting..



Photo: CCLPI meeting.



Foto: reunión de CCLPI.

<p>Participatory Rural Diagnosis Workshops</p>	<ul style="list-style-type: none"> On March 17, 2021, Participatory Rural Diagnosis Workshops was held.
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Photo: DRP Workshop.



Photo: DRP Workshop.

4.7.3. Community diagnosis.

4.7.3.1. Environmental Area.

4.7.3.1.1. Physiographic characteristics.

4.7.3.1.1.1. Geological characterization.

The geological formations of the community are Precambrian and Paleozoic, occupying physiographic configurations that are preferentially developed on residual soils derived from sandstone.

4.7.3.1.1.2. Hydrological characterization.

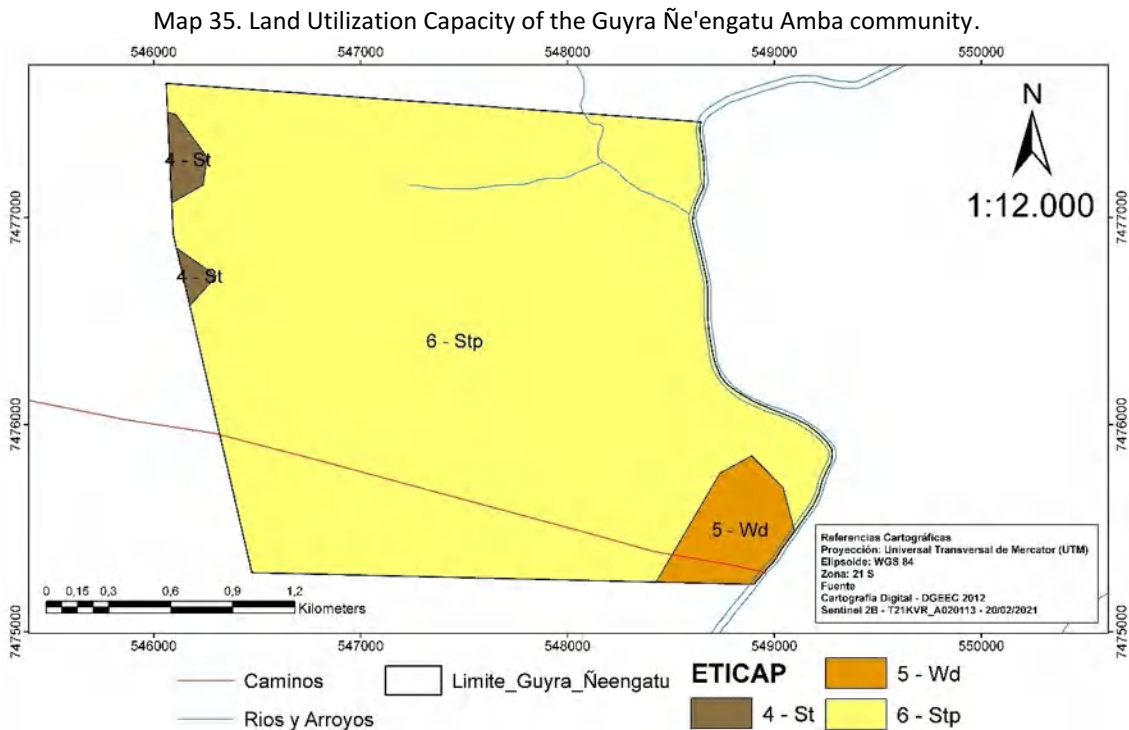
The indigenous community is crossed by a small stream that is a tributary of the Aquidabán River. Soil drainage is of the dendritic type with channels running in all directions, this pattern indicating the homogeneous condition of the parent material in the drainage area.

The water courses in which the families fish are not used for navigation and will not be affected by the river transfers that PARACEL will carry out.

4.7.3.1.2. Climatic characteristics.

In relation to the climatic characteristics of the community: the annual average temperature is 21 °C, with minimums less than 0 °C and maximums that exceed 40 °C; solar radiation or insolation is very intense, associated with long duration and close to 14 hours a day in the summer months; annual rainfall is 1,500 to 1,600 mm per year; the annual mean potential evapotranspiration (ETP) is 1,100 mm; it has a moisture index of Thornthwaite B2 (wet above 40); the average frequency of frosts per year is a few days and can occur between the months of June to August; the winter season is normally the driest and coldest, reaching 0 °C in the last year; spring and summer rains are usually characterized by the occurrence of high intensity, short duration and high erosive energy downpours.

4.7.3.1.3. Soil characteristics.



Source: self made.

According to Land Utilization Capacity map prepared by the technical team of the Natán Foundation, the soils of the Guyra Ñe'engatu Amba community are Class VI Stp with severe limitations for general agricultural uses, with a reduced cultivation option. These soil classes require very complex conservation practices and are considered non-arable, but they can be used for the production of perennial crops, forestry and pastures occasionally; For the development of consumer agriculture in small areas, proper soil management must be carried out, it is recommended that it be carried out with organic matter, green manures, avoiding burning, rotation and minimal tillage.

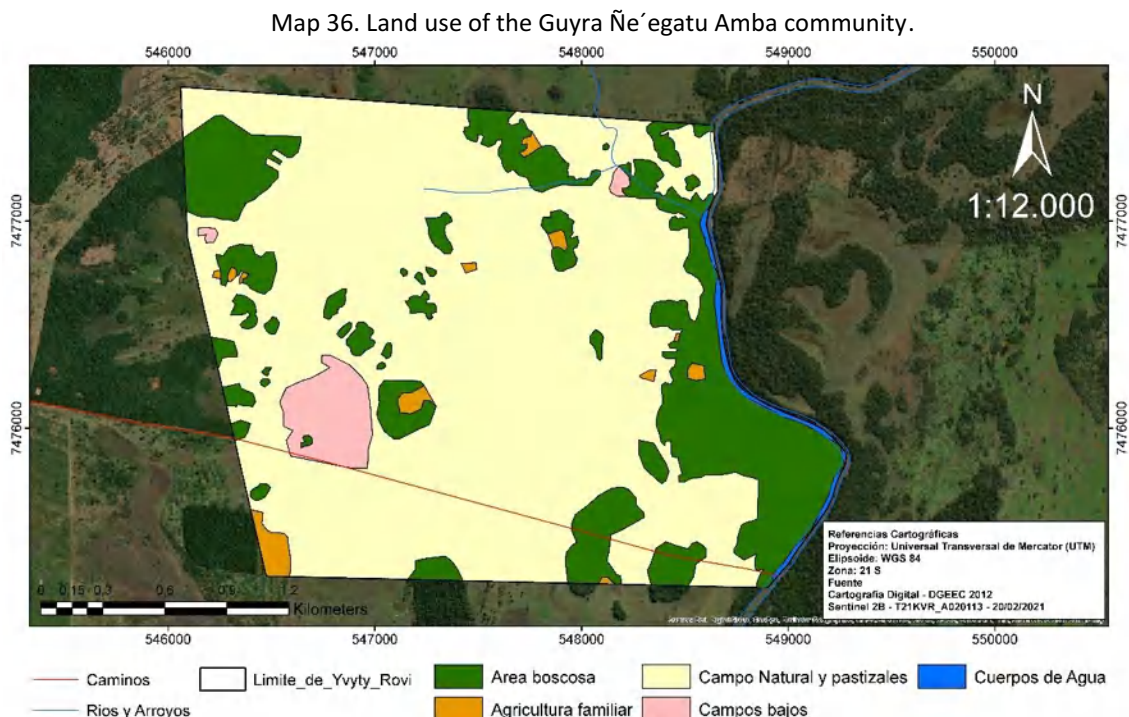
The total land area is 600 hectares. The edaphic conditions of the place are mostly prairie (wildebeest), flooded areas with muddy soils, with water retention, but with a sufficient proportion suitable for agriculture for self-consumption items.

4.7.3.1.4. Current land use.

The families of the community are dedicated to family agriculture for self-consumption where the surface used for it is of 7.72 Ha in total. The crops they grow are mainly beans, cassava, sweet potatoes, corn, sugarcane and banana.

The wooded area is tall and short with only 136.3 Ha, for which there is a risk of forest disappearance, as shown in the "Community land use map Guyra Ñe'egatu Amba " there is no significant forest area. Instead, the field surfacenatural and grasslands has an area of 433.06 Ha that represents 72% coverage of the community's surface; the surface of the classification of low fields is of 19 Ha.

The community's land use and coverage map is shown below, the data of which was taken from cartographic data from the DGEEC and geo-processed by the technical team of the Natán Foundation.



Source: self made.

Table 37. Distribution of land use in the Guyra Ñe'egatu Amba community.

N°	Classification	Surface in Ha	% that represents
1	Wooded area	136,3	22,71
2	Natural field and grasslands	433,06	72,17
3	Low fields	19,05	3,17
4	family agriculture	7,72	1,29
5	Water bodies	3,96	0,66
	Total	600,09	100

Source: Participatory Rural Diagnosis and individual interviews of this EISA.

4.7.3.1.5. Water.

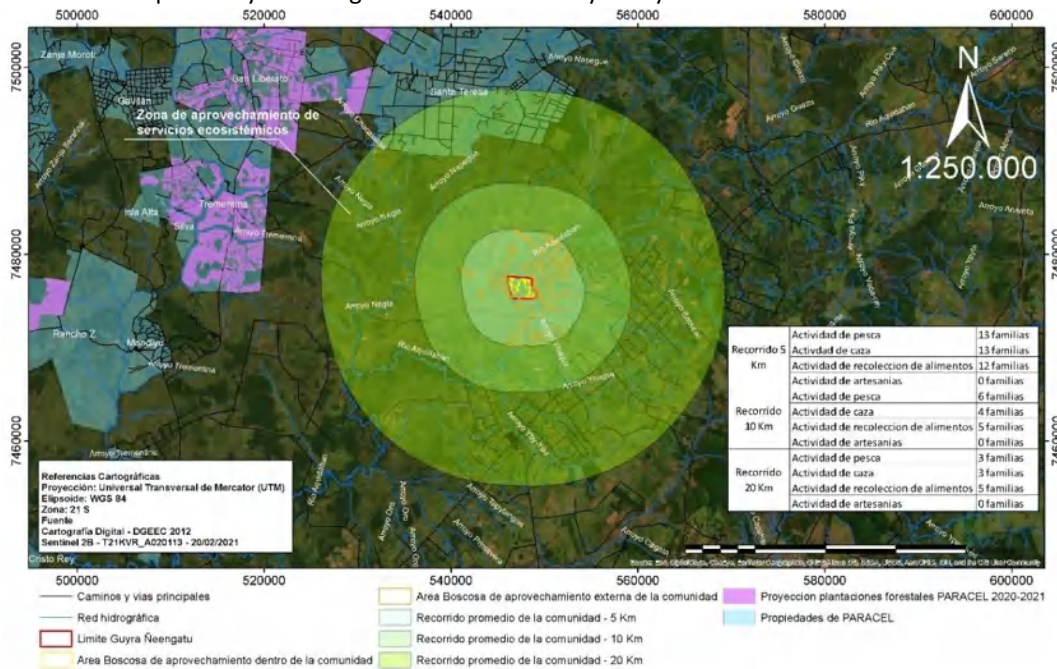
The Guyra Ñe'engatu Amba community borders a stream to the east, from which a sub-basin emerges that continues in an east-west direction. The stream has not been identified with a specific name, but it is managed according to the cartography that it is a tributary of the Aquidabán river, these constitute its main water courses. There are also springs of water from which some families are provided for their consumption. Some families provide themselves with a common font.



Photo: common font.

4.7.3.1.6. Use of ecosystem services for livelihoods.

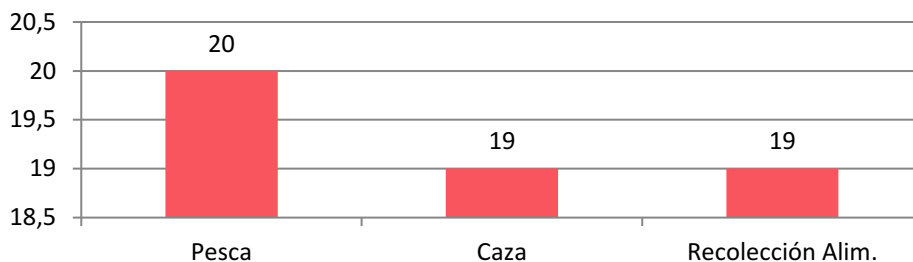
Map 37. Guyra Ñe'engatu Amba Community Ecosystem Services Utilization Zone.



Source: self made.

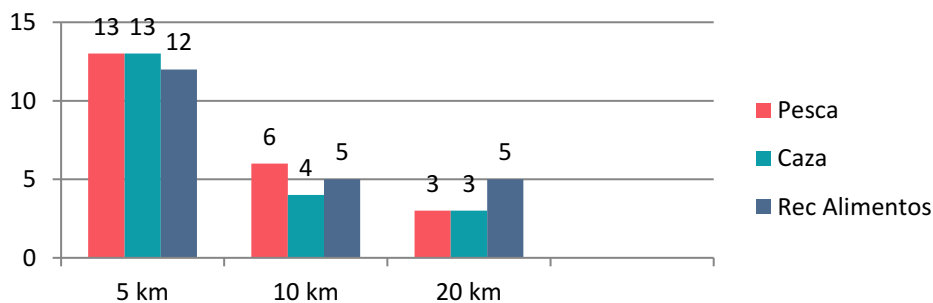
In the Guyra Ñe'engatu Amba community, families were found who take advantage of ecosystem services, mainly for hunting, fishing, gathering and to provide themselves with water and firewood.

Graph 63. Families that carry out traditional means of subsistence in the indigenous community Guyra Ñe'engatu Amba.



Source: own elaboration based on field collection.

Graph 64. Maximum distance traveled by the families of the Guyra Ñe'engatu community for the realization of traditional means of subsistence.



Source: own elaboration based on field collection.

In the graph “Families that carry out traditional means of subsistence - Guyra Ñe'engatu community”, it can be seen that there are still families in the community that practice traditional means of subsistence for the generation of food, mainly fishing, hunting and gathering. Subsequently, in the graph "Maximum distance that the families of the Guyra Ñe'engatu community travel for the realization of traditional means of subsistence" it can be seen that the vast majority of families travel up to 5 km to practice means of subsistence and use of ecosystem services, and that some come to travel a maximum of 20 kilometers around their community.

4.7.3.1.6.1. Flora.

The indigenous community of Guyra Ñe'engatu Amba has 136.3 Ha of forest formation, made up of sparse forests that is located within the “Central Selva” forest formation, characterized by the presence of a certain number of deciduous tree species, together with evergreen families, typical of these forests (Myrtaceae, Lauraceae, etc.).

The main floristic characteristic of the community is its natural field and grasslands that occupy 70% of the surface of the territory. The local and regional ecosystem has a great capacity for recovery, which is expressed by the ease and speed with which secondary vegetation regenerates.

The families resort to the forests of their own indigenous community for the extraction of wood, fruits, honey, herbs and vegetable fibers, which are used for food, medicine, construction and as fuel for cooking or sheltering on the coldest days.

Among the predominant forest species that can be found in the community:

Table 38. Characteristic flora species of the Guyra Ñe'legatu Amba community.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Cedro	Cedrelafissilis
2	Guatambu	Balfourodendron riedelianum
3	Yvyra'ro	Pterogine nitens.
4	YvyraPyta	Peltophorum dubium
5	Guajayvi	Patagonula americana
6	Kurupa'yra	Parapiptadenia rigida
7	Laurel hu.	Nectandra megapotamica
8	Inga guasu	Inga vera
9	Palo de rosa	Tipuana tipu
10	Timbo	Enterolobium contortisiliquum
11	Peterevy	Cordia trichotoma
12	Aguai	Chrysophyllum gonocarpum
13	Palo Haya	Fagus sylvatica
14	Samuu	Ceiba chodatii
15	Laurel guaika	Ocotea puberula
16	Tajy hu,	Tabebuia heptaphylla
17	Jakaratia	Jacaratia espinosa
18	Cocotero	Acrocomia totai

Source: DRP 2021.

4.7.3.1.6.2. Fauna.

In relation to the exploitation and use of ecosystem services, hunting and fishing are some of the main sources of food for the families of the indigenous community. The frequency of carrying out these activities is between 1 to 3 times a week.

In relation to fishing, 20 families mentioned practicing it in the Aquidabán river and/or in the Santa Eduvigis farm, generally using tarrafa, a type of net with which they take out fish known as

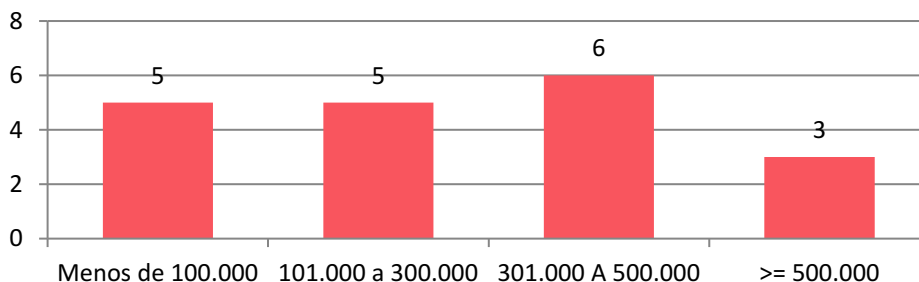
dorado, pira pyta, mandi'i, boga, tare 'yi and carimbata. In relation to hunting, 19 families stated that they practiced it in their own forests and close to their community. Wild animals that frequently hunt are tatu, kure'i, guasu pyta and teju. Regarding collection, the vast majority of families collect honey from the bush.

In general, the mammals that are usually found in the nearby forests are armadillo (*dasyus novemcinctus*), eirá (eira barbara), weasel (*mustela navilis*), capybara (*hydrochoerus hydrochaeris*) and acuti pac (*ctenomys*); the reptiles that are usually found are ñacanina (*hydrodynastes gigas*), ñuasó (*leptophis ahaetulla*), kyryryvó (*botrops neuweidii*), mboi hovy (*philodryas patagoniensis*), ñanduviré (*sybinomorphus turgidus*), snake (*leptodeiraboilaratesyria*) kururú (bufo), puddle frogs (*olilogun*) and tree frogs (*hilan*); the birds they usually see are pycasu (*leptotila verreausi*), white heron (*egretta alba*), chopí, tero tero (*vanellus chilensis*), owl, ano (*crotophaga ani*), piririta (*guira guira*), alonsito, carancho (*polyborus plancus*), charata (*Ortolis canicallis*), parrots (*myiopsitta monacha*) in great variety and crows (*crow corax*); and the fish that are usually found in the course of the Aquidabán river are tareyi (*hoplias malabaricus*), mandii (*pimelodus omatus*), pyta pyta (*brycon orbignyanus*) and carimbata (*prochilodus lineatus*), among other species.

4.7.3.2. Economic area.

Being a rural indigenous community, the main economic activity is family farming and sporadic "changas" in nearby ranches, which are mostly cleaning tasks or agricultural peonage, and for the sale of honey that they collect from the mountains.

Graph 65. Number of people distributed by weekly income from the Guyra Ñe'engatu Amba community (in Guaraníes).



Source: own elaboration based on field collection.

According to the data collected in the individual surveys, 19 people who are receiving weekly economic income were identified, it can be seen that 3 people receive more than Gs 500.000 weekly, 6 people receive between Gs 301.000 and Gs 500.000 weekly, 5 people receive between Gs 101.000 and Gs 300.000 and 5 people earn less than Gs 100.000 weekly.

4.7.3.2.1. Primary production.

4.7.3.2.1.1. Agricultural.

In the community of Guyra Ñe'engatu Amba all families are engaged in agricultural work for self-consumption, planting beans, cassava, sweet potatoes, corn, sugarcane and banana. The total area currently earmarked for agriculture is 7.72 Ha, this allows us to affirm that the 26 families have an average of 0.29 Ha under cultivation.

4.7.3.2.1.2. Livestock.

Most families raise backyard poultry and small animals such as pigs, goats, and sheep. These animals and their derivatives are used for family consumption. An important aspect to point out is that in general it is women who are in charge of this work.

4.7.3.2.1.3. Forest.

Just as it is visualized in the “Land use map of the Guyra Ñe'engatu Amba community”, the community has little forest area, but rather has abundant natural fields and pastures.

4.7.3.2.1.4. Work force.

In the Guyra Ñe'engatu Amba indigenous community, it does not have draft animals, oxen, or others that can be used for the development of its agricultural activities.

4.7.3.2.1.5. Machinery and equipment.

The families have minor agricultural tools where the machete, foizas, hoe, shovel and axes were identified. Some tools are new and some are old.

It would be convenient for the indigenous community to have machinery to prepare the plots in order to increase the sowing area and the production capacity per hectare, destined for self-consumption and income.

4.7.3.2.1.6. Technology.

The use of state-of-the-art technology for production is not detected. The sowing system practiced is the conventional one, with the clearing of the area to be cultivated and subsequent burning of the weeds, to carry out the sowing with hoe or yvyra hakua. A common practice is monoculture.

4.7.3.2.1.7. Marketing of primary sector products.

According to the perceptions collected in the Participatory Rural Diagnosis, the indigenous people feel that the poor condition of the roads into / out of their community makes it difficult for

them to market their products. Some families are marketing honey from bees and wild animals obtained from hunting.

4.7.3.2.1.8. *Production supplies and materials.*

The seeds used are from their own production, the result of storing grains from the previous season and the exchange of seeds that are not available on the farm (post harvest), but the quantities of seeds available are minimal and do not supply the quantities required to carry sowings necessary to cover food and sal.

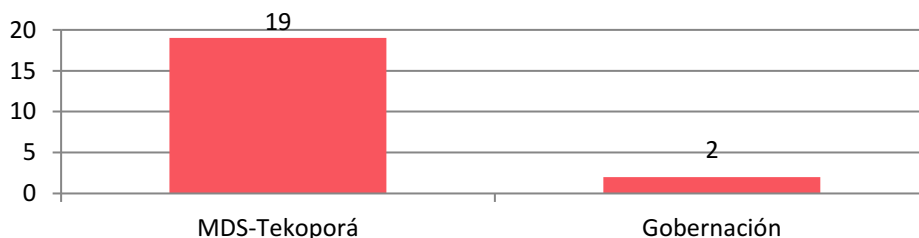
4.7.3.2.2. *Secondary production.*

No secondary production was found in the community.

4.7.3.2.3. *Services.*

4.7.3.2.3.1. *Technical assistance.*

Graph 66. Number of families in the Guyra Ñe'engatu Amba community that receive subsidy from the MDS.



Source: own elaboration based on field collection.

It can be seen that 19 families claim to receive the economic subsidy from the Tekoporã program from the Ministry of Social Development and 2 people receive some type of assistance from the Government.

4.7.3.2.3.2. *Commercialization.*

Marketing is informal and reactive, they only sell when they have a surplus of the volume they have allocated for their consumption, mainly cassava, corn and honey. Generally, they market their products in the community itself or in the surroundings - peasant communities or nearby cities.

4.7.3.2.3.3. *Financing.*

Each producer family plans and finances its production according to its possibilities. No institution accompanies families in financing for production and they do not have access to public or private loans.

4.7.3.3. Social area.

4.7.3.3.1. Education.

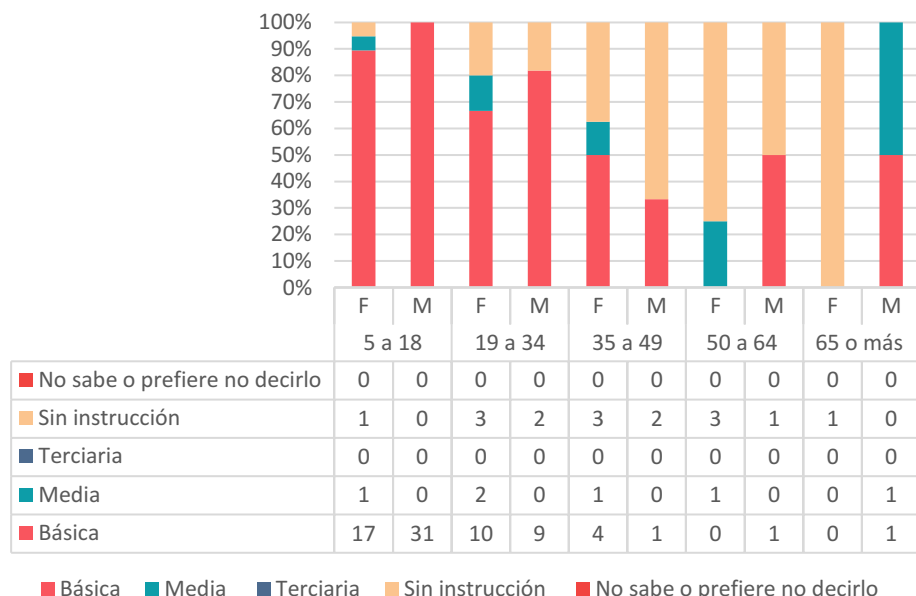
In 2006 the first school was built with the help of Mr. Eulalio Gómez, owner of San Juan Farm, starting with 15 students. In 2009, two MEC items were obtained to enable the second and third grade, in this way the grades were progressively increased until 2019, when it was possible to build three classrooms with the support of the European Union, allowing them to carry out classes from preschool through 6th grade. Currently, only one classroom is used that has a blackboard and basic furniture, such as tables and chairs, the other two classrooms are used as warehouses.

At the school they receive the MEC school kits and lunch for the 26 students provided by the Amambay Government.

The school does not teach classes for the third cycle of basic education (7th to 9th grade), this problem forces children and young people to migrate to the city of Bella Vista or, in the worst case, to desert from school leaving their formal education incomplete.

The data collected on the level of education is observed in the following figure, where it is distinguished by sex and age range.

Graph 67. Distribution of the population by age range and gender according to educational status in the Jeguahaty community. F = female | M = male.



Source: own elaboration based on field collection.

Thanks to field work, it was observed that the educational status of men and women in the indigenous community of Guyra Ñe'engatu Amba is usually similar throughout all age ranges, which means that both genders face similar gaps in formal education. However, comparing generational groups, it can be seen that the new generation of girls, boys and young people between the ages of 5 and 18 has experienced a significant change in schooling, with 98% of this segment enrolled in basic or secondary education.

4.7.3.3.2. Health and sanitation.

4.7.3.3.2.1. Health and conventional medicine.

Regarding the basic health service, every two months they receive a medical visit from the San Francisco Health Center, carried out by a doctor and a nurse, the purpose of which is to provide them with medicines and carry out vaccination programs.

When indigenous people face serious cases, they resort to the San Francisco Hospital in Yby Yaú, where they receive free assistance with provision of medicines if there is availability, otherwise the indigenous people must buy.

The community does not have a first aid kit, nor is there a person trained to attend to the most urgent cases. The community leader occupies the role of Health Promoter and is in charge of carrying out negotiations with the San Francisco Health Center, such as requesting medical assistance and informing about the health status of the people in his community.

The most frequent diseases in girls, boys and adolescents are flu problems, stomach pain, internal and external parasite problems (bite, worm louse, etc.), in adults they are headaches, tooth pain, vomiting, diarrhea.

The dental problems that afflict the community are visible, especially the loss of teeth.

4.7.3.3.2.2. Health and traditional medicine.

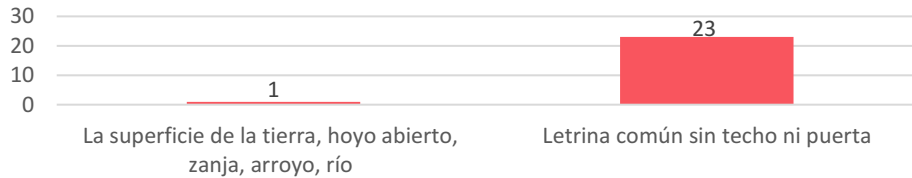
Known as “yuyos” remedies, families often treat their health conditions through infusions with products from nature, such as roots, leaves, barks, fruits and vegetables.

Prayer for the sick is a cultural practice developed by the elderly that is still in force in the community.

4.7.3.3.2.3. Sanitation.

The vast majority (96%) of the families use a latrine, without a roof or a door, the majority of which dump solid and liquid deposits into a shallow hole on the surface of the earth.

Graph 68. Types of drains used by the families of the Guyra Ñe'engatu Amba community.



Source: own elaboration based on field collection.

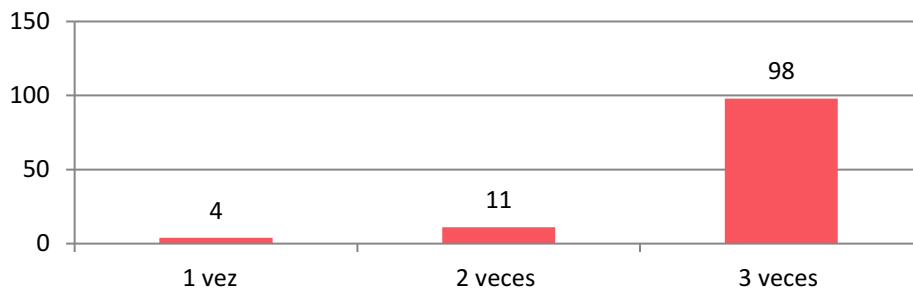
4.7.3.3.2.4. Waste management.

Solid and liquid domestic waste is deposited around the houses, in many cases solid waste is burned and there is no adequate treatment for this type of waste.

4.7.3.3.3. Feeding.

The families obtain their food mainly from their production of family agriculture, the traditional crops for consumption are beans, cassava, sweet potatoes, corn, sweet cane and banana, the exchange of cassava and honey with nearby farms allows them to obtain salt, flour, oil and meat. Families also consume what they fish, hunt and gather.

Graph 69. Frequency of feeding according to number of people.



Source: own elaboration based on field collection.

When families were asked about their feeding frequency, they answered that the vast majority of people in the community eat 3 times a day, this means that 87% of people are eating breakfast, lunch and dinner. On the other hand, they also mention that the diet is carried out mainly to appease hunger since the inputs used are poor in nutrients, rather they are abundant in carbohydrates. They do not normally consume fruits, vegetables and dairy.

Snack and lunch are provided to students daily at the school. The snack is provided by the MEC and lunch by the Government.

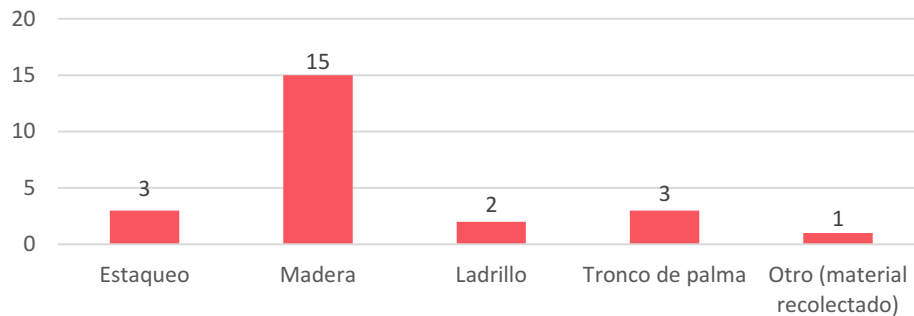
4.7.3.3.4. Housing.

The houses are characterized by being precarious constructions, with wood on the walls, zinc sheet and / or straw roofs and rammed earth floors. The houses have 1 bedroom, which generates overcrowding and prevents the intimacy of the couple. They also do not have appropriate kitchens for preparing food, which is often cooked on the floor between dogs and chickens.



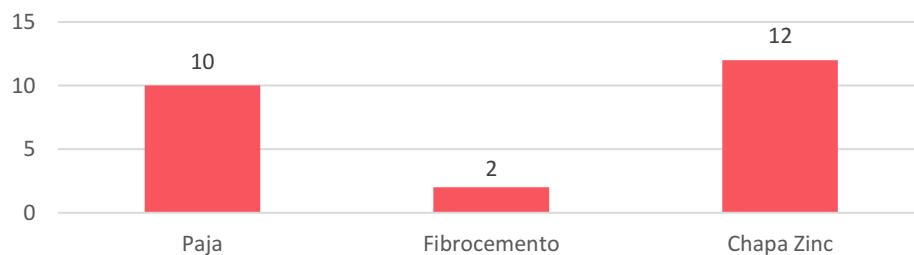
Photo: palm trunk house.

Graph 70. Type of material used for the construction of the house.



Source: own elaboration based on field collection.

Graph 71. Type of material used for the roof of the house.



Source: own elaboration based on field collection.

In the preceding graphs, it can be seen that 62.5% of the houses are built with wood, among the remaining houses 12.5% are built of staking, 12.5% of palm tree trunk, 8.3 % of bricks and 4.1% of other material while the rest are made with lower quality materials. 50% of the houses use a zinc sheet roof, 42% use thatch roof and 8% use fiber cement.

4.7.3.3.5. Safety.

The main causes of insecurity within the community are related to alcohol consumption. The families say they take care of each other and warn each other when strangers enter the property. When they face security problems that they cannot control autonomously, they turn to the nearest police station.

In general, families mention that they feel safe in their community and that they do not perceive crime in the area to a large extent, apart from the insecurity they feel due to illegal organized groups and which are publicly known at the national level.

Regarding the internal security of the community, they mentioned that thanks to the pastors who come to evangelize them, the disturbances decreased.

4.7.3.3.6. Social organization and own political institutions.

In the community they have a system of community organization where there is a leader elected in assembly, whose mandate is revoked only when he dies or because the community finds that he is in serious fault. The leaders are called caciques and in Guyra Ñe'engatu Amba there are two.

Before the political leaders were also Tekoaruvicha (religious leaders), but nowadays they are not usually the same person. This is because political leaders have to be recognized by the State for their qualities to mediate and deal with institutions and non-indigenous people.

Table 39. Leaders of the Indigenous community Guyra Ñe'engatu Amba.

Role	Name
Political leader	Andrés Ramírez
Political leader	Nicolás Gómez

Source: own elaboration based on field collection.

For every Paraguayan citizen, it is necessary to obtain the Birth Certificate and the Identity Card. In addition to the two documents mentioned, indigenous people must obtain their Indigenous Card to fully enjoy all the benefits, programs and public policies that the State has provided for the indigenous population. However, not all members of the community have this documentation.

Next, it is observed in the following table that of a total of 113 people residing in the community, how many claim to have these documents.

Part of the remainder claim to be in the process of negotiations with the INDI to obtain the Identity Card and indigenous card.

Table 40. Record of identification documents in Guyra Ñe'engatu Amba.

Birth certificate	Indigenous card	ID
71	89	97

Source: own elaboration based on field collection.

4.7.3.3.7. Institutional aspects.

The community maintains a good relationship with the INDI, an organization to which the caciques go to manage the obtaining of documentation such as the legal status of the community or the indigenous cards that families need, among others.

The MSPyBS provides the community with medical assistance and provision of medicines from the San Francisco de Yby Yaú Health Center. The MEC finances the salaries of teachers in the community school and provides the children with kits and school snacks. The MSD, through the Tekoporá program, carries out monetary transfers and assistance to 19 families. The Government of Amambay provides school lunch to the students of the school.

4.7.3.3.8. Cultural heritage.

Like the other Pai Tavyterá communities in the area of direct influence of PARACEL, the customs are as follows:

The community continues to practice Pai Reko, a set of knowledge and practices that are at the basis of Paî life and that are expressed in various aspects: Teko Katu, Teko Porã, Teko Joja, Teko Upyty, Teko Johayhu, Teko Piro 'y and the Teko Marane'y.

Among the traditions that are still practiced are the mitâ pepy (male initiation ritual), the avatykyry (celebration of corn) and the ñembo'e (dance-based practice). The Paî usually dress in a traditional way with cotton or wool clothes that are worn with fringes and feather crowns and ritual objects and musical instruments. The community makes handicrafts that are occasionally sold.

4.7.3.3.9. Religious aspects and spiritual beliefs.

In the community an influence was observed on the part of religious sects, which is practiced by the majority of the members, and they receive the visit of an evangelical pastor.

The community belongs to the Paî partiality, which has rites that are composed of dances and religious songs, some of them usually last several days, but lately they are not practicing it for reasons that they do not have the sacred temple which they call “Oypysy”.

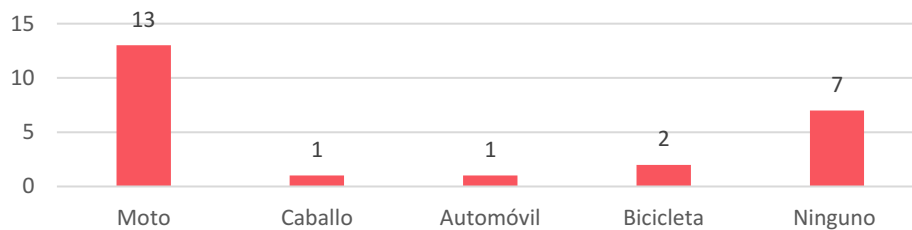
4.7.3.3.10. *Public services infrastructure.*

Water supply: they have a common well dug by themselves, without curb protection. They also source from water sources within the community.

Electric power: none of the houses has electricity.

Transport and road infrastructure: there are no public or private means of transportation that reach the community. Families travel on motorcycles and on foot. Exceptionally, one person mentioned owning a car and one person mentioned owning a horse. The road to the indigenous community is terraced and access is through private rooms.

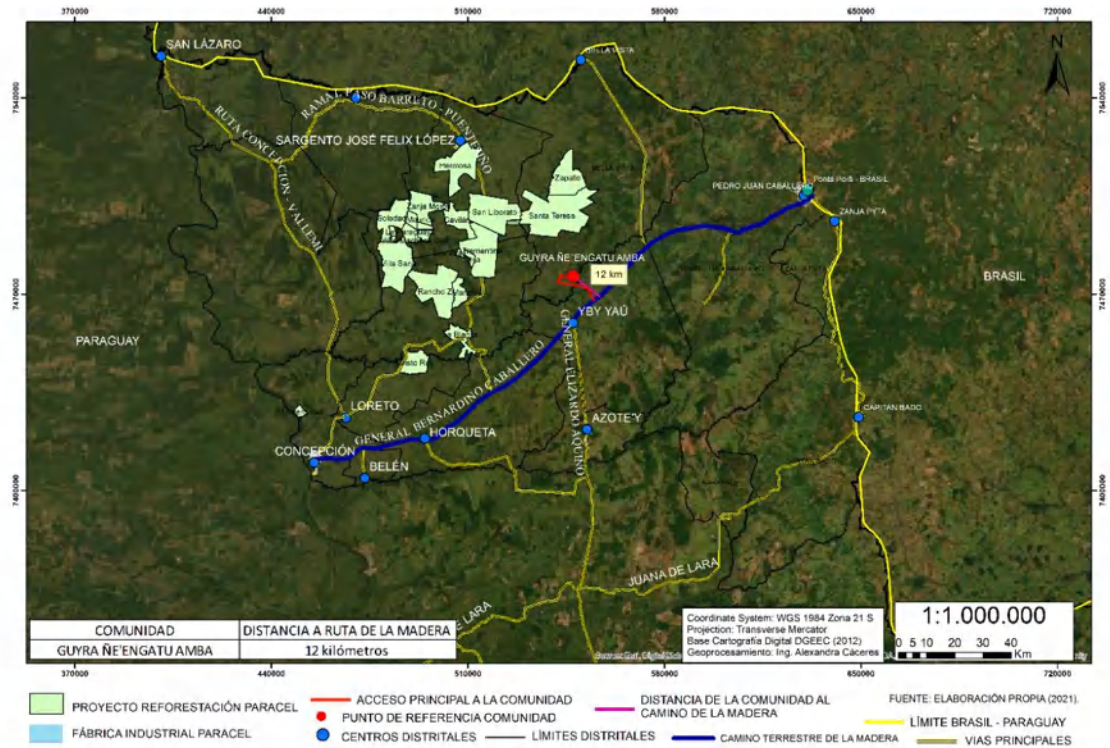
Graph 72. Means of transport used by the family.



Source: own elaboration based on field collection.

In the graph “Means of transport used by the family” it can be seen mainly that 54% of families have a motorcycle as a means of transport and that 29% do not have any means of transport. It should be noted that in this community the only family that has a car as a means of transportation was found, among all the families of rural indigenous communities.

Map 38. Distance from the Guyra Ñe'engatu Amba community to the overland timber road.



Fuente: elaboración propia.

The indigenous community Guyra Ñe'engatu Amba They are 35 kilometers from the General Bernardino Caballero route, also called “the wood route”. It is not identified that the transport of wood or the increase in traffic on the route will affect the community.

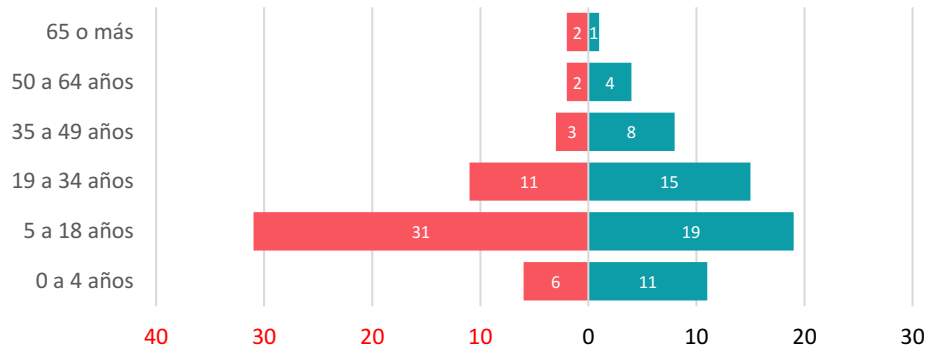
Communications: the mass media are participatory meetings. Only some families have a cell phone from the Personal phone company, but with a low coverage range.

4.7.3.3.11. Demographic aspects.

The extensions of land occupied by families for homes and farms are defined according to their needs and they are expanded if their needs grow.

Regarding demographic aspects, the number of people settled in the community is approximately 113 people, mostly young people, distributed in 24 families.

Graph 73. Distribution of the population by gender and age range for the Indigenous Community Guyra Ñe'engatu Amba. Men | Women.



Source: own elaboration based on field collection.

The population pyramid of Guyra Ñe'engatu Amba shows that 59% of the population is distributed between 0 and 18 years of age. It can also be seen that the population of adults over 65 years of age or older represents 2.7% of the total population, significantly less than the 6.63% of the national population of Paraguay in the same age range (DGEEC, 2019), which reflects a lower life expectancy and, possibly, less access to quality health services, varied and nutritious food sources, risk of accidents, among others.

3 people with disabilities live in the community.

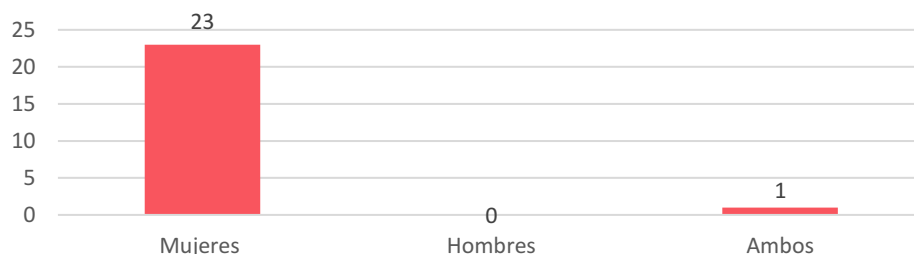
4.7.3.3.12. Migration.

Pendular migration between Pai Tavytera communities is a deeply rooted custom in the ethnic group. Families report in the DRP workshop that people are migrating to cities for work or to other communities to find a partner and start a family.

4.7.3.3.13 Gender.

It was found in the field work that the roles of men and women are very well defined. In most cases, men are in charge of working outside the community, while women are dedicated to domestic tasks, both men and women are in charge of working in family agriculture.

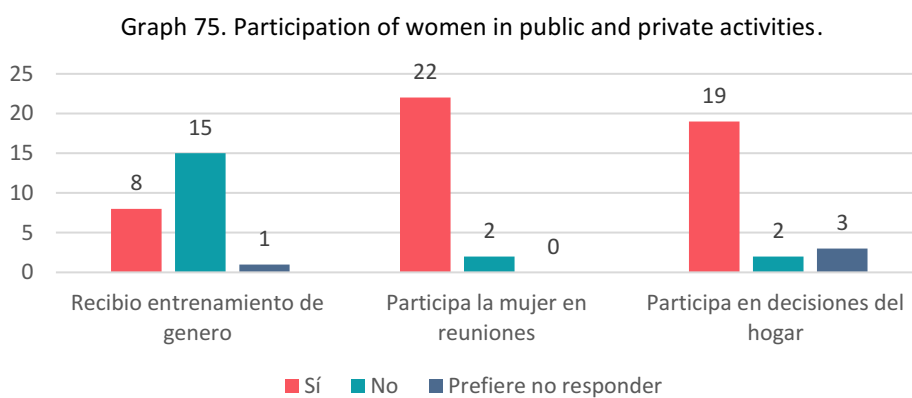
Graph 74. Distribution of household chores in the Guyra Ñe'engatu Amba community.



Source: own elaboration based on field collection.

In the graph “Distribution of household chores in the Guyra Ñe'engatu Amba community” it can be seen that in 96% of households the woman is in charge of doing housework -washing clothes, cooking and cleaning- and of childcare.

In relation to family planning, it was detected that in couples it is the woman who is mainly responsible for the use of contraceptive methods. In the field work, 9 women reported using injectable contraceptive methods, 5 women reported using birth control pills, and 5 women reported using natural remedies (forest herbs).



Source: own elaboration based on field collection.

Regarding the participation of women, 33% of the families state that they have received some type of gender training, 92% of the families state that women participate in public meetings and community assemblies, and 79% state that women they participate in household decisions.

4.7.3.3.14. Human rights.

Some indigenous people state that when they go to the city and have to interact with other people in supermarkets, public offices or hospitals, they feel that they receive a different treatment compared to the treatment received by people who are not indigenous.

Regarding work, some people of working age comment that it has happened to them that they have received a lower payment for doing the same work than other people who are not indigenous and that, from time to time, they do not receive food, while the others do receive.

In general, it is observed that older children take care of their younger siblings and that they collaborate in housework and work on the farm, putting aside their studies.

Although the police come to their aid when they have a security need that they cannot solve independently, the distance between the police station and the community and the lack of good roads means that the police take a long time to arrive.

Regarding the right to privacy, a high level of overcrowding of families is observed in small houses with one or, in the best of cases, two rooms.

Regarding the right to nationality, the families mention that the processes for obtaining birth certificates, identity cards and indigenous cards are centralized through the INDI with offices only in the city of Asunción. The INDI usually activities in situ in the communities for the preparation of these documents, but these activities are infrequent. Families usually collect money to send the chief to Asunción to manage several certificates in the same trip.

The families state that they do not feel trust in the political groups and that, during election periods, some political groups go to the community to request that they rent or lend them their identity cards so that they can be used in voting by other people.

It can be observed in the field work, that a large number of families do not have access to drinking water and sanitation. Sanitation conditions are precarious, with families who use the flat directly to relieve themselves.

4.7.3.4. Summary of the baseline of the indigenous community.

The families of the community implement various rudimentary production activities in order to cope in the best possible way with the precarious socioeconomic situation in which they live. Families perceive a deterioration in the terms of trade that seems to be increasingly unfavorable for indigenous families. Families perceive that their agronomic yields are decreasing each year and that it is increasingly difficult for them to access the market under conditions.

In relation to the soil, it is characterized by being loamy-sandy, whose fertility is very limited, which causes constant changes of planting place because they do not yet incorporate soil management techniques and whose consequence is seen in the low yield of their crops.

The indigenous culture is weakened by the influence of nearby peasants, whom the indigenous call "the Paraguayans."

According to the families, the situation in the community becomes very difficult every day, especially for those families with children, as this segment expresses expectations about their future that will hardly be possible due to the conditions of poverty, vulnerability and exclusion. In which they live, with insufficient income that they get by working as a farmer, low technological quality to support production and little inclusion in the market. Some families report feeling dependent on the income they receive working in nearby ranches, but that many times the income does not compensate for the costs of putting aside their own family farming, which leads many young people to decide to migrate to urban centers where it seems to be more easy to find work.

Throughout the diagnosis stage, the community leaders and members supported all the work, actively participating in the informative meetings, the planning and the Participatory Rural Diagnosis, always in an atmosphere of enthusiasm, cooperation and respect.

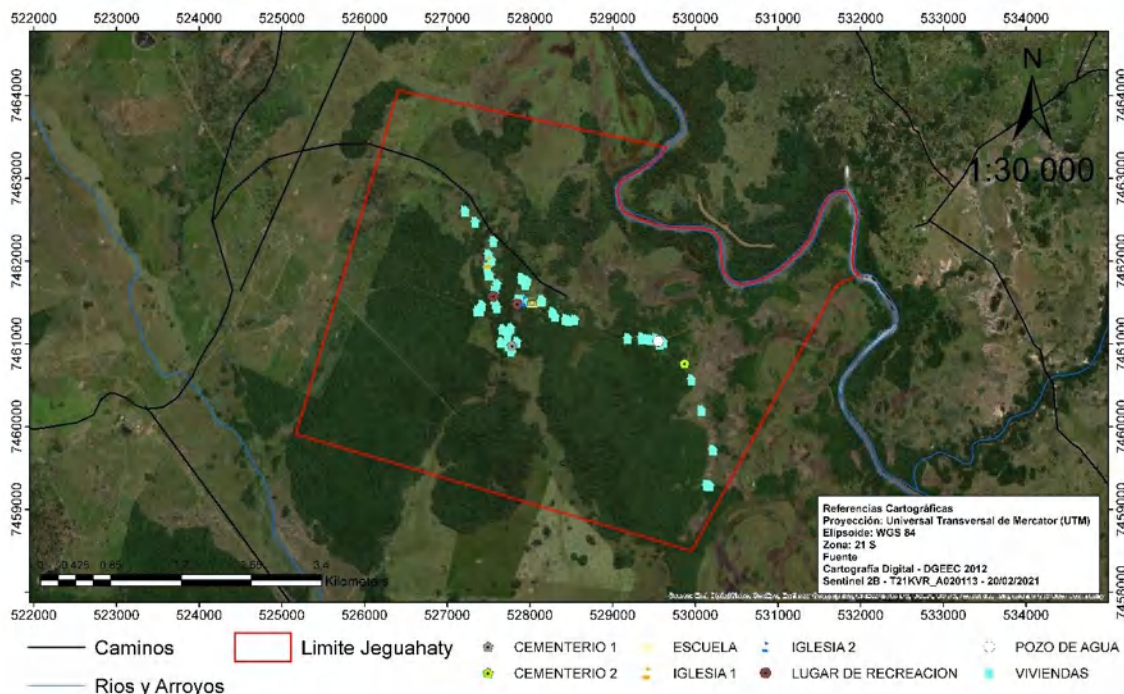
4.8. Jeguahaty indigenous community.

4.8.1. General characteristics of the community.

The Jeguahaty community has an area of 2032 hectares and is located 40 km from the district capital of Paso Barreto to which it belongs, 145 km from the capital of the Department of Concepción and 60 km from its urban center. To reach the community, a 115 km dirt road is taken from 15th Street on Route 5.

To enter the indigenous community there is only one access, to reach it it's necessary to drive from Route No. 5, 12 km from the toll of Colonia 22 Street, and cross the private property of the estancia Agüerito.

Map 39. Location and sites of the Jeguahaty indigenous community.



Source: own elaboration based on field collection.

Table 41. Jeguahaty indigenous community descriptive file.

Item	Description
Community name	Jeguahaty
Surface	2032 hectares.
Department	Concepcion.
Recognized leader	Lirio Benitez Valiente, Florencio Benitez González. Leader resolution 451/11.
Population	148 people, distributed in 43 families.
Contact dates	December 9 and 17, 2020 and March 16, 2021.
Linguistic family	Guaraní. The language they mainly speak is Guaraní.
Ethnicity	Paí Tavyterá.
Community type	Rural.
Geographical coordinates	Longitude (X) m 528 018.98 Latitude (Y) m, 7461432.24
Nearest PARACEL property	La Blanca Farm.
Distance from the closest PARACEL property	14 kilometers from La Blanca Farm.

Pathways to the community	The main access road to the community is Street 15, a dirt road, usufruct of the Agüerito farm that does not belong to PARACEL.
Protected wild areas (ASP)	The indigenous community is not located inside an ASP and does not claim to interact with an ASP that is on PARACEL's properties.
Watercourses	The indigenous community is 2 kilometers from the Aquidabán river and is related to some PARACEL ranches by the Negla stream, a tributary of the Aquidabán and other water sources without an identified name.
Traditions and customs	The indigenous community does not claim to carry out ancestral activities and rites within PARACEL's properties, including the prospected factory and ranches. The community claims to practice hunting and / or fishing within and outside their territories and the collection of plants for activities of domestic use, such as food and healing therapies, but not within the PARACEL lands.
Social indicators and expectations	The community expresses interest in improving their health, education, security and economic conditions.

Source: self made.

4.8.2. Process description.

Individual interviews and implementation of surveys	<ul style="list-style-type: none"> On March 16, 2021, individual interviews were conducted with community leaders and families.
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Photo: survey application.



Photo: survey application

Observación directa y puntos clave	<ul style="list-style-type: none"> During all visits, the community environment was explored and photos were taken of internal locations for observation of the biophysical environment, identification of ecosystem services and key locations, and as a way of verifying the information gathered.
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Photo: venue for activities.



Photo: community school.

Authorization to consultation and socialization of the project (Aty guasu)

- On December 9, 2020, the meeting and signing of the minutes of the authorization to consult and the socialization of the project took place.



Photo: socialization of the project.



Photo: socialization of the project.



Photo: socialization of the project.

Free, prior and informed consent

- On December 17, 2020, the meeting and signing of the minutes of the Free, Prior and Informed Consent was held.



Photo: CCLPI signature.



Photo: community members.



Photo: signature of the CCLPI.

Participatory Rural Diagnosis Workshops

- On March 16, 2021, Participatory Rural Diagnosis Workshops was held.



Photo: DRP Workshop.



Photo: DRP Workshop.

4.8.3. Community diagnosis.

4.8.3.1. Environmental Area.

4.8.3.1.1. Physiographic characteristics.

The Jeguahaty indigenous community, physiographically, is of semi-flat to flat relief, with some gentle slopes, has areas of good drainage and others of moderate to poor, reaching levels between 60-200 meters above sea level.

According to the source material and disposal environment, the physiographic characteristics differ in recent accumulation plains, of shallow aeolian fluvial origin and that present excess humidity in the vicinity of the Aquidabán River.

The vegetation is composed for the most part by natural and cultivated grasslands (seeds derived from the surrounding ranches). The wooded meadows of the area are invaded by mbokaja or coconut (*Acrocomia totai*), pine (*syagrus romanzoffiana*) yata'i (*butia yatay*) and araza pe (*psidium arasa*).

4.8.3.1.1.1. Geological characterization.

The geological formations of the community are Precambrian and Paleozoic, occupying physiographic configurations that are preferentially developed on residual soils derived from sandstone.

4.8.3.1.1.2. Hydrological characterization.

The community has abundant water courses related to the Aquidabán River, which borders the limit of the community from north to south, this river in turn drains into the Tapytagua stream.

The great part of the community comprises soils of sub-class Wd, which indicates a limitation due to drainage problems caused by the areas close to the water source. The water table around the community is 50 to 70 cm in class Vwd and VIwd soils, but greater depth is observed in areas where class III soils develop. The drainage is of the dendritic type and occurs in class III types of soil, for the most part the waters drain from these areas to the lower parts and to the river beds.

The water courses in which the families fish are not used for navigation and will not be affected by the river transfers that PARACEL will carry out.

4.8.3.1.1.3. Characterization of the relief.

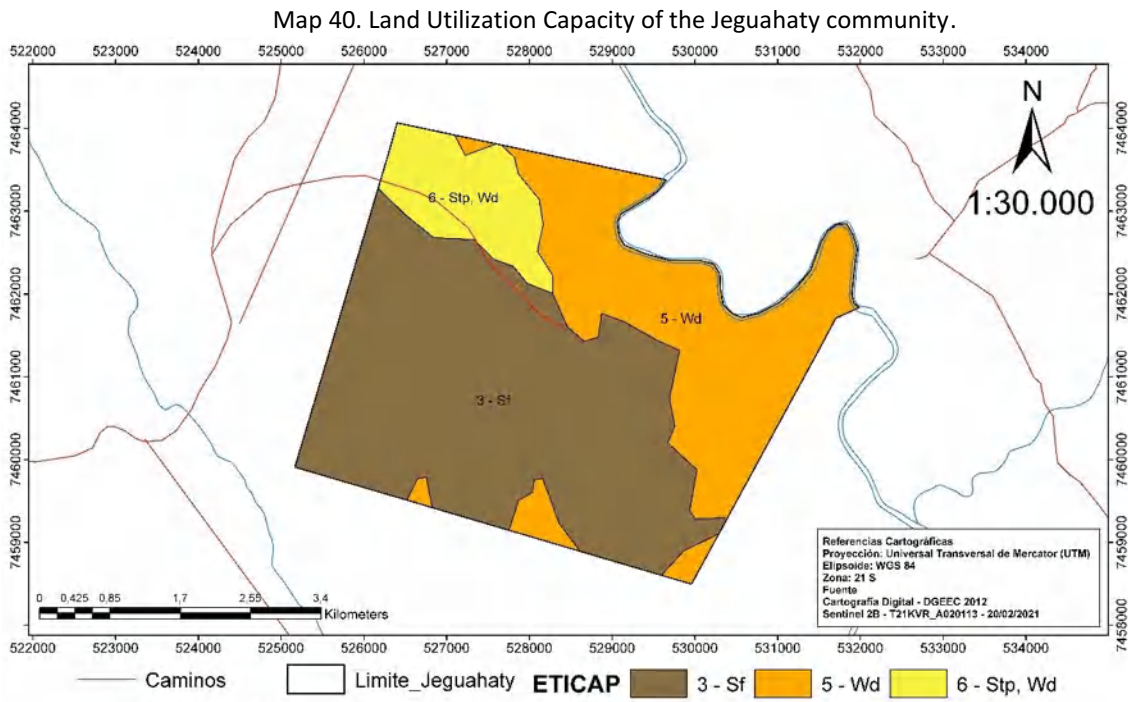
The relief of the area is of the smoothly undulating to flat type, with slopes ranging between 0 to 3%, in the parts adjacent to the estuaries and another smaller portion there are slopes greater than 3% and up to 8%, which is part where the beneficiaries live and are concentrated.

4.8.3.1.2. Climatic characteristics.

In relation to the climatic characteristics of the community: the average annual temperature is 22° C, with minimums less than 0 ° C and maximums that exceed 40 ° C; solar radiation or insolation is very intense, associated with long duration and close to 14 hours a day in the summer months; annual rainfall is 1,600 to 1,700 mm per year; the annual mean potential evapotranspiration (ETP)

is 1,100 mm; it has a moisture index of Thornthwaite B2 (wet above 40); the average frequency of frosts per year is 8.9 days and can occur between the months of June to August; the winter season is normally the driest and coldest, reaching 3 ° C in this last year; spring and summer rains are usually characterized by the occurrence of high intensity, short duration and high erosive energy downpours;

4.8.3.1.3. Soil characteristics.



Source: self made.

According to the Land Utilization Capacity Map (SIG data), the soils of the Jeguahaty community are classified as follows:

Table 42. Land use capacity of the Jeguahaty community.

USAGE CAPACITY (USDA)	AREA (Ha)	% OF TOTAL AREA
III sf	1239,52	61%
V wd	548,64	27%
VI stp, wd	243,84	12%

Source: Ministry of Agriculture and Livestock, Proders.

From this classification it can be deduced that a large part of the land is comprised of class III Sf soils (61%), for the most part the land is suitable for agricultural development of annual crops, with moderate fertility restrictions as indicated by the sub-class Sf, and it is recommended to take soil management measures such as the use of green manures and other corrective measures.

The soil of the Vwd type (27%) has drainage problems for the longest time and it should be considered that these are suitable for livestock and forestry. In general, these soils do not tend to erode, but present ponding limitations due to poor drainage, which coincides with the areas surrounding the Aquidabán River.

Finally, class VI of subclass Stp, Wd (12%) has as a common limitation the shallow effective depth of the soil (50-75 cm), in addition to the texture of the sandy loamy sand control section. In addition to the above, the Wd condition indicates that it also has drainage and/or permeability limitations which is slow, which causes the soil to remain saturated for certain appreciable periods of time.

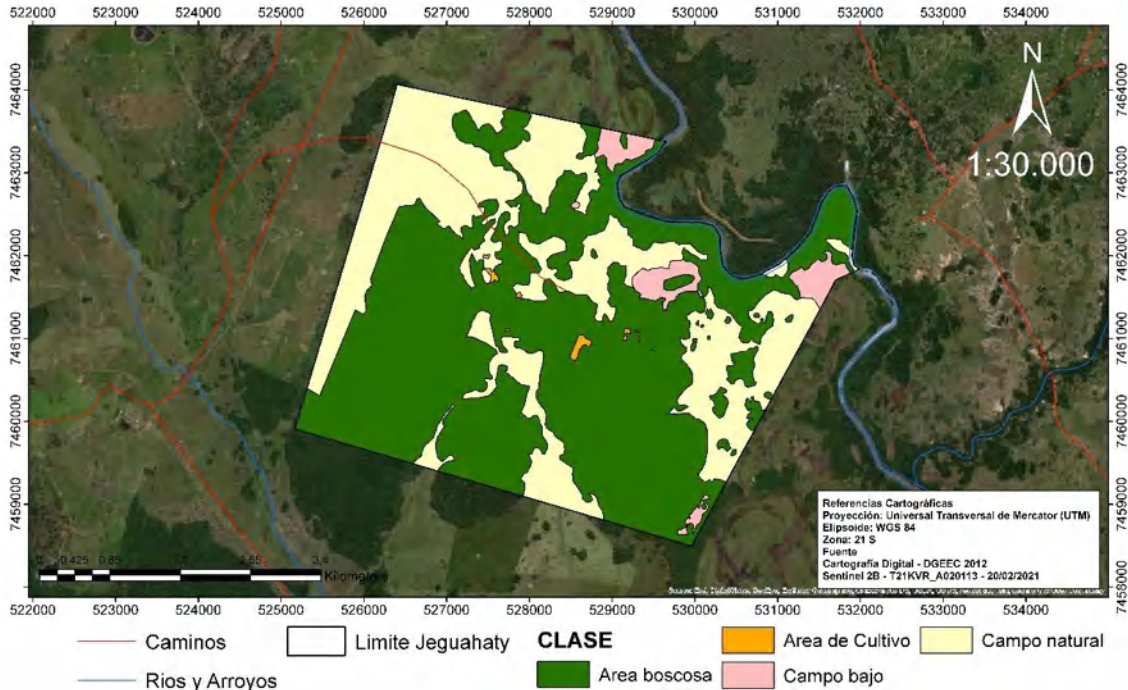
4.8.3.1.4. Current land use.

The area used for agricultural crops is currently approximately 28 Ha. The families of the community are mainly engaged in family agriculture for their own consumption, they sow cassava, corn, beans and sweet potatoes, basically in small areas. At certain times of the year they cultivate income items such as sesame, there is no production of permanent items.

The community has approximately 1,500 Ha of forest, where there are remnants of trees that regenerate again, forming small forests from where they are supplied with firewood and other wood for different types of constructions and, in cold seasons, used as firewood to make bonfires and alleviate the precarious thermal insulation of their homes.

From what could be observed in the field work, it is estimated that, if awareness activities are not carried out on the care of the forests to the members of the indigenous community, they could reduce the forest resources that they will inherit to future generations. The largest extension of the land area is made up of formations of natural fields and virgin mountains with fertile soil suitable for agriculture and livestock production, it also has estuaries and wetlands, it should be noted that a large portion of the community is made up of natural pastures.

Map 41. Land use of the Jeguahaty community.



Source: self made.

Table 43. Distribution of land use in the Jeguahaty community (according to DGEEC data).

N°	Classification	Surface in Ha	% that represents
1	Wooded area	1416,74	63,06%
2	Cultivation Area	6,29	0,28%
3	Low field	73,55	3,27%
4	Natural field	749,98	33,38%
	Total	2246,56	100%

Source: Participatory Rural Diagnosis and individual interviews of this EISA.

4.8.3.1.5. Water.

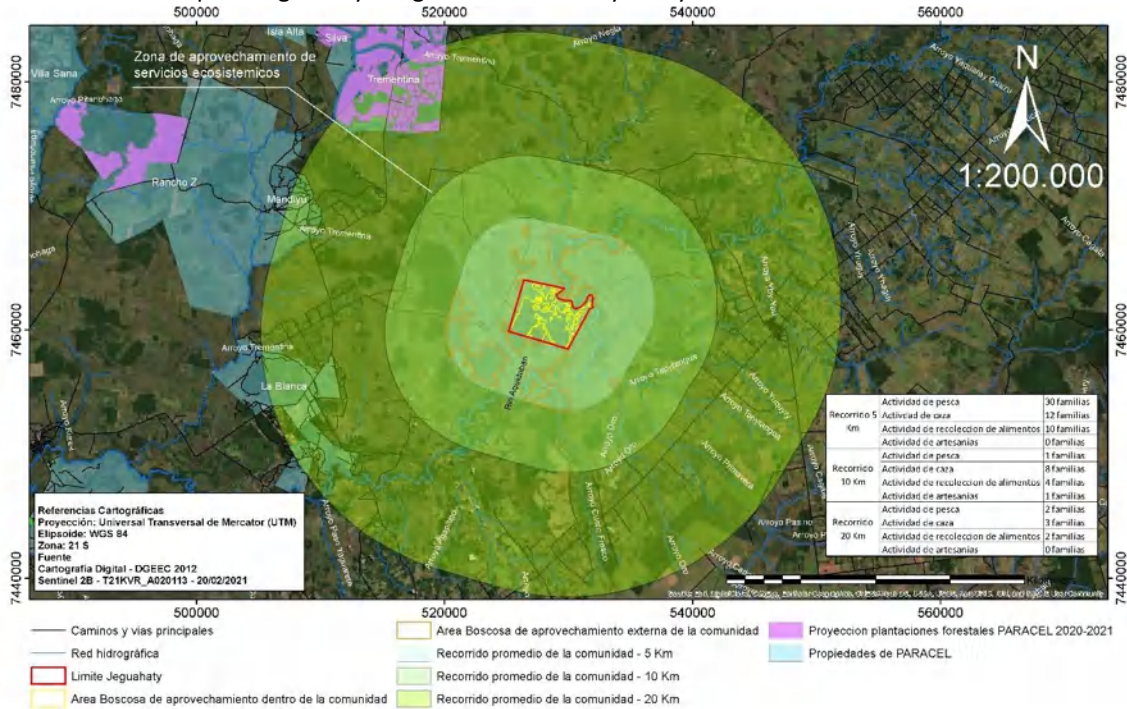
The community does not have drinking water, people drink from springs (ykua) without protection, the water has a cloudy color and foreign bodies such as algae and others. The community is bordered 75% by the Aquidabán River, constituting the main water resource from which they extract food through fishing.



Photo: disused font.

4.8.3.1.6. Use of ecosystem services for livelihoods.

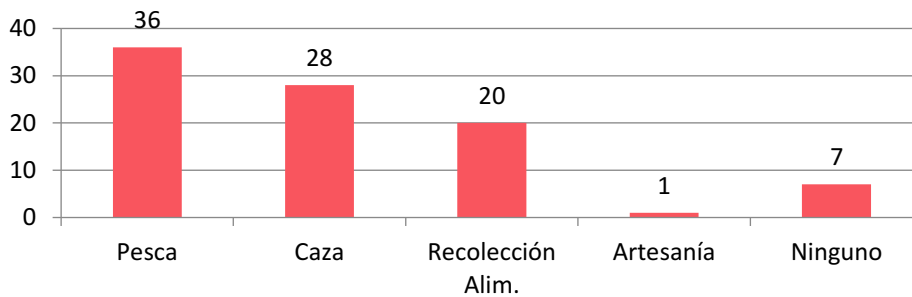
Map 42. Jeguahaty Indigenous Community Ecosystem Services Utilization Zone.



Source: self made.

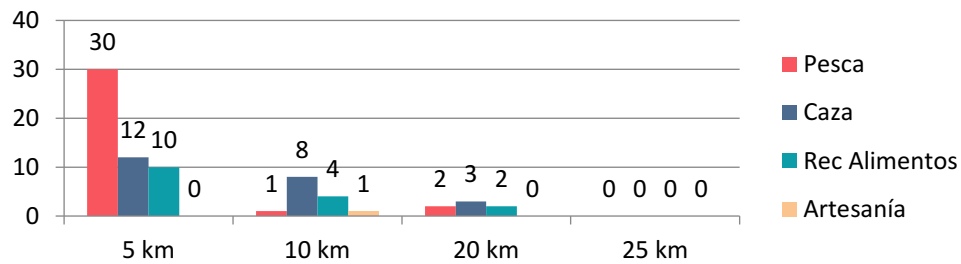
The Jeguahaty indigenous community is located within the life zone called by Holdridge (1969) as “humid temperate forest”. Within this are several forest formations, determined by the different soils and differences in precipitation and average annual temperature. These forests are traveled by indigenous communities for the use of ecosystem services as a means of subsistence.

Graph 76. Families that carry out traditional means of subsistence in the Jeguahaty community.



Source: own elaboration based on field collection.

Graph 77. Maximum distance traveled by the families of the Jeguahaty community for the realization of traditional means of subsistence.



Source: own elaboration based on field collection.

In the graphic “Families that carry out traditional means of subsistence - Jeguahaty community”, it can be seen that there are still families in the community that practice traditional means of subsistence for the generation of food, mainly fishing, hunting and gathering. Subsequently, in the graph “Maximum distance traveled by families of the Jeguahaty community for the realization of traditional means of subsistence” it can be seen that the vast majority of families travel up to 5 km to practice means of subsistence and use of ecosystem services, and that some come to travel a maximum of 20 kilometers around their community.

4.8.3.1.6.1. Flora.

According to Tortorelli (1969), this area is located within the “central jungle” forest formation, characterized by the presence of a certain number of deciduous tree species, together with evergreen families, typical of these forests (Myrtaceae, Louraceae, etc.).

López, JA (1987), describes the forests of the Eastern Region of Paraguay as A) High Forests: "these forests seem to be typically formed by 3 main floors or strata that are dominant, intermediate and oppressed"; B) Riparian Forest: "they are generally low forests and are clearly delimited by the natural vegetation that extends along the streams and rivers"; C) Low humid forest: "similar to the riverine forest, but it differs because they are distributed in the form of islets in the fields ..." and; D) Savanna Forest (cerrado): "composed of low scrub pastures, small forests ...". The first 2 types of forests, described by López, are characteristic forests of the high forest and the riverine forest,

The sudden reduction of spaces with natural vegetation inevitably led to the alteration and / or disappearance of natural habitats and, consequently, to the loss of the diversity of native plant and animal species of the region. However, the local and regional ecosystem has a great capacity for recovery, which is expressed by the ease and speed with which secondary vegetation regenerates.

The families resort to the forests of their own indigenous community for the extraction of wood, fruits, honey, herbs and vegetable fibers, which are used for food, medicine, construction and as fuel for cooking or shelter on the coldest days.

Among the predominant forest species in the community:

Table 44. Characteristic flora species of the Jeguahaty community.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Yvyra pyta	Peltophorum dubium
2	Tajy	Tabebuia sp
3	Yvyra'ro	Pterogine nitens.
4	Cocotero	Acrocomia totai
5	Kurupay	Anadenanthera colubrina var.
6	Kurupa'yra	Parapiptadenia rigida
7	Incienso	Plectranthus Coleoides
8	Urundey	Astronium balansae
9	Tata jyva	Maclura tinctoria
10	Timbo	Enterolobium contortisiliquum
11	Peterevy	Cordia trichotoma
12	Aguai	Chrysophyllum gonocarpum

Source: DRP Jeguahaty 2021.

Table 45. List of some medicinal plants commonly used in the Jeguahaty community.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Kangorosa	Maitenus ilicifolia
2	Molle i	Schinus molle
3	Juruvea	Solanum paniculatum
4	Mister del campo	Achirocline saturoide

Source: DRP Jeguahaty 2021.

4.8.3.1.6.2. Fauna.

Hunting and fishing are some of the main sources of food for the families of the indigenous community, some of them usually practice it with tools made by themselves, such as bows, arrows and spears, and firearms.

The frequency of carrying out these activities varies between families, most of the people consulted they say they practice it between one to three times a week. The animals that hunt and fish are used for self-consumption.

Fishing is carried out by families in the Aquidabán river, where they extract species such as tarey'i, surubi, carimbata and pyta pyta among others, as well as hunting wild animals such as kure'i, deer, tajy kati, tapir, armadillo and others.

Considering the great extension of forests, although largely sparse, it can be considered as habitat for a great variety of native fauna. Among the fauna species that exist, the following species can be mentioned:

Table 46. Fauna of the Jeguahaty indigenous community.

N°	COMMON NAME	SCIENTIFIC NAME
1	Teju Guasu	Tupinambis mericanae
2	Tortolita	Columbina sp
3	Jeruti	Ceptotila verreauxi
4	Pycasu	Zenaida auriculata
5	Piririta	Guira guira.
6	Tatu poju	Euphractus sexcintus
7	Tatu hu	Dasyopus novemcintus
8	Aguara'i	Cerdocyon thous
9	Coati	Nasua nasua
10	Guasu vira	Mazama gouazoubira
11	Apere'a	Covia Aperea
12	Akuti	Dsyprocta azarae
13	Kure'i	Tajassu tajasu
14	Tapiti	Dsyprocta sp.

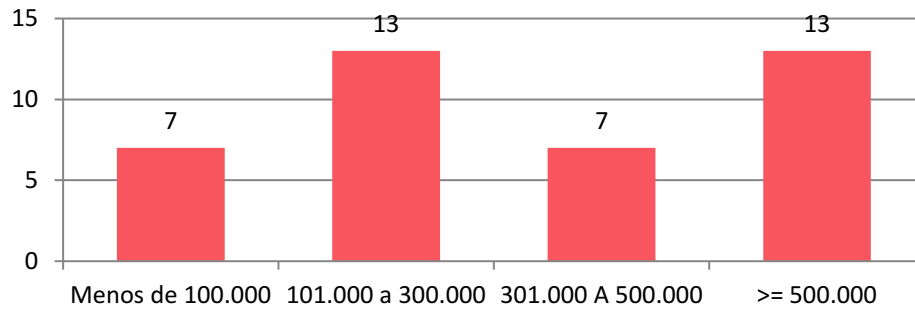
Source: DRP Jeguahaty 2021.

4.8.3.2. Economic area.

Being a rural indigenous community, the main economic activity is family farming and sporadic "changas" in nearby ranches, most of which are cleaning tasks or agricultural peonage.

It was found that the community is made up of 148 people, among them 40 people who are receiving weekly income from their work were identified.

Graph 78. Percentage of the population distributed by weekly income of the Jeguahaty community (in guaraníes).



Source: own elaboration based on field collection.

Of the entire population of the community, 40 people are doing paid work, of which 33% receive weekly income above Gs 500.000, 18% receive weekly income that fluctuate between Gs 301.000 and Gs 500.000, 32% receive income between Gs 101.000 and Gs 300.000 and 17% receive a weekly income of less than Gs 100.000.

4.8.3.2.1. Primary production.

4.8.3.2.1.1. Agricultural.

The main characteristic of this community in terms of agricultural production is that it is used almost entirely for family consumption. The area sown per family averages 0.25 to 1.5 Ha, which is not enough to adequately cover the food needs of the families, the main items are cassava, corn in the white and tupi varieties, beans, sweet potatoes and pumpkin.

The lack of machinery that can facilitate the conditioning of the soil and improve the crops is one of the reasons why they do not manage to exploit the maximum capacity of their crops, they have a minimum amount of tillage tools such as hoe, machete and foises, most of these tools have many years of use and need to be renewed.

Most of the families are engaged in daily trades in neighboring communities or livestock establishments, mainly in the Agüerito ranch, carrying out cleaning, livestock management and harvesting tasks on the farms with a payment of around Gs 60.000 to 70.000 Gs. per day.



Photo: Agüerito farm.

4.8.3.2.1.2. Livestock.

The vast majority of the community's residents do not have cattle, only two families have cattle. The majority of the families carry out domestic poultry rearing in minimal quantities and only some

have sheep and pigs. These animals and their derivatives are used for family consumption and, some remnants, for sale.

4.8.3.2.1.3. Forest.

The forested area of the community lands currently reaches approximately 1,500 Ha it is of a natural type with native species. Lack of care and tree felling practices are something to consider because families do it without a proper management plan.

4.8.3.2.1.4. Work force.

Agricultural work and the raising of domestic animals are activities commonly carried out by women in the company of their children, at the same time that women take care of housework and raising children, creating an over-occupation for women. themselves. The majority of men are dedicated to carrying out off-farm work, such as hunting and fishing, to doing paid work on ranches.

4.8.3.2.1.5. Machinery and equipment.

The agricultural implements identified are the machete, foizas, hoe, shovel, and manual seeders. Most of these tools have 4 to 5 years of use and would need to be renewed, it is observed that the number of tools per family is insufficient to carry out all agricultural tasks.

It would be convenient for the indigenous community to have machinery to prepare the plots in order to increase the sowing area and the production capacity per hectare, destined for self-consumption and income.

4.8.3.2.1.6. Technology.

The use of state-of-the-art technology for production, such as heavy machinery and certified or transgenic seeds, is not detected. The sowing system practiced is the conventional one, with the clearing of the area to be cultivated and subsequent burning of the weeds, to sow with a hoe or yvyra hakua (a pointed stick that serves to pierce the ground and place the seeds in each hole) .

A common practice in all farms is the association of items between corn - cassava, cassava - beans and corn - beans. The use of chemicals such as pesticides is not observed.

4.8.3.2.1.7. Production supplies and materials.

The seeds used are from their own production, as a result of the storage of grains from the previous season and the exchange of seeds that are not available on the farm (post-harvest), the use of chemical or natural products for production is not detected. The quantities of available seeds

are not sufficient for the extension of the surface, since they generally consume the crops in quantities almost in their entirety.

4.8.3.2.2. Secondary production.

No secondary production was found in the community.

4.8.3.2.3. Services.

4.8.3.2.3.1. Technical assistance.

They do not have technical assistance, until 3 months ago they received assistance from the MAG PRODERS, whose functions ceased due to the end of the project. Occasionally, some people called “guides” arrive who give them assistance through the Tekopora Program of the Ministry of Social Development.

Graph 79. Number of families in the Jeguahaty community that receive a subsidy from the MDS.



Source: own elaboration based on field collection.

It can be seen that 20 families declare that they receive the economic subsidy from the Tekoporã program from the Ministry of Social Development and 3 people receive the pension from the Food Pension for Older Adults program from the Ministry of Finance.

4.8.3.2.3.2. Commercialization.

Marketing is informal and is carried out in nearby settlements and in neighboring ranches, some of which are adjacent to the community. The main items that are marketed are tupi corn and cassava, both at a price of around 1.500 Gs / Kg, they also tend to sell minor livestock items such as chickens and pigs within the same community.

Families perceive a deterioration in the terms of trade, in the sense that the products they sell are getting cheaper and those they buy are getting more and more expensive.

The lack of means of transportation, the small planting area and the little training in marketing are problems that hinder the commercial development of the community.

4.8.3.2.3.3. Financing.

Each producer family plans and finances its production according to its possibilities. No institution accompanies families in financing for production and they do not have access to public or private loans.

4.8.3.3. Social area.

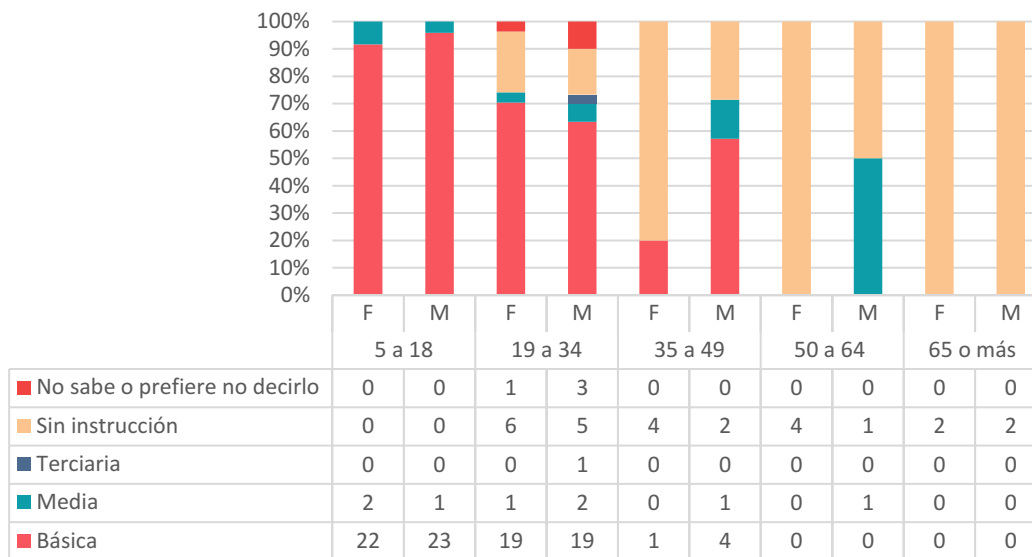
4.8.3.3.1. Education.

In the community there is a school that has been operating since 2000, it has levels from preschool to sixth grade. Two teachers work at the school who teach in the multigrade system.

The school infrastructure has three classrooms and an administrative room, it has masonry materials and an artesian well running water system. School snack and lunch services provided by the MEC are received periodically at the school.

In the school, classes are not taught for the third cycle of basic education (7th to 9th grade), this problem forces children and young people to migrate to other communities or to drop out of school leaving their formal education incomplete. The majority of young people and adults do not have a secondary education, since they did not even finish basic school education.

Graph 80. Distribution of the population by age range and gender according to educational status in the Jeguahaty community. F = female | M = male.



Source: own elaboration based on field collection.

Thanks to field work, it was observed that the educational status of men and women in the indigenous community of Jeguahaty is usually similar across all age ranges, which means that both genders face similar gaps in formal education. However, comparing generational groups, it can be seen that the new generation of girls, boys and young people between 5 and 18 years of age has experienced a significant change in schooling, with 100% of this segment enrolled in basic or secondary education.

4.8.3.3.2. Health and sanitation.

4.8.3.3.2.1. Health and conventional medicine.

Regarding the basic health service, they receive assistance from the nearest Health Post on a monthly basis. If families face a medical emergency, they must travel 22 km to the Huguá Ñandu Health Center, where assistance is provided from 7 to 15 hours, the most serious cases are referred to the Regional Hospital of Concepción or sanatoriums located in the capital of the country.

It is worth mentioning that, to help a sick person in the community, many times it takes more than 12 hours, because the only road access to leave the community is through neighboring private rooms where the owners restrict access to indigenous families to from 6 in the afternoon until 6 in the morning.

The families mention that the most frequent illnesses are cough, toothache, diarrhea, tesá rasy (conjunctivitis), vomiting, headache, stomach pain, ear pain, fever, and parasitic diseases. Dental

problems are frequent, many of the indigenous people have a great deterioration in their oral health and a large number of missing teeth.

4.8.3.3.2.2. *Health and traditional medicine.*

Traditional community medicine shows two fundamental aspects. The first aspect is that it is based on the use and knowledge of the therapeutic properties of the flora of the forests, using different types of roots, leaves, barks, fruits and vegetables, which are applied using a very finished, subtle and experienced ancestral wisdom.

The second aspect of the traditional medicine of the indigenous community is the realization of shamanic practices destined to achieve cures to the affections of the body and the spirit, used by almost all the members of the community.

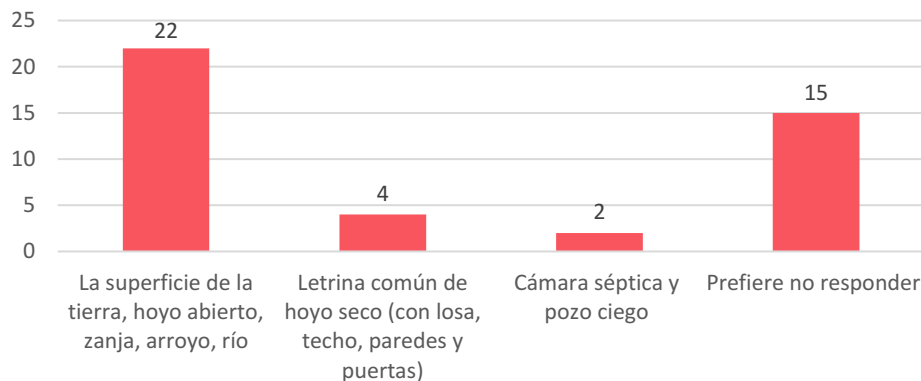
4.8.3.3.2.3. *Sanitation.*

The families pour the solid and liquid deposits onto the surface of the land itself, using a ditch that leads into an open hole, soil deposits, or a stream / river.



Photo. common tetrine.

Graph 81. Types of drains used by the families of the Jeguahaty community.



Source: own elaboration based on field collection.

As can be seen in the graph, the majority of the families (51%) do not have toilets and use the same surface of the land, a small shallow hole, a ditch, the stream or the river to relieve themselves. It should be noted that, without inquiring into the reasons, 35% of the surveyed families preferred not to answer this question.

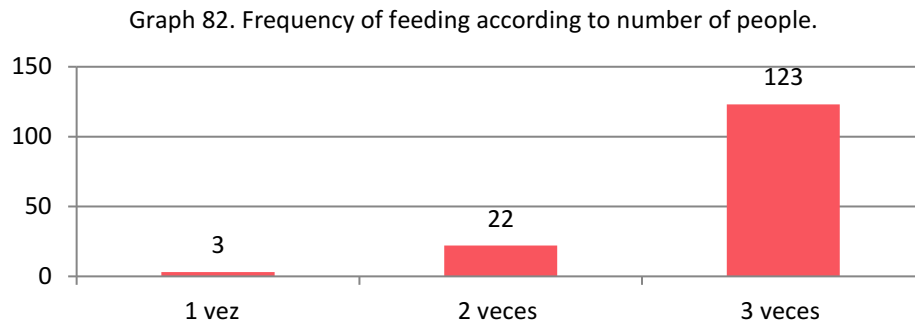
4.8.3.3.2.4. *Waste management.*

Solid and liquid domestic waste is deposited around the houses, in many cases solid waste is burned and there is no adequate treatment for this type of waste.

4.8.3.3.3. Feeding.

The families' diet is proportional to the availability of food produced in the family farms, where cassava, beans, corn, peanuts and sweet potatoes predominate. Also, families carry out hunting and fishing activities that help supplement and diversify the food they eat.

Purchases for basic household supplies are made in a warehouse near the community, where sugar, salt and oil are supplied, among other things.



Source: own elaboration based on field collection.

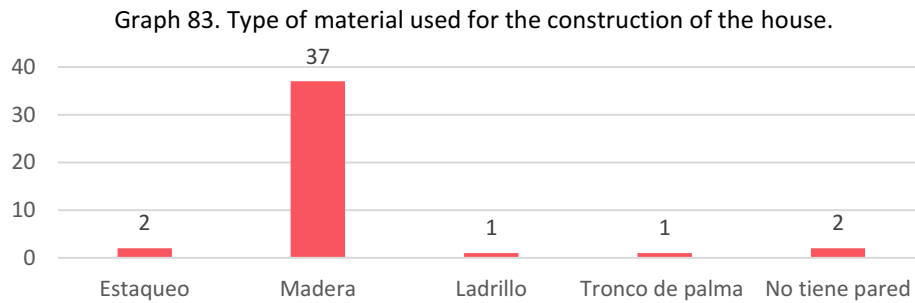
When families were asked about their feeding frequency, they answered that the vast majority eat 3 times a day, this means that 83% of people are eating breakfast, lunch and dinner. On the other hand, they also mention that the diet is carried out mainly to appease hunger since the inputs used are poor in nutrients, rather they are abundant in carbohydrates. They do not normally consume fruits, vegetables and dairy.

4.8.3.3.4. Housing.

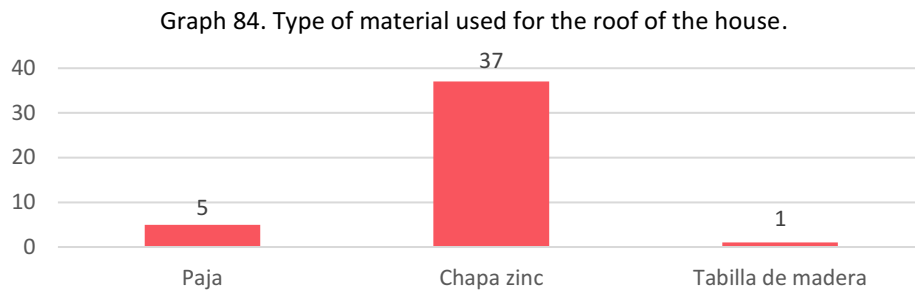
The houses are characterized by being precarious constructions, with boards on the walls and tin roofs, the vast majority with dirt floors. The houses have a small number of rooms -1 or 2 in general-, producing overcrowding. They also do not have appropriate kitchens for preparing food, which is often cooked on the floor between dogs and chickens.



Photo: wooden house.



Source: own elaboration based on field collection.



Source: own elaboration based on field collection.

In the preceding graphs, it can be seen that most of the houses (86%) are made of adobe and that 86% of them use zinc sheet as a roof construction material.

4.8.3.3.5. Safety.

When the community faces security problems due to internal causes, that is, because a member of the community is traveling at night drunk or because domestic violence has been detected, the chief usually calls an assembly to discuss the problem. If the problem cannot be resolved in an assembly or its origin comes from external causes, such as the intrusion of strangers inside the property, the families resort to the nearest police station.

In general, families mention that they feel safe in their community and that they do not perceive crime in the area to a large extent, apart from the insecurity they feel due to illegal organized groups and which are publicly known at the national level.

4.8.3.3.6. Social organization and own political institutions.

In the community they have a system of community organization where there is a leader elected in assembly, whose mandate is revoked only when he dies or because the community finds that he is in serious fault. The leaders are called caciques and in Jeguahaty there are two, both are recognized by resolution of the executive power through the INDI and have functions of representing, managing and defining actions in the community, among other activities before any entity or institution.

Table 47. Leaders of the Jeguahaty Indigenous community.

Role	Name
Political leader	Lirio Benítez
Political leader	Florencio Benítez (no vive en la comunidad)
Political Leader in process	Lucila Benítez (lideresa en gestión de reconocimiento por parte del INDI)

Source: own elaboration based on field collection.

For every Paraguayan citizen, it is necessary to obtain the Birth Certificate and the Identity Card. In addition to the two documents mentioned, indigenous people must obtain their Indigenous Card to fully enjoy all the benefits, programs and public policies that the State has provided for the indigenous population. However, not all members of the community have this documentation.

Next, it is observed in the following Table that, of a total of 148 people residing in the community, how many affirm to have these documents.

Table 48. Jeguahaty identification documentation record.

Birth certificate	Indigenous card	ID
116	121	123

Source: own elaboration based on field collection.

4.8.3.3.7. Institutional aspects.

The Jeguahaty indigenous community is recognized by the INDI and has its own land and with all the legal documentation (recognition of a leader, legal status, among others).

No internal conflicts were detected between members of the community or with adjacent populations.

The community regularly interacts with external institutions such as the MSPBS, MEC, Municipality of Paso Barreto and, as a result of this study, PARACEL. The community is also related to a lesser extent with the INDI, a nearby Evangelical Church, the Government, the police station, the Agüerito farm and the Mandyjú farm.

4.8.3.3.8. Cultural heritage.

In the Community there is an influence of religious sects, which built two evangelical temples within the community property. Families in the community receive frequent visits from an evangelical pastor from Yby Yauú.

On the other hand, the community continues to practice Pai Reko, a set of knowledge and practices that are at the basis of Paî life and that are expressed in various aspects: Teko Katu, Teko Porã, Teko Joja, Teko Upyty, Teko Johayhu, Teko Piro'y and Teko Marane'y.

Among the traditions that are still practiced are the mitâ pepy (male initiation ritual), the avatykyry (celebration of corn) and the ñembo'e (dance-based practice). The Paî usually dress in a traditional way with cotton or wool clothes that are worn with fringes and feather crowns and ritual objects and musical instruments. The community makes handicrafts that are occasionally sold.

4.8.3.3.9. Religious aspects and spiritual beliefs.

The members of the community practice rites that are composed of dances and religious songs, some of them usually last several days, they do not have the sacred temple which they call "Oypysy" and because they do not have the inputs to prepare the kagui or chicha, spirit drink, which is manufactured by themselves from corn or cassava.

4.8.3.3.10. Public services infrastructure.

Water supply: in the community they do not have potable water distribution and they have an artesian font in the school, but it does not work due to lack of electricity. The water consumption is carried out from an unprotected source from where they transport in drums to their homes. This problem urgently needs to be remedied.

Electric power: there is no electricity service in the community. Some families have extension cables, but these need to be connected to the public network that is about 5 km from the community. This service must be managed with ANDE, families mention that there is a history of conversations with the institution, but that this management must be resumed.

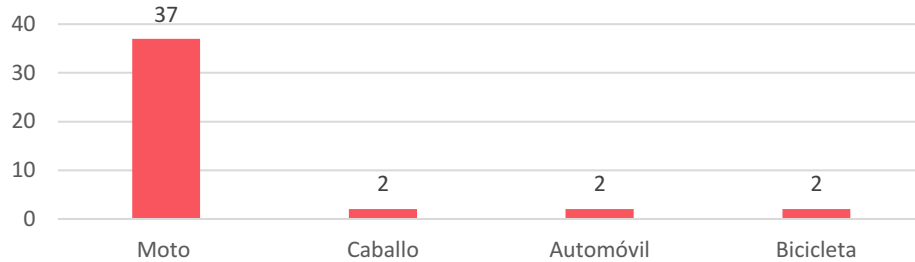
Transport and road infrastructure: They do not have means of public transportation to the community, their main means of transportation is the motorcycle and walking.

To leave or enter the community, you must travel 16 km of an internal road from the Agüerito farm. Frequently, families are completely cut off from the outside because the gates to the ranch are closed after 6 pm.



Photo: woman on a motorcycle.

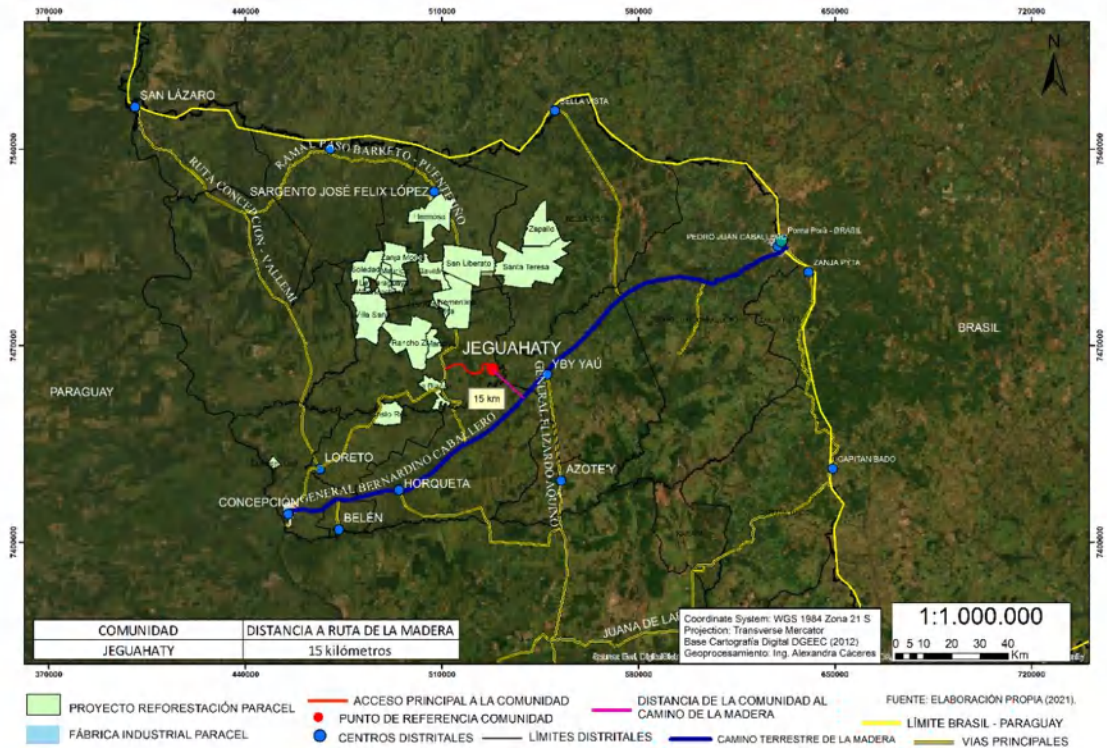
Graph 85. Means of transport used by the family.



Source: own elaboration based on field collection.

In the graph “Means of transport used by the family” it can be seen that 86% of families use the motorcycle as a means of transport.

Map 43. Distance of the Jeguahaty community with respect to the terrestrial timber road.



Source: self made.

The indigenous community Jeguahaty They are located 15 kilometers from the General Bernardino Caballero route, also called “the wood route”. It is not identified that the transport of wood or the increase in traffic on the route will affect the community.

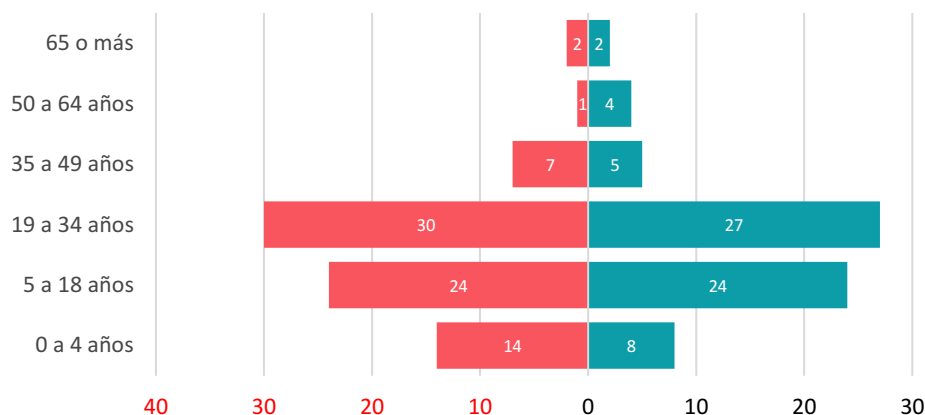
Communications: the mass media are participatory meetings. Some indigenous people use cell phones and radios that connect to radio stations in the area.

4.8.3.3.11. Demographic aspects.

Regarding demographic aspects, the total number of people settled in the community is approximately 148 people, distributed in 43 families, with an average of 3 people per household.

The distribution according to gender is 70 women and 78 men, that is, 47% are women and 53% are men.

Graph 86. Distribution of the population by gender and age range for the Jeguahaty Indigenous Community. Men | Women.



Source: own elaboration based on field collection.

The Jeguahaty population pyramid shows that 47% of the population is distributed between 0 and 18 years of age, denoting a positive demographic bonus that, with a good social investment, could become an opportunity for development and growth for the community. It can also be seen that the population of adults over 65 years of age or older represents 2.7% of the total population, significantly less than the 6.63% of the national population of Paraguay in the same age range (DGEEC, 2019), which reflects a lower life expectancy and, possibly, less access to quality health services, varied and nutritious food sources, risk of accidents, among others.

It should be noted that in the Jeguahaty indigenous community it was found that two families stated that at home they take care of a person with a disability.

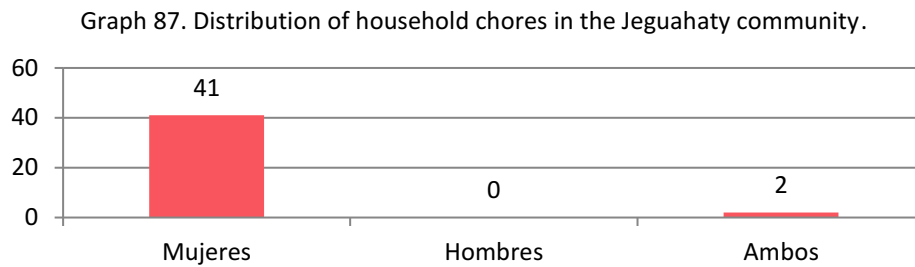
4.8.3.3.12. Migration.

Pendular migration between Pai Tavytera communities is a tradition deeply rooted in the ethnic group, families often migrate from one community to another, mainly for reasons of job search or to visit relatives.

Young people are the group that most often migrate permanently from the community, many of them migrate to urban centers with the expectation of improving their standard of living. Another segment of young people who migrate does so to establish their own families.

4.8.3.3.13. Gender.

It was found in the field work that the roles of men and women are very well defined. In most cases, men are in charge of working outside the community, while women are dedicated to domestic tasks, both men and women are in charge of working in family agriculture.

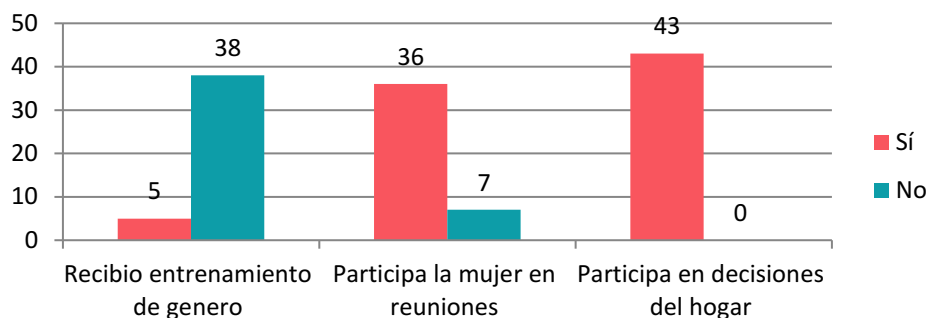


Source: own elaboration based on field collection.

In the graph "Distribution of household chores in the Jeguahaty community" it can be seen that in 95% of the households the woman is in charge of carrying out the household chores -washing clothes, cooking and cleaning- and of taking care of the children. kids.

In relation to family planning, it was detected that in couples it is the woman who is mainly responsible for the use of contraceptive methods. In the field work, 16 women reported using injectable contraceptive methods, 13 women reported using natural remedies (forest herbs), 2 women reported using a condom, and 12 reported not using any contraceptive method.

Graph 88. Participation of women in public and private activities.



Source: own elaboration based on field collection.

Regarding the participation of women, 12% of women state that they have received some type of gender training, 84% state that they participate in public meetings and community assemblies, and 100% state that they participate in household decisions.

4.8.3.3.14. Human rights.

Some indigenous people state that when they go to the city and have to interact with other people in supermarkets, public offices or hospitals, they feel that they receive a different treatment compared to the treatment received by people who are not indigenous.

Regarding work, some people of working age comment that it has happened to them that they have received a lower payment for doing the same work than other people who are not indigenous and that, from time to time, they do not receive food, while the others do receive.

In general, it is observed that older children take care of their younger siblings and that they collaborate in housework and work on the farm, putting aside their studies.

Although the police come to their aid when they have a security need that they cannot solve independently, the distance between the police station and the community and the lack of good roads means that the police take a long time to arrive.

Regarding the right to privacy, a high level of overcrowding of families is observed in small houses with one or, in the best of cases, two rooms.

Some people mention that to enter their communities they need to go through adjoining ranches and that during the nights they are closed off to circulate freely, even on occasions, they are threatened by the caretakers of the ranches. Some nearby private ranches prevent them from hunting in their communities. In no case, these rooms belong to PARACEL.

Regarding the right to nationality, the families mention that the processes for obtaining birth certificates, identity cards and indigenous cards are centralized through the INDI with offices only in the city of Asunción. The INDI usually activities in situ in the communities for the preparation of these documents, but these activities are infrequent. Families usually collect money to send the chief to Asunción to manage several certificates in the same trip.

The families state that they do not feel trust in the political groups and that, during election periods, some political groups go to the community to request that they rent or lend them their identity cards so that they can be used in voting by other people.

It can be observed in the field work, that a large number of families do not have access to drinking water and sanitation. Sanitation conditions are precarious, with families who use the flat directly to relieve themselves.

4.8.3.4. Summary of the baseline of the indigenous community.

The families of the community implement various rudimentary production activities in order to cope in the best possible way with the precarious socioeconomic situation in which they live. Families perceive a deterioration in the terms of trade that seems to be increasingly unfavorable for indigenous families. Families perceive that their agronomic yields are decreasing each year and that it is increasingly difficult for them to access the market under conditions.

In relation to the soil, it is characterized by being loamy-sandy, with a flat sandy tendency with little water retention, whose fertility is still good. The community needs to implement sustainable production systems with technical assistance, focused on training them in better agricultural techniques for consumption and income.

The indigenous culture is weakened by the influence of the evangelical sects. It would be advisable to establish alliances with the INDI and the MEC, to develop programs to promote the maintenance of the culture of this community, provided that the families themselves choose it, respecting at all times the right to self-determination.

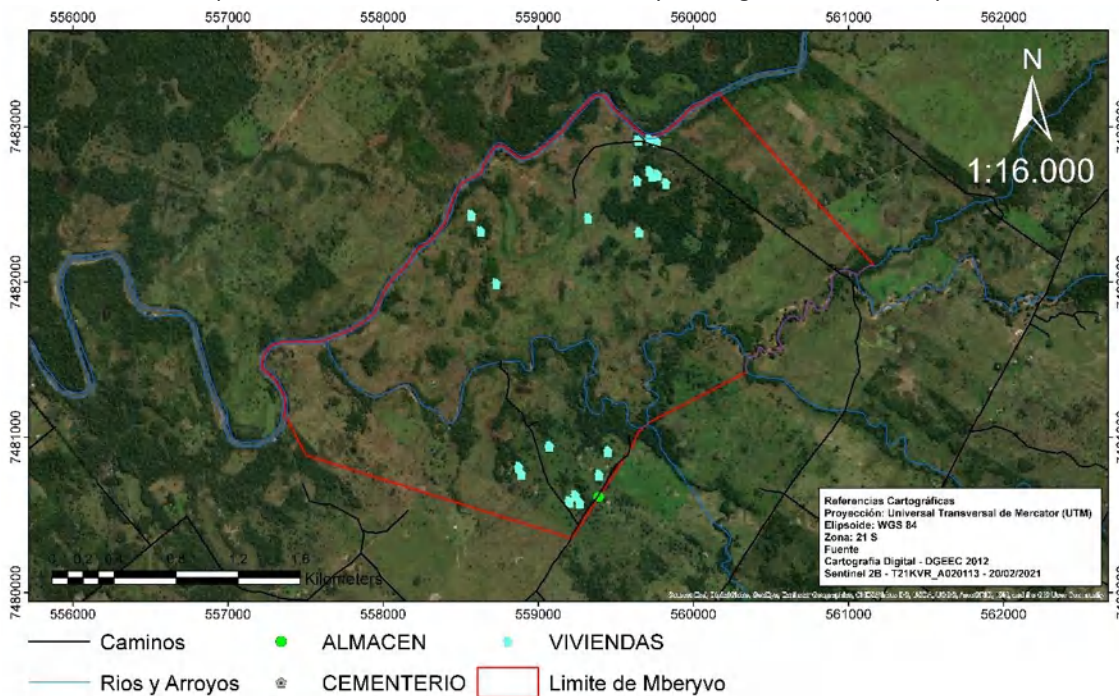
Throughout the diagnosis stage, the community leaders and members supported all the work, actively participating in the informative meetings, the planning and the Participatory Rural Diagnosis, always in an atmosphere of enthusiasm, cooperation and respect.

4.9. Mberyvo indigenous community.

4.9.1. General characteristics of the community.

The Mberyvo / Jaguarymi community has an area of 3661 Ha, It is located 50 km from the capital of the district of Yby Yaú to which it belongs, 150 km from the capital of the department of Concepción.

Map 44. Location and locations of the Mberyvo indigenous community.



Source: own elaboration based on field collection.

Table 49. Mberyvo indigenous community descriptive file.

Item	Description
Community name	Mberyvo Jaguarymi
Surface	366 hectares.
Department	Concepción.
Recognized leader	Celia Benítez Alfonso.
Population	67 people, distributed in 17 families.
Contact dates	December 12 and 17, 2020 and March 17, 2021.
Linguistic family	Guaraní. The language they mainly speak is Guaraní.
Ethnicity	Paí Tavyterá.

Community type	Rural.
Geographical coordinates	Longitude (X) m, 559 189.07 Latitude (Y) m, 7481830.95
Nearest PARACEL property	Santa Teresa Farm
Distance from the closest PARACEL property	13 kilometers.
Pathways to the community	The main road in common with the PARACEL properties is route No. 5, 20 km from the Yby Yau District, more than 7 km on a dirt road. Through route N ° 5 the community shares with PARACEL vehicle traffic.
Protected wild areas (ASP)	The indigenous community is not located inside an ASP and does not claim to interact with an ASP that is within PARACEL's properties.
Watercourses	The indigenous community is 1 kilometer from the Aquidabán River, which it shares with the PARACEL properties. The Jaguarmí stream crosses the community.
Traditions and customs	The indigenous community does not claim to carry out ancestral activities and rites within PARACEL's properties, including the prospected factory and ranches. The community claims to practice hunting and / or fishing within and outside their territories and the collection of plants for activities of domestic use, such as food and healing therapies, but not within the PARACEL lands.
Social indicators and expectations	The community expresses interest in improving their health, education, security and economic conditions.

Source: self made.

4.9.2. Process description.

Individual interviews and implementation of surveys	<ul style="list-style-type: none"> On March 17, 2021, individual interviews were conducted with community leaders and families.
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Photo: survey application.



Photo: survey application.

Direct observation and key points

- During all visits, the community environment was explored and photos were taken of internal locations for observation of the biophysical environment, identification of ecosystem services and key locations, and as a way of verifying the information gathered.



Photo: school snack at school.



Photo: school yard.

Authorization to consultation and socialization of the project (Aty guasu)

- On December 12, 2020, the meeting and signing of the minutes of the Authorization to Consult and the socialization of the project took place.



Photo: socialization of the project.



Photo: socialization of the project.

Free, prior and informed consent

- On December 17, 2020, the meeting and signing of the minutes of the Free, Prior and Informed Consent was held.



Photo: CCLPI meeting.



Photo: CCLPI meeting.

Participatory Rural Diagnosis Workshops

- On March 17, 2021, Participatory Rural Diagnosis Workshops was held.



Photo: DRP Workshop.



Photo: DRP Workshop.



Photo: DRP Workshop.

4.9.3. Community diagnosis.

4.9.3.1. Environmental Area.

4.9.3.1.1. Physiographic characteristics.

4.9.3.1.1.1. Geological characterization.

The geological formations of the community are Precambrian and Paleozoic, occupying physiographic configurations that are preferentially developed on residual soils derived from sandstone.

4.9.3.1.1.2. Hydrological characterization.

The community is surrounded by water courses, to the north is the Jaguary stream and to the east with the Aquidabán river.

The drainage is of the dendritic type with channels running in all directions, this pattern indicating the homogeneous condition of the parent material in the drainage area.

The water courses in which the families fish are not used for navigation and will not be affected by the river transfers that PARACEL will carry out.

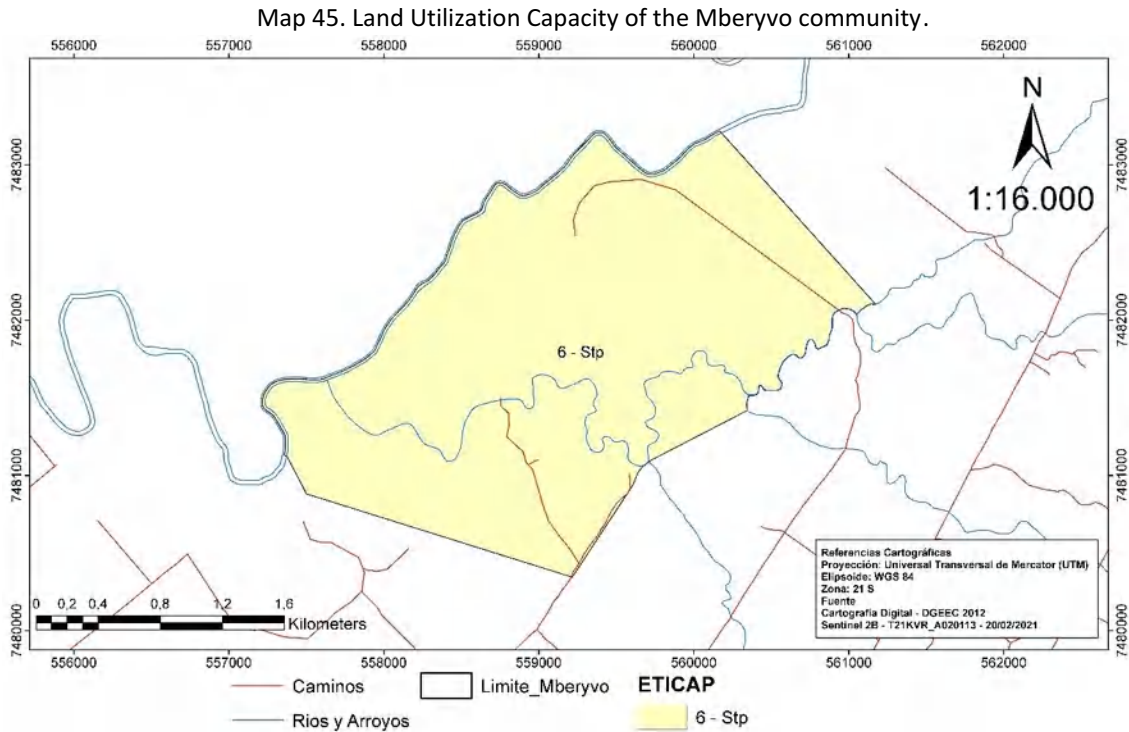
4.9.3.1.1.3. Characterization of the relief.

The relief of the area is flat and in very few areas it is gently undulating, with slopes ranging from 0 to 2% (354 Ha), which represents 97% of the total surface, and soils with slopes greater than 4% (12.93 Ha).

4.9.3.1.2. Climatic characteristics.

In relation to the climatic characteristics of the community: the annual average temperature is 21 ° C, with minimums less than 0 ° C and maximums that exceed 40 ° C; solar radiation or insolation is very intense, associated with long duration and close to 14 hours a day in the summer months; annual rainfall is 1,500 to 1,600 mm per year; the annual mean potential evapotranspiration (ETP) is 1,100 mm; it has a moisture index of Thornthwaite B2 (wet above 40); the average frequency of frosts per year is a few days and can occur between the months of June to August; the winter season is normally the driest and coldest, reaching 0 ° C in the last year; spring and summer rains are usually characterized by the occurrence of high intensity, short duration and high erosive energy downpours.

4.9.3.1.3. Soil characteristics.



According to the Land Utilization Capacity map (SIG data), the soils of the Mberyvo community are class VI Stp Entisols with limited porous texture of the sandy control section: sand, loamy sand.

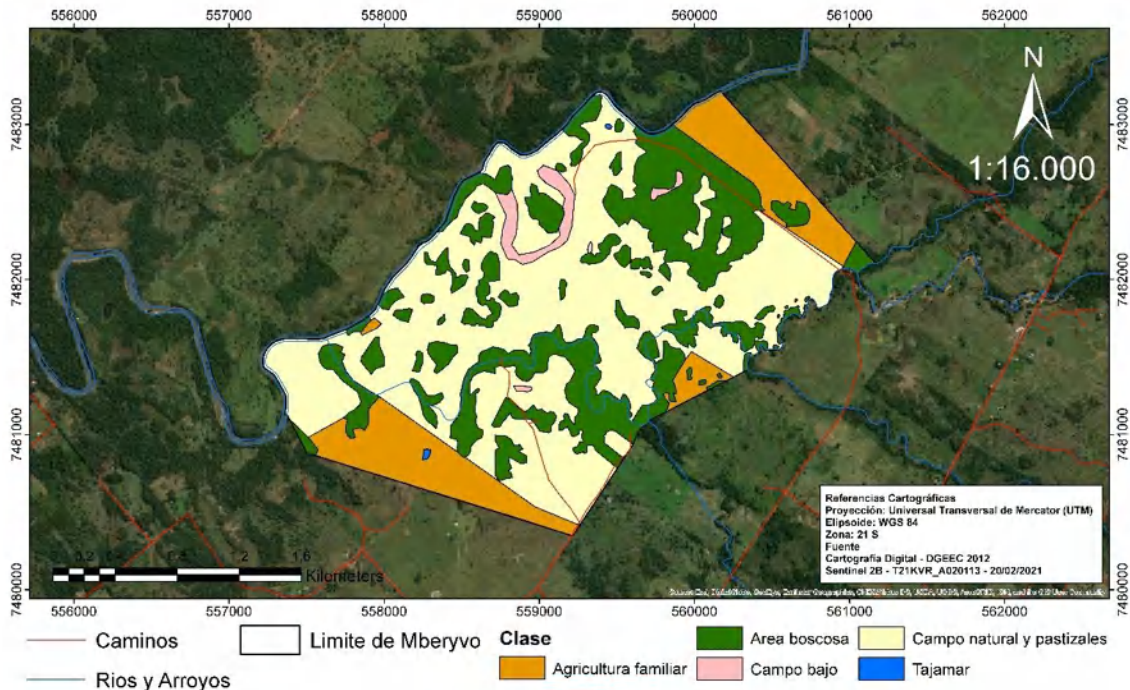
In short, in all its extension the community soils are class VI, lands with severe limitations, which do not allow its use for annual crops, but can be used for the production of perennial crops, forestry and pastures occasionally; For the development of agriculture for consumption in small areas, proper soil management must be carried out, it is recommended that it be carried out with organic matter, green fertilizers, avoiding burning, rotation and minimal tillage.

4.9.3.1.4. Current land use.

The area used for agricultural crops is currently approximately 171 Ha. The families of the community are mainly engaged in family agriculture for their own consumption, they sow cassava, corn, beans and sweet potatoes, basically in small areas.

The current use of land in the Community is shown below, the data of which were taken from cartographic data from the DGEEC and geo-processed by the technical team of the Natán Foundation.

Map 46. Land use of the Mberyvo community.



Source: self made.

Table 50. Distribution of land use in the Mberyvo community.

N°	Classification	Surface in Ha	% that represents
1	Forest	44,1	12
2	Sparse forest	120,1	33
3	Agricultural	171	46
4	Water	17,9	5
5	Low zone	13	4
	Total	366,1	100%

Source: Participatory Rural Diagnosis and individual interviews of this ESIA.

4.9.3.1.5. Water.

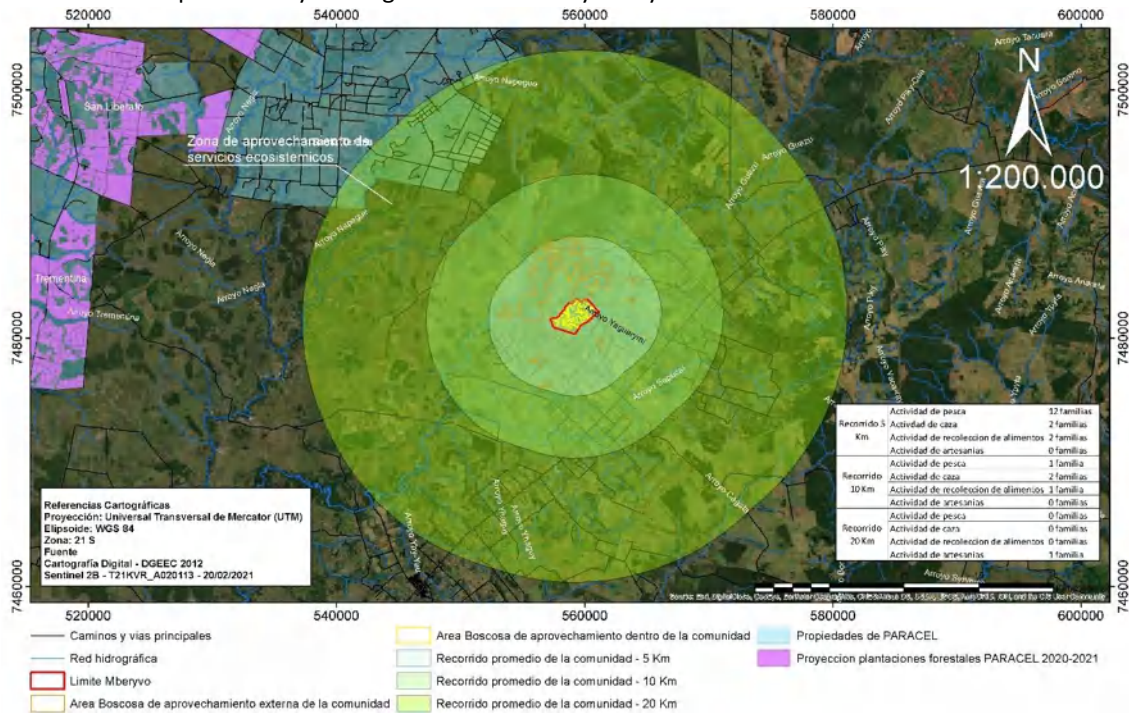
The Jaguary stream runs through the indigenous community, which closely borders the Aquidabán River, which constitute its main water courses. There are also springs that are sometimes sources of water supply, most families use water from the internal distribution network since they have an artesian font that is located in the school, 20% of families are supplied with water of springs and of the Aquidabán river, since they do not have enough pipes that can bequeath to their homes. The water table is 15 to 18 m deep.



Photo: bank of the stream.

4.9.3.1.6. Use of ecosystem services for livelihoods.

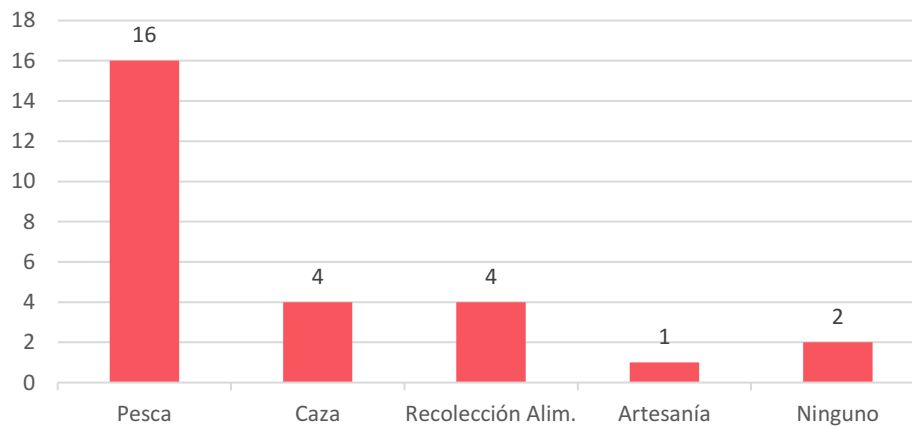
Map 47. Mberyvo Indigenous Community Ecosystem Services Utilization Zone.



Source: self made.

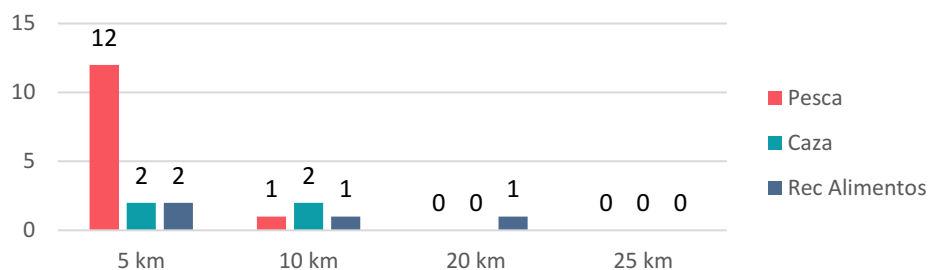
In the Mberyvo indigenous community, there are still families that practice hunting and fishing as a means of subsistence, and gathering as a complement to the means of subsistence and for the provision of vegetable fibers for the construction of houses and crafts and plants for the use in traditional medicine.

Graph 89. Families that carry out traditional means of subsistence in the Mberyvo community.



Source: own elaboration based on field collection.

Graph 90. Maximum distance traveled by the families of the Mberyvo community for the realization of traditional means of subsistence.



Source: own elaboration based on field collection.

In the graph “Families that carry out traditional means of subsistence - Mberyvo community”, it can be seen that there are still families in the community that practice traditional means of subsistence for the generation of food, mainly fishing. Subsequently, in the graph “Maximum distance that the families of the Mberyvo community travel for the realization of traditional means of subsistence” it can be seen that those families that practice means of subsistence and use of ecosystem services usually travel a maximum of up to 5 kilometers around their community.

4.9.3.1.6.1. Flora.

The Mberyvo indigenous community has 1642 Ha of forest formation, which is located within the “Central Selva” forest formation, characterized by the presence of a certain number of deciduous tree species, together with evergreen families, typical of these forests (Myrtaceae, Lauraceae, etc.).

The community's forests are highly fragmented and degraded as a result of extractive activities and unsustainable production systems. The sudden reduction of spaces with natural vegetation inevitably led to the alteration and / or disappearance of natural habitats and, consequently, to the loss of the diversity of native plant and animal species of the region. However, the local and regional ecosystem has a great capacity for recovery, which is expressed by the ease and speed with which secondary vegetation regenerates.

The families resort to the forests of their own indigenous community for the extraction of wood, fruits, honey, herbs and vegetable fibers, which are used for food, medicine, construction and as fuel for cooking or shelter on the coldest days.

Among the predominant forest species in the community:

Table 51. Characteristic flora species of the Mberyvo community.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Cedro	Cedrelafissilis
2	Guatambu	Balfourodendron riedelianum
3	Yvyra'ro	Pterogine nitens.
4	YvyraPyta	Peltophorum dubium
5	Guajayvi	Patagonula americana
6	Kurupa'yra	Parapiptadenia rigida
7	Laurel hu.	Nectandra megapotamica
8	Inga guasu	Inga vera
9	Palo de rosa	Tipuana tipu
10	Timbo	Enterolobium contortisiliquum
11	Peterevy	Cordia trichotoma
12	Aguai	Chrysophyllum gonocarpum
13	Palo Haya	Fagus sylvatica
14	Samuu	Ceiba chodatii
15	Laurel guaika	Ocotea puberula
16	Tajy hu,	Tabebuia heptaphylla
17	Jakaratia	Jacaratia espinosa
18	Cocotero	Acrocomia totai

Source: DRP Mberyvo 2021.

4.9.3.1.6.2. Fauna.

Hunting and fishing are some of the main sources of food for the families of the indigenous community. The frequency of these activities varies between families.

The mammals that are usually found are a very small number of armadillo (*dasyopus novemcinctus*), eirá (eira barbara), fox (*vulpes*), weasel (*mustela navilis*), monkey (*ateles*), capybara (*hydrochoerus hydrochaeris*) and acuti pac (*ctenomys*).

Reptiles commonly found are ñacanina (*hydrodynastes gigas*), ñuasó (*leptophis ahaetulla*), kyryryvó (*botrops neuweidii*), mboi hovy (*philodryas patagoniensis*), ñanduviré (*sybinomorphus turgidus*), snake (*leptophis ahaetulla*), senna royria, mboi alligator (*caiman latirostis*) kururú (*bufo*), puddle frogs (*olilogun*) and tree frogs (*hilan*).

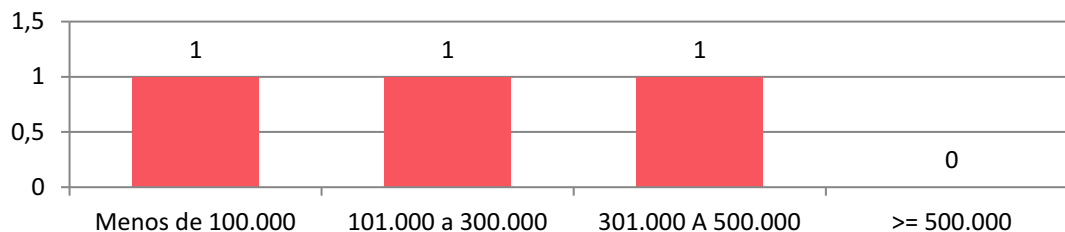
The birds that are usually found in the area are pycasu (*leptotila verreausi*), white heron (*egretta alba*), chopí, tero tero (*vanellus chilensis*), owl, ano (*crotophaga ani*), piririta (*guira guira*), alonsito, carancho (*polyborus plancus*), charata (*Ortolis canicallis*), parrots (*myiopsitta monacha*) in great variety and ravens (*crow corax*).

The fish that are usually found in the course of the Aquidabán river, in the Jaguar stream, in lagoons and ponds of the community, are the tareyi (*hoplias malabaricus*), mandii (*pimelodus omatus*), pyta pyta (*brycon orbignyanus*) and carimbata (*prochilodus lineatus*), among other species.

4.9.3.2. Economic area.

Being a rural indigenous community, the main economic activity is family farming and sporadic “changas” in nearby ranches, most of which are cleaning tasks or agricultural peonage.

Graph 91. Percentage of the population distributed by weekly economic income of the Mberyvo community (in Guaraníes).



Source: own elaboration based on field collection.

Among the entire population of the community, 3 people are doing paid work, of which 1 person receives weekly income that fluctuates between Gs 301.000 and Gs 500.000, 1 person receives income between Gs 101.000 and Gs 300.000 and 1 person receives a weekly income of less than Gs 100,000, no one receives a weekly income of more than Gs 500.000.

4.9.3.2.1. Primary production.

4.9.3.2.1.1. Agricultural.

The main characteristic of this community in terms of agricultural production is that it is used almost entirely for family consumption. The main items are cassava, corn in the white and tupi varieties, beans, peanuts, sweet potatoes and beans.

Most of the families are dedicated to carrying out daily trades in neighboring communities or livestock establishments, carrying out cleaning and harvesting tasks on the farms with a payment that averages 70.000 Gs. per day.

4.9.3.2.1.2. Livestock.

No livestock activities are developed in the community, but there are small animals, such as pigs and poultry, in small numbers.

4.9.3.2.1.3. Forest.

The forest formations of this community show, due to the influence of climate and geography, a type of transition characterized by forests interspersed with extensive fields and estuaries, many forest and woody species are observed, such as those mentioned above. The dominant species are

kurupay (*Anadenanthera peregrina*), pinkish lapacho (*Tabebuia*), yvyra hu (*Terminalia argentea*) and ka'a oveti (*Luehea candicans*).

In the upper stratum there are species such as: guatambú (*Balfourodendron riedelianum*), tajy (*Tabebuia heptaphylla*), samu'u (*Ceiba speciosa*), yvyra pyta (*Peltophorum dubium*), handsome'y (*Ficus enormousmis*) and aguai (*Chrisophyllum gonocarpum*).

However, there are some shrubs such as koku (*Allophylus edulis*), and yvyra ovi (*Helietta apiculata*). Likewise, species characteristic of gallery forests such as the yvyra ta'i (*Pilocarpus pennatifolius*) and the inga guasu (*Feuilleea uruguensis*) develop at the edge of water courses, on floodable, humid and fertile soils.

4.9.3.2.1.4. Work force.

There are no draft animals or oxen or others that can be used for the development of agricultural work.

4.9.3.2.1.5. Machinery and equipment.

The families have minor tools with more than 4 years of use, these tools were provided by the Ministry of Agriculture through the PRODERS project. Currently, the possession of these tools should be strengthened as they are deteriorating and need more.

The agricultural implements identified are the machete, knives, hoe, shovel and axes, manual seeders and with very low quality and years of use that makes it difficult to do a good job in the fields, it is another of the points to improve for this community.

4.9.3.2.1.6. Technology.

The use of state-of-the-art technology for production is not detected. The sowing system practiced is the conventional one, with the clearing of the area to be cultivated and subsequent burning of the weeds, to carry out the sowing with hoe or yvyra haku. A common practice is monoculture.

Postharvest handling is performed frequently, the practice of storing both corn and bean seeds in plastic containers for future plantings and for human consumption.

They do not use chemical or natural products, if they pour "ñembo'e jere" around the crop to control pests, a system applied by the elderly. No knowledge of soil management practices is detected.

4.9.3.2.1.7. Production supplies and materials.

The seeds used are from their own production, the result of storing grains from the previous season and the exchange of seeds that are not available on the farm (post harvest), but the

quantities of seeds available are minimal and do not supply the quantities required to carry sowings necessary to cover food and sale.

4.9.3.2.2. *Secondary production.*

No secondary production was found in the community.

4.9.3.2.3. *Services.*

4.9.3.2.3.1. *Technical assistance.*

From 2015 to 2020, families were receiving technical assistance from MAG's PRODERS, whose functions ceased due to the end of the project.

4.9.3.2.3.2. *Commercialization.*

Marketing is informal and reactive, they only sell when they have a surplus of the volume that they have destined for consumption, mainly cassava or corn. Generally, they market their products in the community itself or in the surroundings - peasant communities or nearby cities.

The products they usually sell and the prices they know are: tupi corn at a price of around Gs 1.500 per kg, cassava at Gs 1.500 per kg and sesame once a year at an average price of Gs 6.500 per kg.

4.9.3.2.3.3. *Financing.*

Each producer family plans and finances its production according to its possibilities. No institution accompanies families in financing for production and they do not have access to public or private loans.

4.9.3.3. *Social area.*

4.9.3.3.1. *Social area.*

In the community there is a school called “Mberyvo Jaguarymi School” with coverage from kindergarten to sixth grade. Four teachers who teach in the multi-grade system and 34 students work at the school.

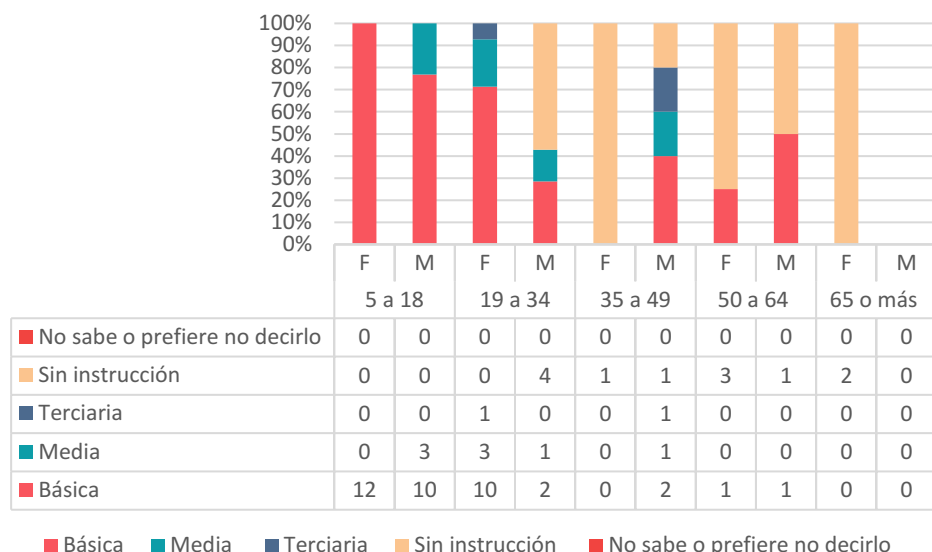
The school infrastructure has three pavilions, two classrooms and an administrative room with a kitchen, the school infrastructure is made with brick walls, tile roof and ceramic floor. The classrooms are equipped with furniture and educational toys.



Photo: community.

In the school, classes are not taught for the third cycle of basic education (7th to 9th grade), this problem forces children and young people to migrate to other communities or to drop out of school leaving their formal education incomplete. The majority of young people and adults do not have a secondary education, since they did not even finish basic school education.

Graph 92. Distribution of the population by age range and gender according to educational status in the community of Mberyvo. F = female | M = male.



Source: own elaboration based on field collection.

Thanks to the field work, it was observed that the educational status of men and women in the indigenous community of Mberyvo has differences in all age ranges, showing that women face a greater gap in formal education than men. Comparing generational groups, it can be seen that the new generation of girls, boys and young people between the ages of 5 and 18 has experienced a significant change in schooling, with 100% of this segment enrolled in basic or secondary education.

The number of students per grade taught at the school can be seen below:

Table 52. Number of students by academic grade.

NUMBER OF STUDENTS BY ACADEMIC GRADE	
Includes people over 18 years of age	
Grade	Number of students
1º	7
2º	7
3º	10
4º	5
5º	5
Total	34

Source: DRP Mberyvo 2021

4.9.3.3.2. Health and sanitation.

4.9.3.3.2.1. Health and conventional medicine.

Regarding conventional health, they do not have a nearby health post. If they cannot treat the diseases with their traditional remedies, they resort to the USF health post located 15 km from the community or to the Yby Ya'u Health Center which is about 50 km away. health centers mentioned on a quarterly basis or when the seriousness of the health condition requires it. Serious cases are referred to the Regional Hospital of Concepción, Hospital de Limpio or other health centers in Asunción. According to the indigenous people of the community, they need a more frequent visit from the doctors to the community since most of the time it is difficult for them to go out to the town.

The most frequent illnesses are flu problems, stomach pain, internal and external parasite problems (bite, worm louse, etc.), in adults headaches, tooth pain, vomiting, diarrhea. The dental problems that afflict the community are visible, especially the loss of teeth.

4.9.3.3.2.2. Health and traditional medicine.

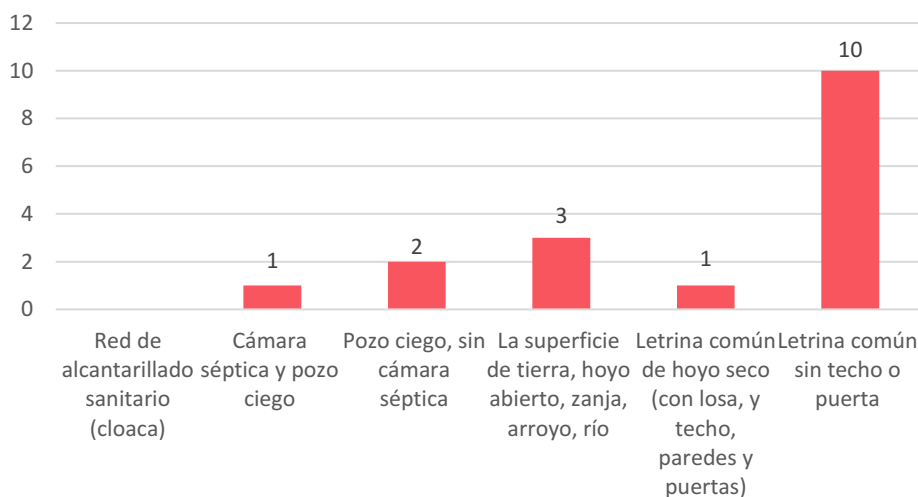
The medicinal practice based on the use of "yuyos remedies" is widely used in the community, that is, of the flora of the forests, using different types of roots, leaves, barks, fruits and vegetables.

Sometimes they also resort to prayer for the sick, this cultural practice is developed by the oldest in the community.

4.9.3.3.2.3. Sanitation.

In the Mberyvo community, most of the houses have latrines.

Graph 93. Types of drains used by the families of the Mberyvo community.



Source: own elaboration based on field collection.

As can be seen in the graph, 82% of the families use a latrine in their homes. Most of the dwellings (59%) have a common latrine without a roof or door and whose drain consists of the surface of the earth or a shallow hole.

4.9.3.3.2.4. *Waste management.*

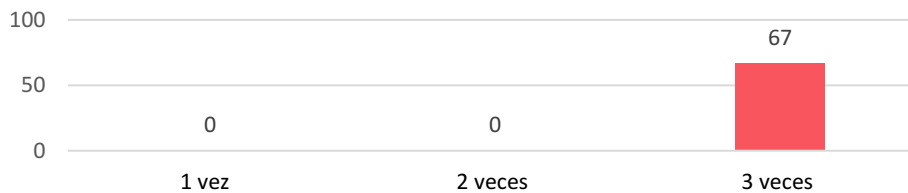
Solid and liquid domestic waste is deposited around the houses, in many cases solid waste is burned and there is no adequate treatment for this type of waste.

4.9.3.3.3. *Feeding.*

Traditionally the Paï Tavyterâ are hunters, gatherers, fishermen and farmers. The traditional crops for consumption are corn, cassava, beans, fruits; They also consume wild animals and fish that serve as a source of protein.

Purchases for basic household supplies are made in a warehouse located in the community, also on the outskirts where sugar, salt, oil and other merchandise are supplied.

Graph 94. Frequency of feeding according to number of people.



Source: own elaboration based on field collection.

When families were asked about their feeding frequency, 100% stated that they eat 3 times a day.

On occasions, families receive donations from the INDI or other public institutions that provide assistance with food to the families.

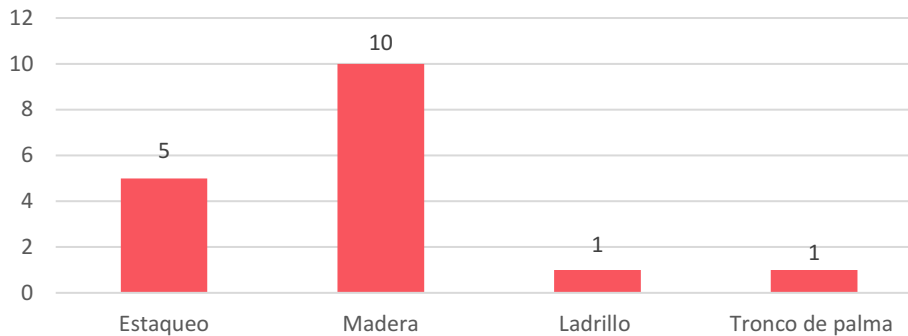
4.9.3.3.4. *Housing.*

The vast majority of the houses are precarious constructions with stacking walls, the roofs are made of sheet metal and / or thatch and the floors are made of rammed earth. In almost all cases they have a single bedroom for the whole family, presenting problems of overcrowding, they do not have adequate toilets, only precarious latrines, a very small number of houses have electricity.



Photo: palm trunk house.

Graph 95. Type of material used for the construction of the house.



Source: own elaboration based on field collection.

Graph 96. Type of material used for the roof of the house.



Source: own elaboration based on field collection.

In the preceding graphs, it can be seen that 59% of the houses are made of wood and 29% are made with staking. Regarding the roofing material, 63% have thatch roof and 36% use zinc sheet.

Of the 17 homes, 4 of them have electricity that uses the ANDE power lines as a source and 13 homes do not have electricity.

4.9.3.3.5. Safety.

The families mention that being few, they go to take care of each other. Families state that they do not routinely face security problems, rather than relationships due to internal conflicts heated by differences of opinion. When the community faces a security situation that they cannot control, they decide to go to the police station.

In general, families mention that they feel safe in their community and that they do not perceive crime in the area to a large extent, apart from the insecurity they feel due to illegal organized groups and which are publicly known at the national level.

4.9.3.3.6. Social organization and own political institutions.

In the community they have a system of community organization where there is a leader elected in assembly, whose mandate is revoked only when he dies or because the community finds that he is in serious fault. The leaders are called caciques and in Mberyvo there are two.

Before the political leaders were also Tekoaruvicha (religious leaders), but nowadays they are not usually the same person. This is because political leaders have to be recognized by the State for their qualities to mediate and deal with institutions and non-indigenous people.

Table 53. Leaders of the Mberyvo Indigenous community.

Role	Name
Political leader	Celia Benitez
Political leader	Marlene González

Source: own elaboration based on field collection.

For every Paraguayan citizen, it is necessary to obtain the Birth Certificate and the Identity Card. In addition to the two documents mentioned, indigenous people must obtain their Indigenous Card to fully enjoy all the benefits, programs and public policies that the State has provided for the indigenous population. However, not all members of the community have this documentation.

Next, it is observed in the following Table that, of a total of 67 people residing in the community, how many claim to have these documents.

Table 54. Register of identification documents in Mberyvo.

Birth certificate	Indigenous card	ID
47	57	57

Source: own elaboration based on field collection.

4.9.3.3.7. Institutional aspects.

The community regularly interacts with external institutions such as the MEC, the police station and, as a result of this study, PARACEL. The community is also related to a lesser extent with the INDI, the Government, MOPC, MAG, Municipality and MUVH.

4.9.3.3.8. Cultural heritage.

The community continues to practice Pai Reko, a set of knowledge and practices that are at the basis of Paî life and that are expressed in various aspects: Teko Katu, Teko Porã, Teko Joja, Teko Upyty, Teko Johayhu, Teko Piro 'y and the Teko Marane'y.

Among the traditions that are still practiced are the mitâ pepy (male initiation ritual), the avatykyry (celebration of corn) and the ñembo'e (dance-based practice). The Paî usually dress in a traditional way with cotton or wool clothes that are worn with fringes and feather crowns and ritual objects and musical instruments. The community makes handicrafts that are occasionally sold.

4.9.3.3.9. Religious aspects and spiritual beliefs.

The Mberyvo community belongs to the Paî partiality, which has rites that are made up of dances and religious songs, some of them usually last several days, but lately they are not practicing it for reasons that they do not have the sacred temple which they call " Oypysy "and because they

do not have the inputs to prepare kagui or chicha, a spirit drink, which is manufactured by themselves from corn or cassava.

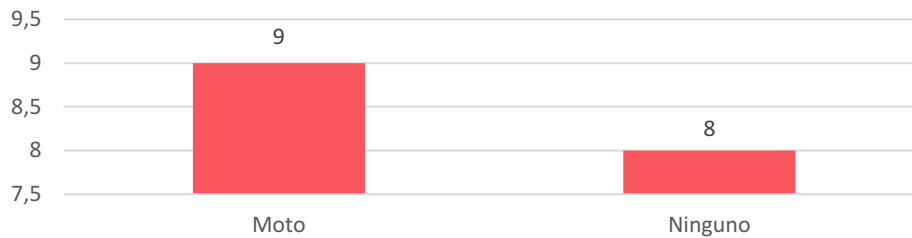
4.9.3.3.10. Public services infrastructure.

Water supply: 80% of the inhabitants consume water from taps that reach the garden of their houses, thanks to the school's artesian font and distributed by pipes. 20% of the population does not have this service due to lack of distribution materials, so they must be supplied with water from the Aquidabán river.

Electric power: 90% of the families do not have electricity since the transformer supplies only the school and a very small number of families.

Transport and road infrastructure: they do not have internal roads to get to the houses, so they have to cross pastures and fields dirty with weeds. There are no public or private means of transportation that reach the community, families who do not own motorcycles must walk several kilometers on foot to be able to leave the community. In rainy seasons the Jaguary stream overflows and due to the lack of a bridge, people have to swim across, if the person is ill or old, it is difficult to reach the other shore.

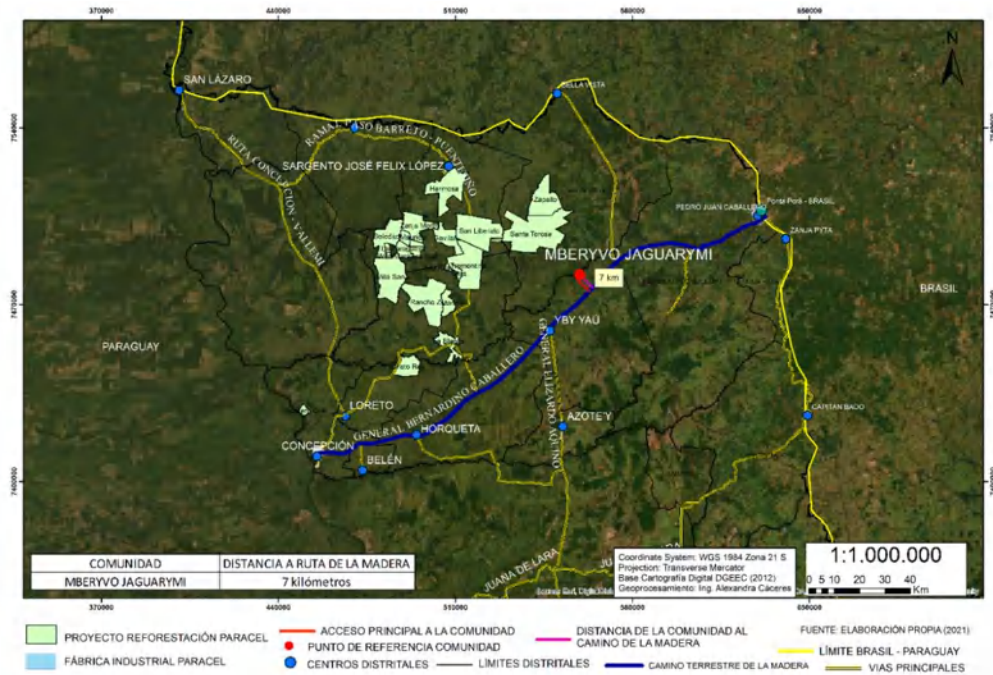
Graph 97. Means of transport used by the family.



Source: own elaboration based on field collection.

In the graph "Means of transport used by the family" it can be seen that 53% of families use the motorcycle as a means of transport.

Map 48. Distance of the Mberyvo community with respect to the terrestrial timber road.



Source: self made.

The indigenous community Mberyvo They are 7 kilometers from the General Bernardino Caballero route, also called “the wood route”. It is not identified that the transport of wood or the increase in traffic on the route will affect the community.

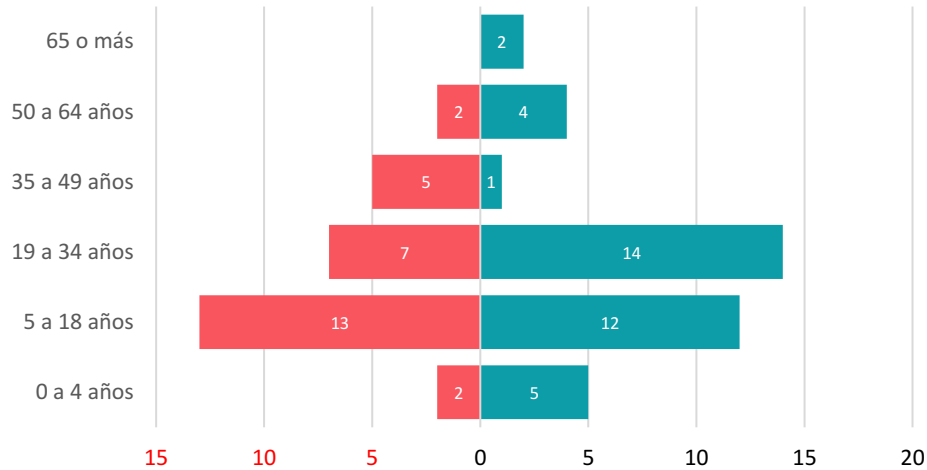
Communications: the mass media are participatory meetings. Some indigenous people use cell phones and radios that connect to radio stations in the area.

4.9.3.3.11. Demographic aspects.

The extensions of land occupied by families for homes and farms are defined according to their needs and they are expanded if their needs grow.

Regarding demographic aspects, the number of people settled in the community is approximately 67 people, a greater number are women and young people, distributed in 17 families.

Graph 98. Distribution of the population by gender and age range for the Mberyyo Indigenous Community. Men | Women.



Source: own elaboration based on field collection.

The Mberyyo population pyramid shows that 48% of the population is distributed between 0 and 18 years of age. It can also be seen that the population of adults over 65 years of age or older represents 3% of the total population, significantly less than 6.63% of the national population of Paraguay in the same age range (DGEEC, 2019), which reflects a lower life expectancy and, possibly, less access to quality health services, varied and nutritious food sources, risk of accidents, among others.

It should be noted that in the Mberyyo indigenous community it was found that a family states that at home they take care of a person with a disability.

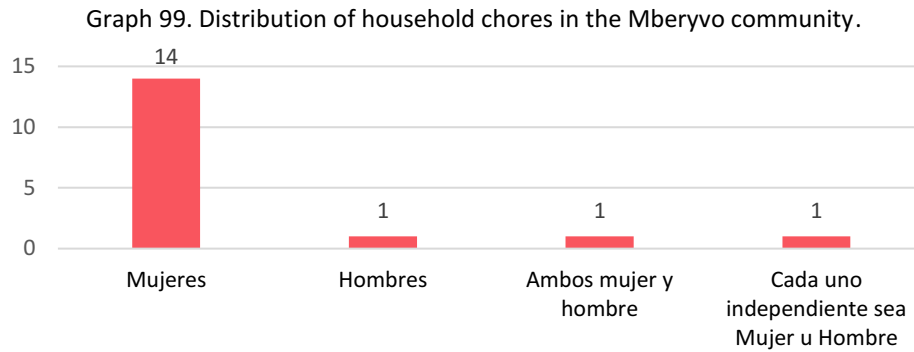
4.9.3.3.12. Migration.

Pendular migration between Pai Tavytera communities is a deeply rooted custom in the ethnic group. Families report in the DRP workshop that people are migrating to cities for work or to other communities to find a partner and start a family.

In the community there are 17 inhabited dwellings and, according to the interviewees, there were 27 houses 6 years ago that were abandoned due to the progressive migration of their inhabitants.

4.9.3.3.13. Gender.

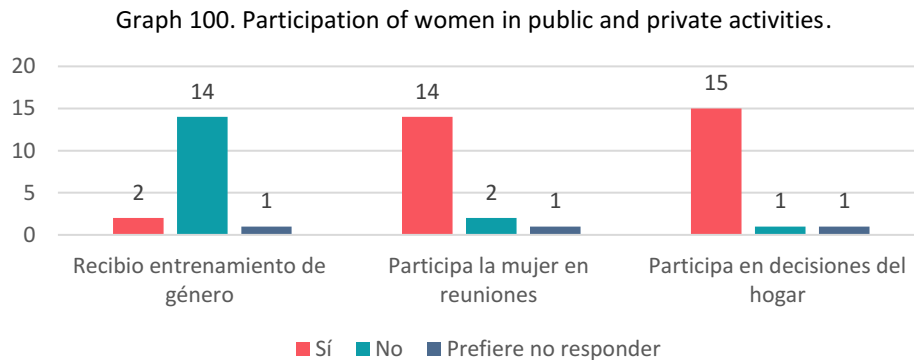
It was found in the field work that the roles of men and women are very well defined. In most cases, men are in charge of working outside the community, while women are dedicated to domestic tasks, both men and women are in charge of working in family agriculture.



Source: own elaboration based on field collection.

In the graph “Distribution of household chores in the Mberyvo community” it can be seen that in 82% of households the woman is in charge of carrying out household chores -washing clothes, cooking and cleaning- and taking care of the children. kids.

In relation to family planning, it was detected that in couples it is the woman who is mainly responsible for the use of contraceptive methods. In the field work, 6 women stated that they used injectable contraceptive methods and the rest stated that they did not use any contraceptive method.



Source: own elaboration based on field collection.

Regarding the participation of women, 12% of families mention having received gender training, 82% of families mention that women participate in public meetings and community assemblies and 88% of families state that women participate in household decisions.

4.9.3.3.14. Human rights.

Some indigenous people state that when they go to the city and have to interact with other people in supermarkets, public offices or hospitals, they feel that they receive a different treatment compared to the treatment received by people who are not indigenous.

Regarding work, some people of working age comment that it has happened to them that they have received a lower payment for doing the same work than other people who are not indigenous and that, from time to time, they do not receive food, while the others do receive.

In general, it is observed that older children take care of their younger siblings and that they collaborate in housework and work on the farm, putting aside their studies.

Although the police come to their aid when they have a security need that they cannot solve independently, the distance between the police station and the community and the lack of good roads means that the police take a long time to arrive.

Regarding the right to privacy, a high level of overcrowding of families is observed in small houses with one or, in the best of cases, two rooms.

Regarding the right to nationality, the families mention that the processes for obtaining birth certificates, identity cards and indigenous cards are centralized through the INDI with offices only in the city of Asunción. The INDI usually activities in situ in the communities for the preparation of these documents, but these activities are infrequent. Families usually collect money to send the chief to Asunción to manage several certificates in the same trip.

The families state that they do not feel trust in the political groups and that, during election periods, some political groups go to the community to request that they rent or lend them their identity cards so that they can be used in voting by other people.

It can be observed in the field work, that a large number of families do not have access to drinking water and sanitation. Sanitation conditions are precarious, with families who use the flat directly to relieve themselves.

4.9.3.4. Summary of the baseline of the indigenous community.

The families of the community implement various rudimentary production activities in order to cope in the best possible way with the precarious socioeconomic situation in which they live. Families perceive a deterioration in the terms of trade that seems to be increasingly unfavorable for indigenous families. Families perceive that their agronomic yields are decreasing each year and that it is increasingly difficult for them to access the market under conditions.

In relation to the soil, it is characterized by being loamy-sandy, whose fertility is very limited, which causes constant changes of planting place because they do not yet incorporate soil management techniques and whose consequence is seen in the low yield of their crops.

The indigenous culture is weakened by the influence of nearby peasants, whom the indigenous call "the Paraguayans."

According to the families, the situation in the community becomes very difficult every day, especially for those families with children, as this segment expresses expectations about their future

that will hardly be possible due to the conditions of poverty, vulnerability and exclusion. in which they live, with insufficient income that they get by working as a farmer, low technological quality to support production and little inclusion in the market. Some families report feeling dependent on the income they receive working in nearby ranches, but that many times the income does not compensate for the costs of putting aside their own family farming, which leads many young people to decide to migrate to urban centers where it seems to be more easy to find work.

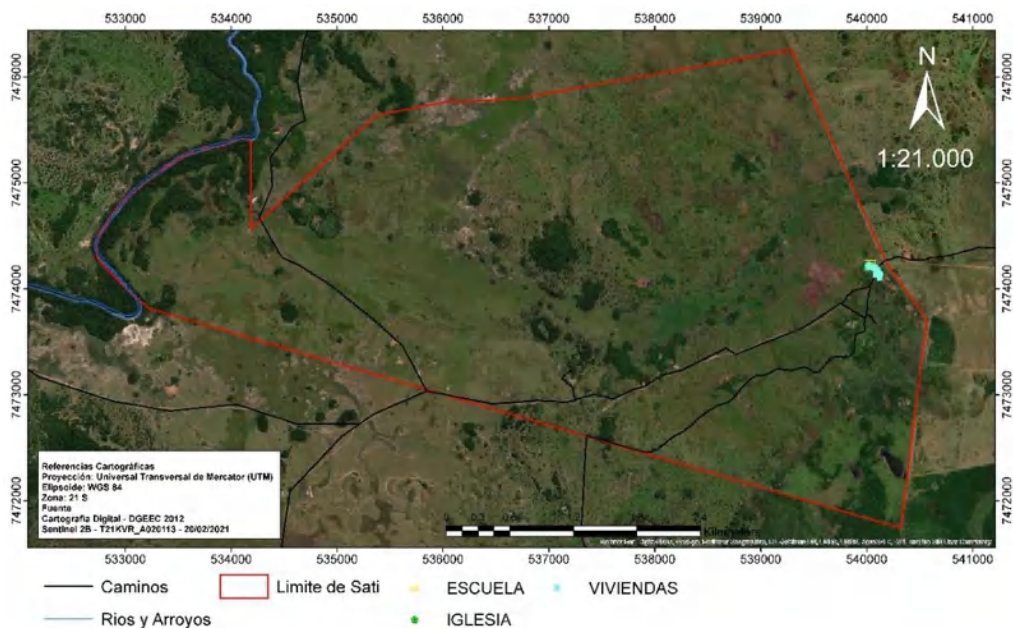
Throughout the diagnosis stage, the community leaders and members supported all the work, actively participating in the informative meetings, the planning and the Participatory Rural Diagnosis, always in an atmosphere of enthusiasm, cooperation and respect.

4.10. Sati - Pai Renda Chiru Poty Indigenous Community.

4.10.1. General characteristics of the community.

The Sati - Pai Renda Chiru Poty community has an area of 2535 Ha, has been located for 43 years in the Amambay Department, Bella Vista district, 30 km from the city of Yby Yaú, Concepción district. The indigenous community borders several estancias, including San Juan, Ara Mburu, Paso Porã and Arroyo Negla.

Map 49. Location of the Sati indigenous community.



Source: own elaboration based on field collection.

Map 50. Locations of the Sati indigenous community.



Source: own elaboration based on field collection.

Table 55. Sati indigenous community descriptive file.

Item	Description
Community name	Sati - Chiru Poty.
Surface	2535 hectares.
Department	Amambay.
Recognized leader	Ada Maria González.
Population	156 people, divided into 35 families.
Contact dates	December 09, 13 and 16 of the year 2020 and March 16 of the year 2021.
Linguistic family	Guaraní. The language they mainly speak is Guaraní.
Ethnicity	Paí Tavyterá.
Community type	Rural.
Geographical coordinates	Longitude (X) m, 536 498.06 Latitude (Y) m, 7471769.00
Nearest PARACEL property	Trementina Farm.
Distance from the closest PARACEL property	10 kilometres.
Pathways to the community	The main common road is Route 5, 10 kilometers from the Yby Yaú district, it is crossed by private ranches that do not belong to PARACEL.
Protected wild areas (ASP)	The indigenous community is not located inside an ASP and does not claim to interact with an ASP that is on PARACEL's properties.

Watercourses	The indigenous community is 5 kilometers from the Aquidabán River and 4 kilometers from Arroyo Negla, which it shares with the properties of PARACEL.
Traditions and customs	The indigenous community does not claim to carry out ancestral activities and rites within PARACEL's properties, including the prospected factory and ranches. The community claims to practice hunting and / or fishing within and outside their territories and the collection of plants for activities of domestic use, such as food and healing therapies, but not within the PARACEL lands.
Social indicators and expectations	The community expresses interest in improving their health, education, security and economic conditions.

Source: self made.

4.10.2. Process description.

Individual interviews and implementation of surveys	<ul style="list-style-type: none"> On March 16, 2021, individual surveys were conducted for each family
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Foto: firma del permiso.



Foto: reunión o aty guazu.

Direct observation and key points	<ul style="list-style-type: none"> During all visits, the community environment was explored and photos were taken of internal locations for observation of the biophysical environment, identification of ecosystem services and key locations, and as a way of verifying the information gathered.
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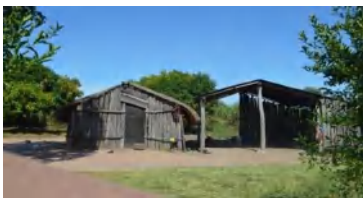


Foto: vivienda indígena.



Foto: tanque de agua.



Foto: iglesia evangélica.

Authorization to consultation and socialization of the project (Aty guasu)

On December 13, 2020, the meeting and signing of the minutes of the authorization to consult and the socialization of the project took place.



Photo: delivery of the evaluation of forest impacts.



Photo: meeting o aty guazu.

Free, prior and informed consent

On December 16, 2020, the meeting and signing of the minutes of the Free, Prior and Informed Consent was held.



Photo: signature of the minutes.



Photo: CCLPI meeting.

Participatory Rural Diagnosis Workshops

On March 16, 2021, Participatory Rural Diagnosis Workshops was held.



Photo: DRP workshop.



Photo: DRP workshop.



Photo: DRP workshop.

4.10.3. Community diagnosis.

4.10.3.1. Environmental Area.

4.10.3.1.1. Physiographic characteristics.

4.10.3.1.1.1. Geological characterization.

The geological formations of the community are Precambrian and Paleozoic, occupying physiographic configurations that are preferentially developed on residual soils derived from sandstone.

4.10.3.1.1.2. Hydrological characterization.

The community is adjacent to the Aquidabán river so the hydrological characteristics are consistent with the basin of the mentioned river, the community so the drainage is of the dendritic type with channels that run in all directions, this pattern indicating the homogeneous condition parental material in the drainage area.

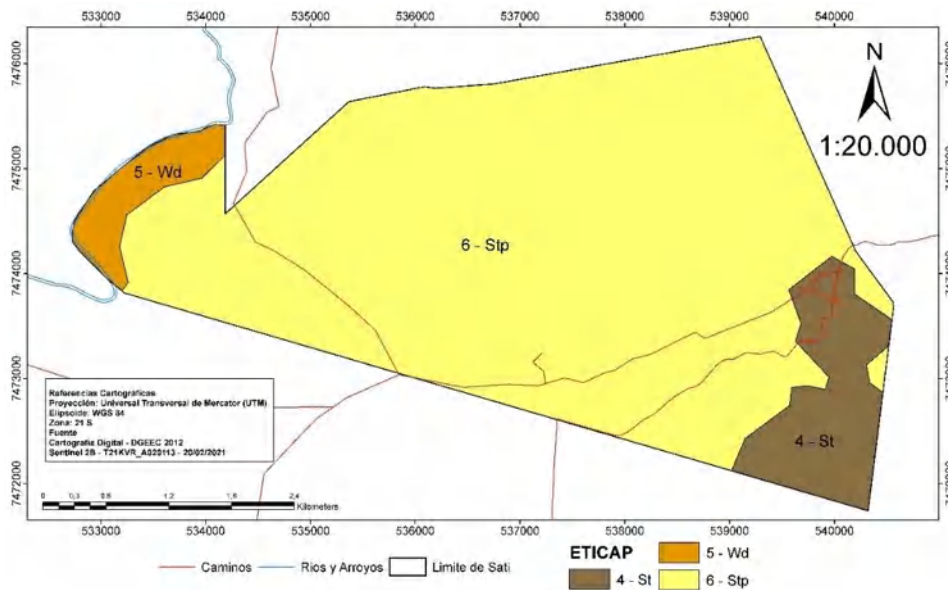
The water courses in which the families fish are not used for navigation and will not be affected by the river transfers that PARACEL will carry out.

4.10.3.1.2. Climatic characteristics.

In relation to the climatic characteristics of the community: the annual average temperature is 21 ° C, with minimums less than 0 ° C and maximums that exceed 40 ° C; solar radiation or insolation is very intense, associated with long duration and close to 14 hours a day in the summer months; annual rainfall is 1,500 to 1,600 mm per year; the annual mean potential evapotranspiration (ETP) is 1,100 mm; it has a moisture index of Thornthwaite B2 (wet above 40); the average frequency of frosts per year is a few days and can occur between the months of June to August; the winter season is normally the driest and coldest, reaching 0 ° C in the last year; spring and summer rains are usually characterized by the occurrence of high intensity, short duration and high erosive energy downpours;

4.10.3.1.3. Soil characteristics.

Map 51. Land use capacity of the Sati community.



Source: self made.

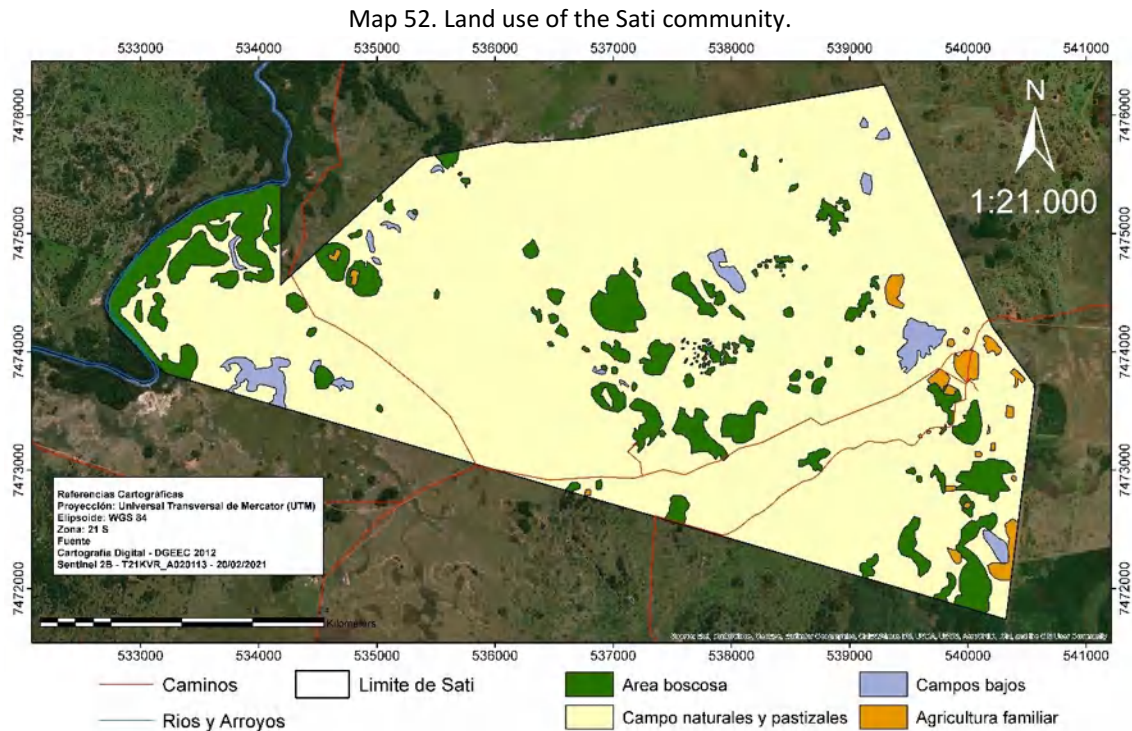
According to the use capacity map (SIG data), the soils of the Sati - Pai Renda Chiru Poty community have a percentage belonging to the class VI Stp of 86.87%, with general limitations for agricultural use, reducing the options for cultivation, with implications of conservation practices and classification of land as non-arable.

The presence of class 4 - St is identified in 9.23% and type 5-Wd in 3.9%, both types of soils present moderate agricultural use limitations, very limited options for crops, and require complex conservation practices, belonging to the general classification arable.

4.10.3.1.4. Current land use.

The area for crops is currently 5.09 Ha. The families of the community are mainly engaged in family farming in small areas, planting beans, cassava, sweet potatoes, corn, squash and feijao. The destination of these crops is self-consumption.

The current land use of the community is shown below, the data of which were taken from cartographic data from the DGEEC and geo-processed by the technical team of the Natán Foundation.



Source: self made.

Table 56. Table of land use distribution of the Sati community.

N°	Classification	Surface in Ha	% that represents
1	Wooded area	236,61	9,33
2	Natural field and grasslands	1777,19	70,11
3	Low fields	38,49	1,52
4	Family agriculture	5,09	0,20
	Total	2535	100%

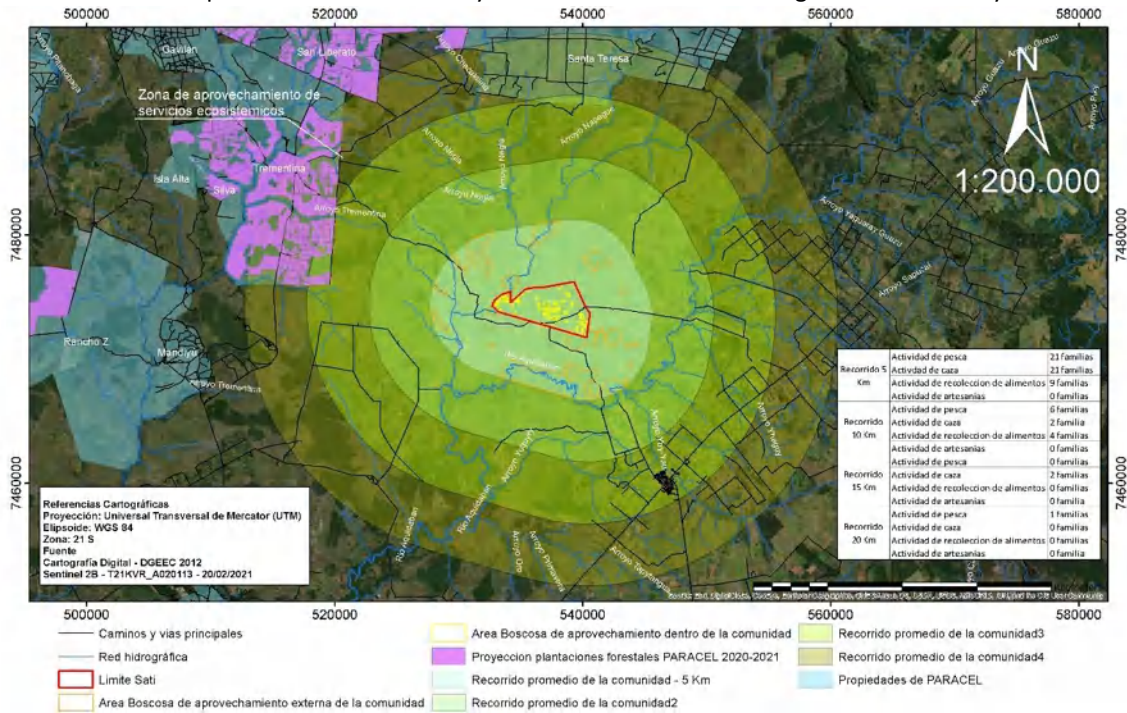
Source: self made.

4.10.3.1.5. Water.

The Sati community in its limits to the Northeast borders the Aquidabán River. Within the limits of their property there is a stream that, eventually, families use for fishing. The community has an artesian well for water supply. Some families often organize fishing trips to Negla stream.

4.10.3.1.6. Use of ecosystem services for livelihoods.

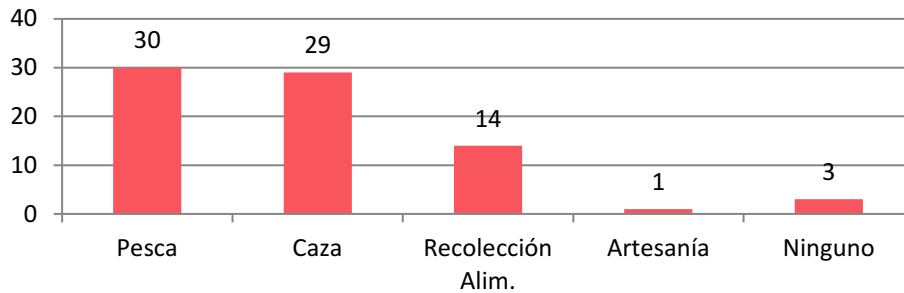
Map 53. Zone of use of ecosystem services of the Sati indigenous community.



Source: self made.

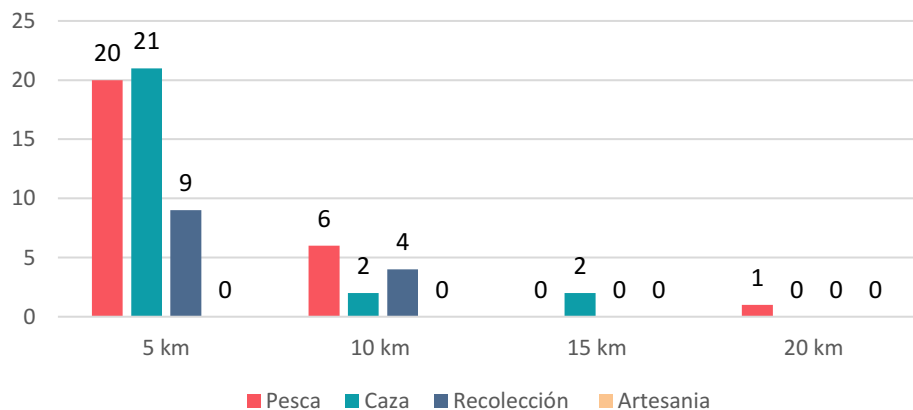
In the Sati indigenous community there are families that practice fishing and hunting activities, as a means of subsistence, the collection practices are carried out to find food that complements their diet and for the supply of vegetable fibers for the construction of houses, handicrafts and of plants for use in traditional medicine.

Graph 101. Families that carry out traditional means of subsistence in the Sati community.



Source: own elaboration based on field collection.

Graph 102. Maximum distance traveled by the families of the Sati community for the realization of traditional means of subsistence.



Source: own elaboration based on field collection.

In the graph "Maximum distance traveled by families in the Sati community for the realization of traditional means of subsistence" it can be seen that those families that practice means of subsistence and use of ecosystem services tend to travel the maximum frequency of repetition coinciding with the fact that Most of the families travel a radius of 5 km from their community for fishing, hunting, gathering food and supplying vegetable fibers for handicrafts.

4.10.3.1.6.1. Flora.

The Sati indigenous community has 236.61 Ha of forest formation, with tree species belonging to the fabaceae family such as the vyvra pytãtimbo - peltophorum dubium, the timbo - enterolobium contortisiliquum, among other species characteristic of the area that are listed below the predominant forest species in the community.

Among the predominant forest species in the community:

Table 57. Characteristic flora species of the Sati community.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Cedro	Cedrelafissilis
2	Guatambu	Balfourodendron riedelianum
3	Yvyra'ro	Pterogine nitens.
4	YvyraPyta	Peltophorum dubium
5	Guajayvi	Patagonula americana
6	Kurupa'yrá	Parapiptadenia rigida
7	Laurel hu.	Nectandra megapotamica
8	Inga guasu	Inga vera
9	Palo de rosa	Tipuana tipu
10	Timbo	Enterolobium contortisiliquum
11	Peterevy	Cordia trichotoma
12	Aguai	Chrysophyllum gonocarpum
13	Palo Haya	Fagus sylvatica
14	Samuu	Ceiba chodatii
15	Laurel guaika	Ocotea puberula
16	Tajy hu,	Tabebuia heptaphylla
17	Jakaratia	Jacaratia espinosa
18	Cocotero	Acrocomia totai

Source: DRP, Sati Indigenous Community.

The families resort to the forests of their own indigenous community for the extraction of wood, fruits, honey, herbs and vegetable fibers, which are used for food, medicine, construction and as fuel for cooking or shelter on the coldest days.

4.10.3.1.6.2. Fauna.

Hunting and fishing are some of the main sources of food for the families of the indigenous community. The frequency of carrying out these activities varies among families; in community workshops it was obtained that the average frequency of this type of subsistence activities varies from 1 to 3 times a week.

The families of the community take advantage of the natural resources of the Negla stream and the Aquidabán river to practice fishing. Hunting is practiced in the community forest and occasionally in nearby private farms, Cerro Cora and Santa Amalia, none of these farms are part of PARACEL's properties.

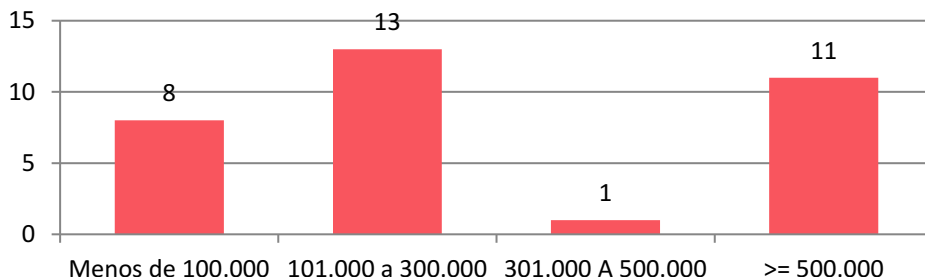
The species collected from the fishing activity are the tareyi (*hoplias malabaricus*), mandii (*pimelodus omatus*), pyta pyta (*brycon orbignyanus*) and carimbata (*prochilodus lineatus*), among other species, mentioned extraction is carried out using tarrafa as the main method of fishing.

Regarding hunting, the main species that hunt are armadillo (*dasybus novemcinctus*), eirá (*eira barbara*), fox (*vulpes vulpes*), weasel (*mustela navilis*), monkey (*ateles*), capybara (*hydrochoerus hydrochaeris*) and acuti pac (*ctenomys*).

4.10.3.2. Economic area.

The members of the Sati indigenous community tend to perform sporadic jobs to earn income, the men are mostly engaged in agronomic peonage tasks, while the women tend to work as domestic workers in nearby farms, among them the Santa Teresa ranch belonging to PARACEL.

Graph 103. Number of people who declare weekly income in the Sati community (in Guaraníes).



Source: own elaboration based on field collection.

Out of a total of 33 people in the community who reported having weekly incomes, 13 people said they received weekly incomes between Gs 101.000 and Gs 300.000, followed by 11 people who received weekly incomes greater than Gs 500.000, 8 people who received weekly incomes less than Gs 100.000 and 1 person who receives weekly income between Gs 301.000 and Gs 500.000.

4.10.3.2.1. Primary production.

4.10.3.2.1.1. Agricultural.

The main characteristic of this community in terms of agricultural production is that it is mostly used for self-consumption. The families carry out a traditional production system, with a predominance of monoculture, sowing mainly beans, cassava, sweet potatoes, corn, squash and feijao. They do not have enough seeds for self-consumption.



Photo: cassava cultivation.

4.10.3.2.1.2. Livestock.

No livestock activities are developed in the community, but there are small animals, such as pigs, sheep, and birds in small numbers.

4.10.3.2.1.3. Forest.

The forest formations of this community show, due to the influence of climate and geography, a type of transition characterized by forests interspersed with extensive fields and estuaries, many forest and woody species are observed, such as those mentioned above. The dominant species are

kurupay (*anadenanthera peregrina*), pinkish lapacho (*tabebuia*), yvyra hu (*terminalia argentea*) and ka'a oveti (*luehea candicans*).

In the upper stratum there are species such as: guatambú (*balfourodendron riedelianum*), tajy (*tabebuia heptaphylla*), samu'u (*ceiba speciosa*), yvyra pyta (*peltophorum dubium*), handsome'y (*ficus enormousmis*) and aguai (*chrisophyllum gonocarpum*).

However, some shrubs appear, such as koku (*allophylus edulis*) and yvyra ovi (*helietta apiculata*). Likewise, species characteristic of gallery forests such as the yvyra ta'i (*pilocarpus pennatifolius*) and the inga guasu (*feuilleea uruguensis*) develop at the edge of water courses, on floodable, humid and fertile soils.

4.10.3.2.1.4. Work force.

There are no draft animals or oxen or others that can be used for the development of agricultural work.

4.10.3.2.1.5. Machinery and equipment.

The agricultural implements identified are the machete, foizas, hoe, shovel, axes and manual seeders, most of the tools are of the lowest quality range on the market.

4.10.3.2.1.6. Technology.

They do not have individual tools to carry out the work on the farm, they only have minor tools for community use that were donated by the Government.

The use of state-of-the-art technology for production is not detected. The sowing system practiced is the conventional one, with the clearing of the area to be cultivated and subsequent burning of the weeds, to carry out the sowing with a hoe. A common practice is monoculture.

Post-harvest handling is carried out frequently, the practice of storing both corn and bean seeds in plastic containers for future plantings and for human consumption.

They do not use chemicals or natural products. No knowledge of soil management practices is detected. They do not have assistance, training in the agricultural area.

4.10.3.2.1.7. Production supplies and materials.

The seeds used are from their own production, being insufficient to supply the quantities required to carry out the necessary sowings to cover food and sale.

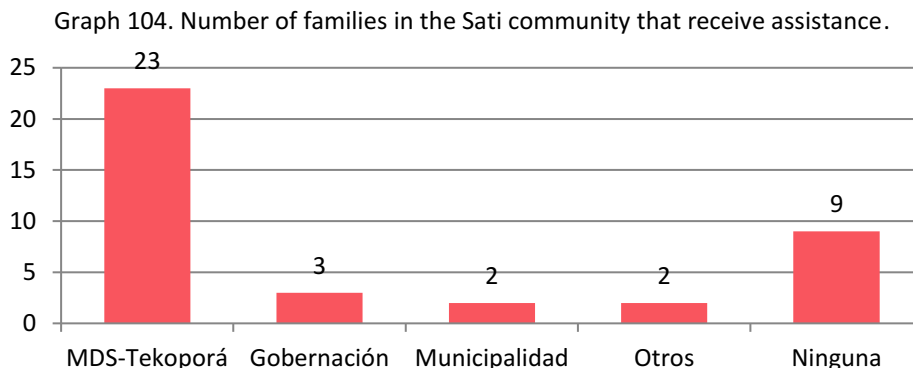
4.10.3.2.2. Secondary production.

No secondary production was found in the community.

4.10.3.2.3. Services.

4.10.3.2.3.1. Technical assistance.

The following figure shows the existence of families that take advantage of technical assistance from public programs, such as Tekoporá from the Ministry of Social Development, agricultural assistance from the Amambay Governorate and from the Bella Vista District Municipality.



Source: own elaboration based on field collection.

4.10.3.2.3.2. Commercialization.

The commercialization of products by the community occurs informally, making it difficult to sell products due to poor accessibility of roads, one of the main ways of accessing sources of family income is the sale of honey, the sale of wild animals obtained in hunting and the sale of cassava.

4.10.3.2.3.3. Financing.

Each producer family plans and finances its own production according to its possibilities. No institution accompanies families in financing for production and they do not have access to public or private loans.

4.10.3.3. Social area.

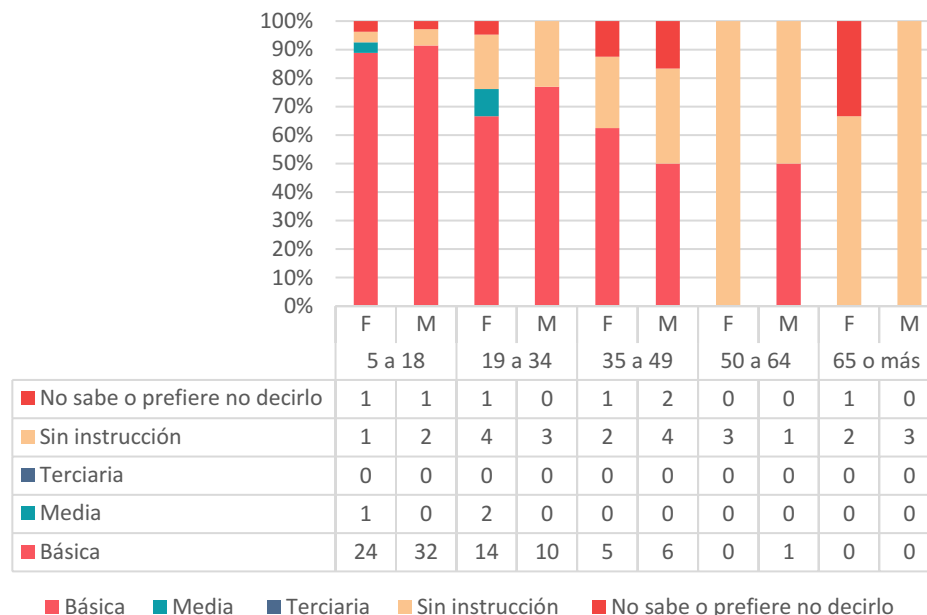
4.10.3.3.1. Education.

The community has a multi-grade school with 35 students, which has been operating continuously since 1999. Currently, the school has an infrastructure built with the support of the Municipality through the FONACIDE fund - National Fund for Public Investment and Development, it has a classroom for classes and an office for the administrative area.

The school is taught by a teacher who is responsible for classes from Pre-School to Sixth Grade. The school has furniture (15 tables and 15 chairs), receives regular support from the MEC through school kits and school meals for all students.

Girls, boys and adolescents who graduate from school have to continue their formal secondary education by migrating to other areas outside the community, such as the city of Yby Yaú.

Graph 105. Distribution of the population by gender and age range for the Sati Indigenous Community. Men | Women.



Source: own elaboration based on field collection.

Thanks to the field work, it was observed that the educational status of men and women in the indigenous community of Sati is usually similar. Comparing generational groups, it can be seen that the new generation of girls, boys and young people between 5 and 18 years of age has experienced a significant change in schooling, with 92% of this segment enrolled in basic or secondary education.

4.10.3.3.2. Health and sanitation.

4.10.3.3.2.1. Health and conventional medicine.

Regarding access to health services, in the community they receive monthly medical assistance from a nearby health post that provides them with medicines and free vaccination. For serious cases, families are referred to the Hospital de San Francisco de Yby Yaú, where they receive free assistance with provision of medicines in case of availability, if the place does not have the required medicines, the patient must pay the expenses for the medication.

The community does not have a first aid kit or trained people to deal with emergencies.

The most frequent diseases are flu problems, fever, stomach pain, internal and external parasite problems (bite, worm louse, etc.), tooth pain, headache and vomiting, diarrhea, in addition to these cases were manifested of two older adults (49 and 76), who mentioned suffering from tuberculosis

and mumps respectively. The dental problems that afflict the community are visible, especially the loss of teeth.

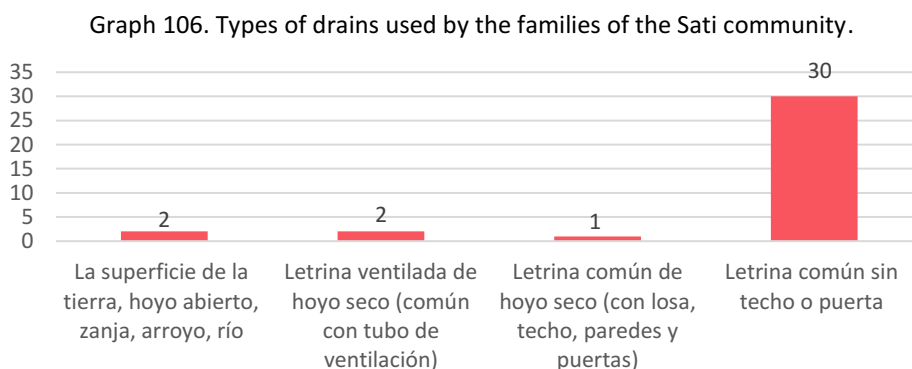
4.10.3.3.2.2. *Health and traditional medicine.*

Known as “yuyos” remedies, families often treat their health conditions through infusions with products from nature, such as roots, leaves, barks, fruits and vegetables.

Prayer for the sick is a cultural practice developed by the elderly that is still in force in the community.

4.10.3.3.2.3. *Sanitation.*

In the Sati community, most of the houses have latrines.



Source: own elaboration based on field collection.

The community does not have an adequate sanitation system. It can be seen in the preceding graph that 86% of the families in the community use a common latrine without a roof or door, the rest of the families use latrines in similar conditions.

4.10.3.3.2.4. *Waste management.*

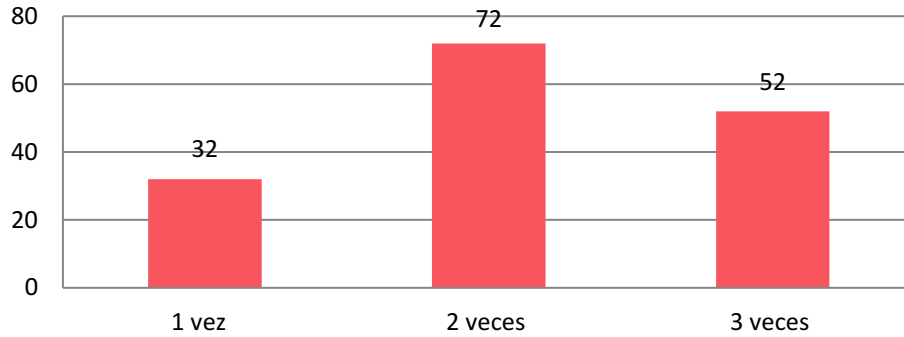
Solid and liquid domestic waste is deposited around the houses, in many cases solid waste is burned and there is no adequate treatment for this type of waste.

4.10.3.3.3. *Feeding.*

Community members carry out agricultural work as a means of subsistence. To supplement their diet, they sometimes receive donations from the INDI or other public institutions that provide food baskets to families.

The following figure shows that, according to data collected in the community, of a total of 156 people, 20.51% stated that they eat once a day, 46.15% of the people eat twice a day and 33, 33% of people eat 3 meals a day, considering breakfast, lunch and dinner.

Graph 107. Frequency of feeding according to number of people.



Source: own elaboration based on field collection.

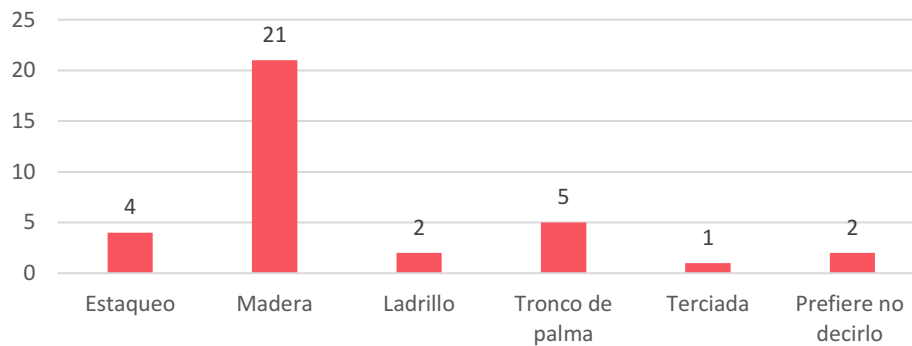
4.10.3.3.4. Housing.

The houses are characterized by being precarious constructions, with boards on the walls and tin roofs, the vast majority with dirt floors. The houses have a small number of rooms -1 or 2 in general-, producing overcrowding. They also do not have appropriate kitchens for preparing food, which is often cooked on the floor between dogs and chickens.



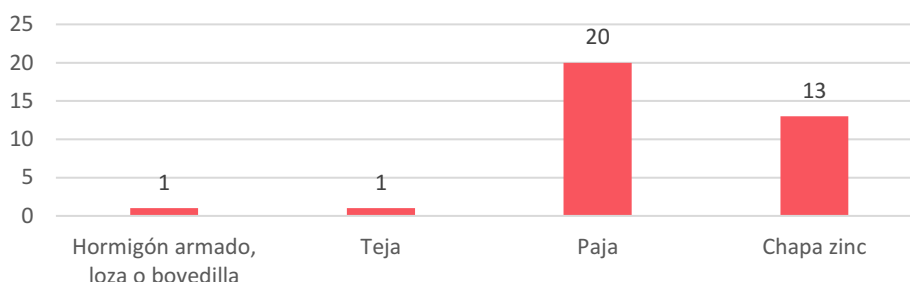
Photo: palm trunk house.

Graph 108. Type of material used for the construction of the house.



Source: own elaboration based on field collection.

Graph 109. Type of material used for the roof of the house.



Source: own elaboration based on field collection.

In the preceding graphs, it can be seen that 60% of the houses are made of wood and that 57% of the houses have a thatched roof and 37% have a zinc sheet roof.

4.10.3.3.5. Safety.

The families mention that conflicts are occasionally generated within the community, due to interpersonal fights that occur within homes or between people from different families. If the problem cannot be solved, they usually escalate it to the community assembly, where a dialogue is held and a solution to the problem is sought. When problems cannot be solved independently, families turn to the police station, regardless of Huguá Ñandu or Yby Yaú, since they have access to both towns.

In general, families mention that they feel safe in their community and that they do not perceive crime in the area to a large extent, apart from the insecurity they feel due to illegal organized groups and which are publicly known at the national level.

4.10.3.3.6. Social organization and own political institutions.

In the community they have a system of community organization where there is a leader elected in assembly, whose mandate is revoked only when he dies or because the community finds that he is in serious fault. In the Sati community there are two political leaders and no religious leader.

Table 58. Leaders of the Sati Indigenous community.

Role	Name
Political leader	Ada María González
Political leader	Derlis Román Brítez Arce.

Source: own elaboration based on field collection.

For every Paraguayan citizen, it is necessary to obtain the Birth Certificate and the Identity Card. In addition to the two documents mentioned, indigenous people must obtain their Indigenous Card to fully enjoy all the benefits, programs and public policies that the State has provided for the indigenous population. However, not all members of the community have this documentation.

Next, it is observed in the following Table that, of a total of 156 people residing in the community, how many claim to have these documents.

Table 59. Registration of identification documents in Sati.

Birth certificate	Indigenous card	ID
58	58	120

Source: own elaboration based on field collection.

There were people interviewed who stated that their documents are in the process of being prepared at the INDI, especially for obtaining the Identity Card.

4.10.3.3.7. Institutional aspects.

The community interacts with public institutions such as the INDI, MSPBS, MEC, MDS, Amambay Government, and with private farms that occasionally assist them with donations, such as the Paso Pora, San Juan and Santa Elena Farms. The Cerro Corá ranch allows access to the property for hunting activities. None of the ranches mentioned belongs to the properties of PARACEL.

4.10.3.3.8. Cultural heritage.

The Pai itself continues to practice Pai Reko, a set of knowledge and practices that are at the basis of Paî life and that are expressed in various aspects: Teko Katu, Teko Porã, Teko Joja, Teko Upyty, Teko Johayhu, Teko Piro'y and the Teko Marane'y.

Among the traditions that are still practiced are the mitâ pepy (male initiation ritual), the avatykyry (celebration of corn) and the ñembo'e (dance-based practice). The Paî usually dress in a traditional way with cotton or wool clothes that are worn with fringes and feather crowns and ritual objects and musical instruments. The community makes handicrafts that are occasionally sold.

4.10.3.3.9. Religious aspects and spiritual beliefs.

La comunidad Sati pertenece a la parcialidad Paî, la cual posee ritos que se componen de danzas y cantos religiosos. Además, la comunidad ha adoptado prácticas culturales de la Religión Evangélica, como la realización de culto y la oración a Cristo, incluso se ha edificado un templo evangélico dentro de la misma comunidad.



Photo: evangelical temple in the community.

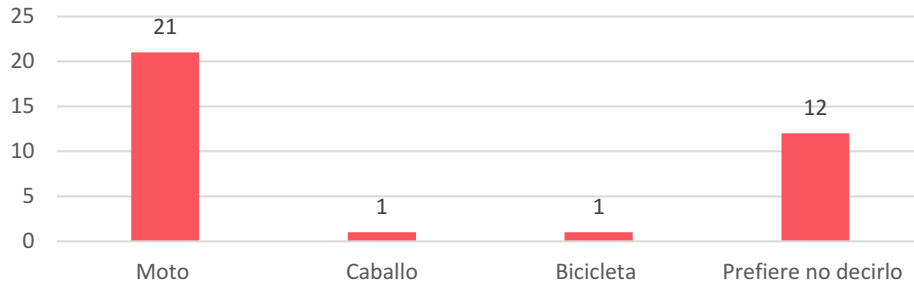
4.10.3.3.10. Public services infrastructure.

Water supply: the community has an artesian well that was donated by the Amambay governorship. Some families mentioned that the distribution system does not reach all the houses.

Electric power: 60% of the community has access to electricity, mainly through the cable distribution network.

Transport and road infrastructure: The community has access to land, it is entered from Route 5, 10 kilometers from the Yby Yaú district, it is crossed by private roads that do not belong to PARACEL. 62.85% of the families in the community state that they own a motorcycle as their main means of transportation.

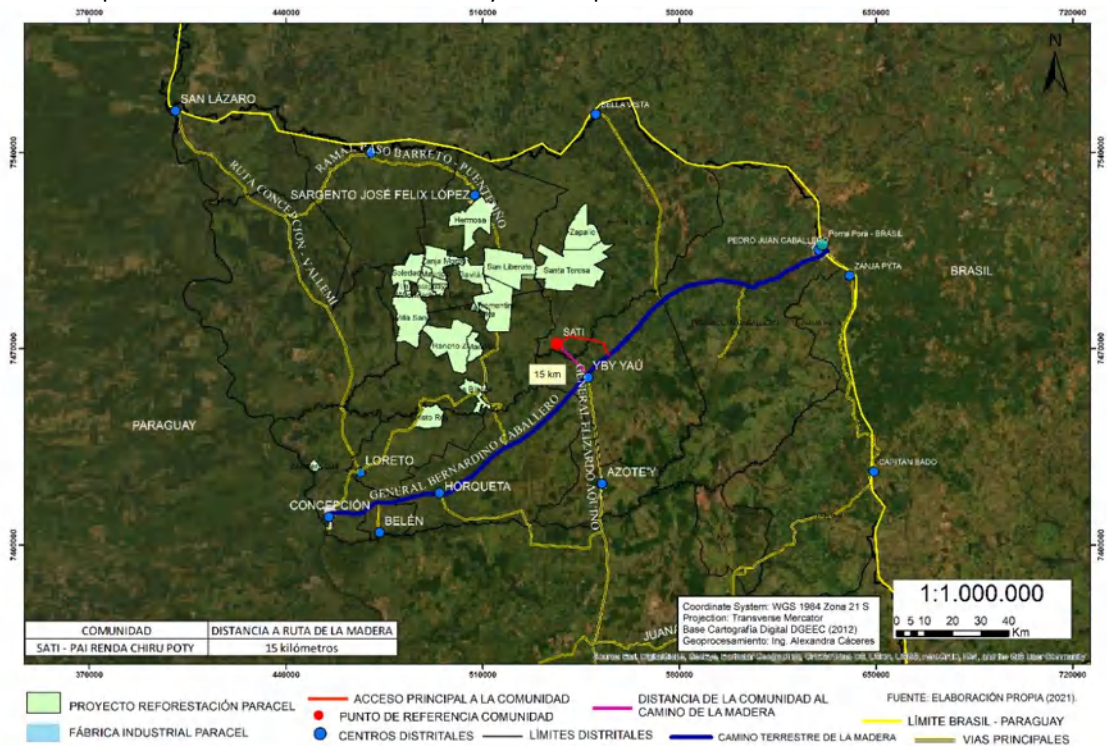
Graph 110. Means of transport used by the family.



Source: own elaboration based on field collection.

In the graph “Means of transport used by the family” it can be seen that 60% of families use the motorcycle as a means of transport and that 34% prefer not to mention whether or not they have any means of transport at home.

Map 54. Distance of the Sati community with respect to the terrestrial timber road.



Source: self made.

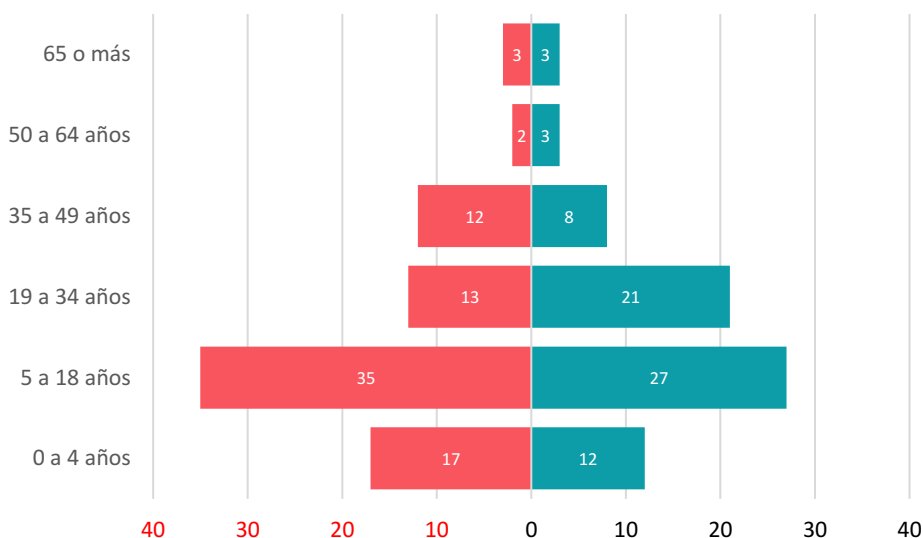
The indigenous community Sati They are located 15 kilometers from the General Bernardino Caballero route, also called “the wood route”. It is not identified that the transport of wood or the increase in traffic on the route will affect the community.

Communications: 68.57% of families state that they have mobile communication devices, from the Personal and Tigo telephone companies, both with a very low signal.

4.10.3.3.11. Demographic aspects.

Regarding demographic aspects, the community is currently made up of 156 people distributed in 35 families, the majority of which are young people and adults.

Graph 111. Distribution of the population by gender and age range for the Sati Indigenous Community. Men | Women.



Source: own elaboration based on field collection.

Sati's population pyramid shows that 58% of the population is distributed between 0 and 18 years of age. It can also be seen that the population of adults over 65 years of age or older represents 3.9% of the total population, significantly lower than the 6.63% of the national population of Paraguay in the same age range (DGEEC, 2019), which reflects a lower life expectancy and, possibly, less access to quality health services, varied and nutritious food sources, risk of accidents, among others.

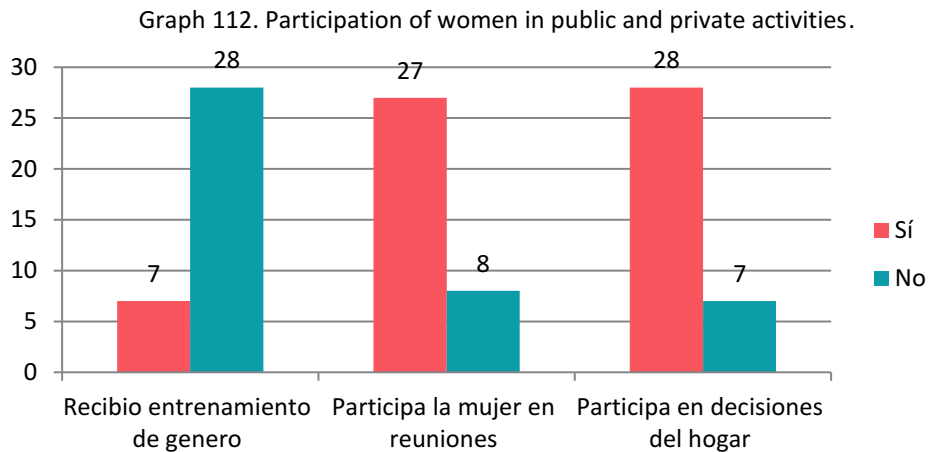
In the field work it has been detected that among the families there are 5 people with disabilities, who have hearing or visual disabilities.

4.10.3.3.12. Migration.

Pendular migration between Pai Tavytera communities is a deeply rooted custom in the ethnic group. Families report in the DRP workshop that people are migrating to cities for work or to other communities to find a partner and start a family.

4.10.3.3.13. Gender.

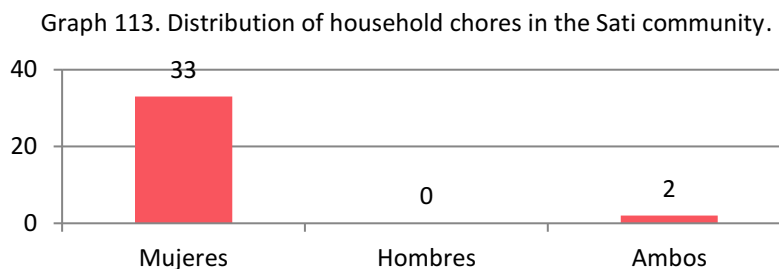
Of the total 156 people in the community, 74 are women and 82 are men. Regarding participation, it is observed that the majority of women in the community participate in public decision-making processes in assemblies or aty guazu and in household decisions.



Source: own elaboration based on field collection.

Regarding the participation of women, 20% of the families stated that the women of the household had received training on gender, 77% of the families declared that women participated in public meetings in the community and 80% of the families declare that women participate in household decisions.

It was found in the field work that the roles of men and women are very well defined. In most cases, men are in charge of working outside the community, while women are dedicated to domestic tasks, both men and women are in charge of working in family agriculture.



Source: own elaboration based on field collection.

In the graph "Distribution of household chores in the Sati community" it can be seen that in 94% of households the woman is in charge of carrying out domestic tasks -washing clothes, cooking and cleaning- and taking care of the children. kids.

Regarding the generation of income and subsistence activities, it can be mentioned that in the community women maintain as their main activity the rearing of some minor animals: birds, quail, pigs, sheep and some equines, according to data collected on the empirical experience of women members of the community, one can mention agriculture in the home, cook jobs, cleaning jobs (as a domestic worker), and from the income distribution mentioned above, it was identified that of the total female population, 14 women earn income weekly, mostly earning less than 100.000 guaraníes per week (6 people), with incomes in the range of 100.000 to 300.000 guaraníes (4 women), 301.000 to 500.000 guaraníes (1 woman), and finally considering an income range greater than 500.000 guaraníes per week (3 people).

4.10.3.3.14. Human rights.

Some indigenous people state that when they go to the city and have to interact with other people in supermarkets, public offices or hospitals, they feel that they receive a different treatment compared to the treatment received by people who are not indigenous.

Regarding work, some people of working age comment that it has happened to them that they have received a lower payment for doing the same work than other people who are not indigenous and that, from time to time, they do not receive food, while the others do receive.

In general, it is observed that older children take care of their younger siblings and that they collaborate in housework and work on the farm, putting aside their studies.

Although the police come to their aid when they have a security need that they cannot solve independently, the distance between the police station and the community and the lack of good roads means that the police take a long time to arrive.

Regarding the right to privacy, a high level of overcrowding of families is observed in small houses with one or, in the best of cases, two rooms.

Regarding the right to nationality, the families mention that the processes for obtaining birth certificates, identity cards and indigenous cards are centralized through the INDI with offices only in the city of Asunción. The INDI usually activities in situ in the communities for the preparation of these documents, but these activities are infrequent. Families usually collect money to send the chief to Asunción to manage several certificates in the same trip.

The families state that they do not feel trust in the political groups and that, during election periods, some political groups go to the community to request that they rent or lend them their identity cards so that they can be used in voting by other people.

It can be observed in the field work, that a large number of families do not have access to drinking water and sanitation. Sanitation conditions are precarious, with families who use the flat directly to relieve themselves.

4.10.3.4. Summary of the baseline of the indigenous community.

The families of the community have the perception that the economic income product of the agronomic yields is increasingly lower, this mainly due to the lack of technical, technological and economic investment resources for the production of crops, at present the community it does not produce enough food to satisfy the need for self-consumption.

In relation to the soil, it has limited fertility, which causes constant changes of planting place because they do not yet incorporate soil management techniques and whose consequence is seen in the low yield of their crops.

The indigenous culture is weakened by the influence of the nearby peasants, whom the indigenous call “the Paraguayans”, the influence being seen mainly in the religious sphere.

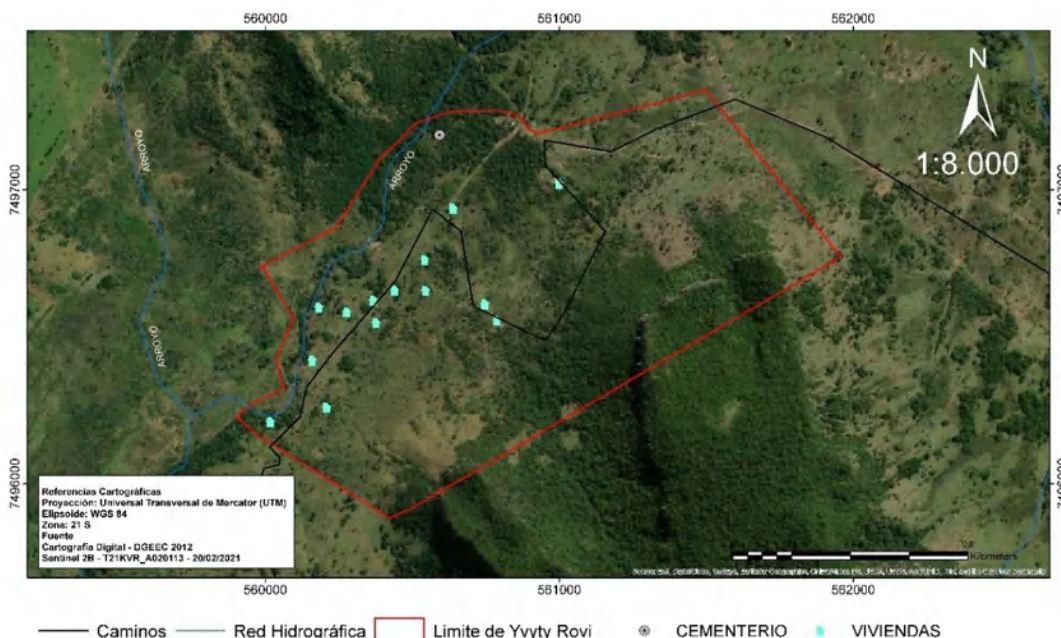
Throughout the diagnosis stage, the community leaders and members supported all the work, actively participating in the informative meetings, the planning and the Participatory Rural Diagnosis, always in an atmosphere of enthusiasm, cooperation and respect.

4.11. Yvyty Rovi indigenous community.

4.11.1. General characteristics of the community.

The Yvyty Rovi community has an area of 169.65 Ha, it is located 45 km from the Bella Vista district head to which it belongs, 75 km from the Pedro Juan Caballero district, which is the capital The Department of Amambay, the same located on route 3 (bellavista crossroad). To get to the community, you must travel along route No. 5 that connects Concepción with Pedro Juan Caballero, the community is entered 5 km north of the Bella Vista Crossing. The community is located 7 km in a straight line from Santa Teresa where it is planned to carry out forest plantations of the PARACEL Company.

Map 55. Location of the Yvyty Rovi indigenous community.



Source: own elaboration based on field collection.

Table 60. Yvyty Rovi indigenous community descriptive file.

Item	Description
Community name	Yvyty Rovi Cerro Po'í
Surface	169 hectares.
Department	Amambay.
Recognized leader	Inocencio Esteban González.
Population	60 people, distributed in 15 families.
Contact dates	December 14 and 15, 2020 and March 18, 2021.
Linguistic family	Guaraní. The language they mainly speak is Guaraní. Paí
Ethnicity	Paí Tavyterá.
Community type	Rural.
Geographical coordinates	Longitude (X) m, 560937,03 Latitude (Y) m, 7496688,19
Nearest PARACEL property	Santa Teresa Farm.
Distance from the closest PARACEL property	7 kilometers
Pathways to the community	The main access road used is the Bella Vista - Bella Vista Crossing route. The access to the place is by dirt roads that cross private Farms, consisting of an hour by vehicle from its entrance in the following Lat coordinates; Long: - 22.68721414883, -

	56.30066893994808 (Reference point for entry: Police station in the area). No relationship with PARACEL properties was identified.
Protected wild areas (ASP)	The indigenous community is not located inside an ASP and does not claim to interact with an ASP that is on PARACEL's properties.
Watercourses	The indigenous community is 4 kilometers from the Aquidabán River, which it shares with PARACEL's properties. A tributary stream of the river with an unidentified name crosses the community. .
Traditions and customs	The indigenous community does not claim to carry out ancestral activities and rites within PARACEL's properties, including the prospected factory and ranches. The community collection of plants for activities of domestic use, such as food and heling therapies; but not within the PARACEL lands.
Social indicators and expectations	The community expresses interest in improving their health, education, security and economic conditions.

Source: self made.

4.11.2. Process description.

<p>Individual interviews and implementation of surveys</p>	<ul style="list-style-type: none"> On March 18, 2021, individual interviews were conducted with community leaders and families.
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Photo: survey application.



Photo: survey application.



Photo: survey application.

<p>Direct observation and key points</p>	<ul style="list-style-type: none"> During all visits, the community environment was toured and they took photos of internal locations for the observation of the biophysical environment, the identification of ecosystem services and key locations, and as a means of verifying the information collected.
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Photo: community cemetery.



Photo: hill that borders the community..

<p>Authorization for consult and socialization of project (Aty guasu)</p>	<ul style="list-style-type: none"> On December 14, 2020, the meeting and signing of the minutes of the Authorization to Consult and the socialization of the project was held.
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Photo: delivery of the Impact Preliminary Environmental.



Photo: Socialization of the project.

<p>Free, prior and informed consent</p>	<ul style="list-style-type: none"> On December 15, 2020 the meeting and signing of the Free, Prior and informed consent was held.
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Photo: CCLPI meeting.



Photo: CCLPI signature.



Photo: CCLPI meeting.

<p>Participatory Rural Diagnosis Workshops</p>	<ul style="list-style-type: none"> On March 18, 2021, the Participatory Rural Diagnosis workshop was held.
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Photo: DRP Workshop.



Photo: DRP Workshop.

4.11.3. Community diagnosis.

4.11.3.1. Environmental Area.

4.11.3.1.1. Physiographic characteristics.

The Yvyty Rovi indigenous community, which is surrounded by rock formations (hills) physiographically, has irregular slopes from the access to it. However, when arriving at the houses, it can be seen that the relief is semi-flat to flat, with some gentle slopes. The community has areas of good drainage and others of moderate to poor, reaching levels between 60 and 200 meters above sea level.

4.11.3.1.1.1. Geological characterization.

The geological formations of the community are Precambrian and Paleozoic, occupying physiographic configurations that are preferentially developed on residual soils derived from sandstone.

4.11.3.1.1.2. Hydrological characterization.

The community has a main stream that crosses the property and is tributaries of the Aquidabán River; river that is also near the community. The stream is used as a source of water consumption; the community does not have running water or common wells.



Photo: stream that crosses the community.

The water courses in which the families fish are not used for navigation and will not be affected by the river transfers that PARACEL will carry out.

4.11.3.1.2. Climatic characteristics.

According to the Municipal Development Plan of Bella Vista, the indigenous community is located in a geographical area with a pleasant climate, thanks to the altitude of the Department of Amambay. The average annual temperature is 21 ° C, with minimums reaching 1 ° C and maximums reaching 35 ° C.

Regarding rainfall, it is worth mentioning that they are abundant, reaching 1,700 to 1,900 mm per year. The season with the highest rainfall is between the months of January and March, and the season with the highest drought is in the month of August.

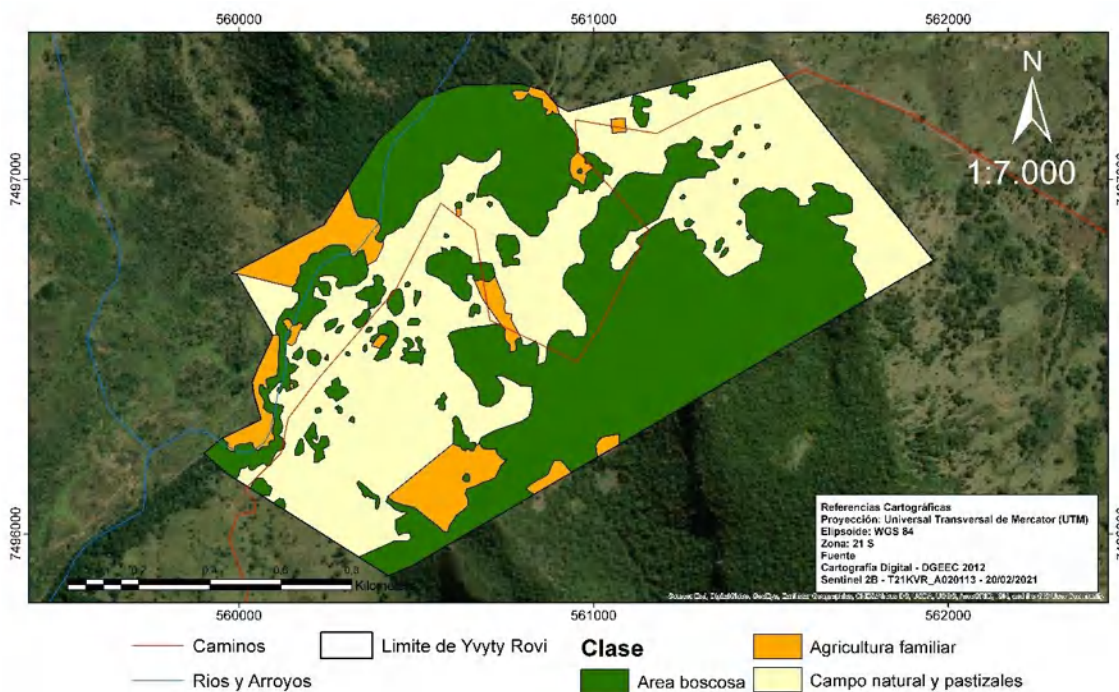
for general agricultural uses; crop management is a very limited option. Conservation practices must be special and the general classification of the land is non-arable, generally rocky.

4.11.3.1.4. Current land use.

The area suitable for agricultural crops is approximately 86 Ha. The families of the community are mainly engaged in family agriculture for their own consumption, they sow cassava, corn, beans and sweet potatoes, basically in small areas.

The community has approximately 83.44 Ha of mountains, where there are remnants of trees that regenerate again, forming small forests from where they are supplied with firewood and other wood for different types of buildings and, in cold seasons, used as firewood to make bonfires and alleviate the precarious thermal insulation of their homes.

Map 57. Land use map of the Yvyty Rovi community.



Source: self made.

Table 62. Table of land use distribution of the Yvyty Rovi community.

N°	Classification	Surface in Ha	% represents
1	Family agriculture	0,16	0,09 %
2	Wooded area	83,44	49,18%
3	Natural field and grasslands	86,05	50,70%
	Total	169,65	100%

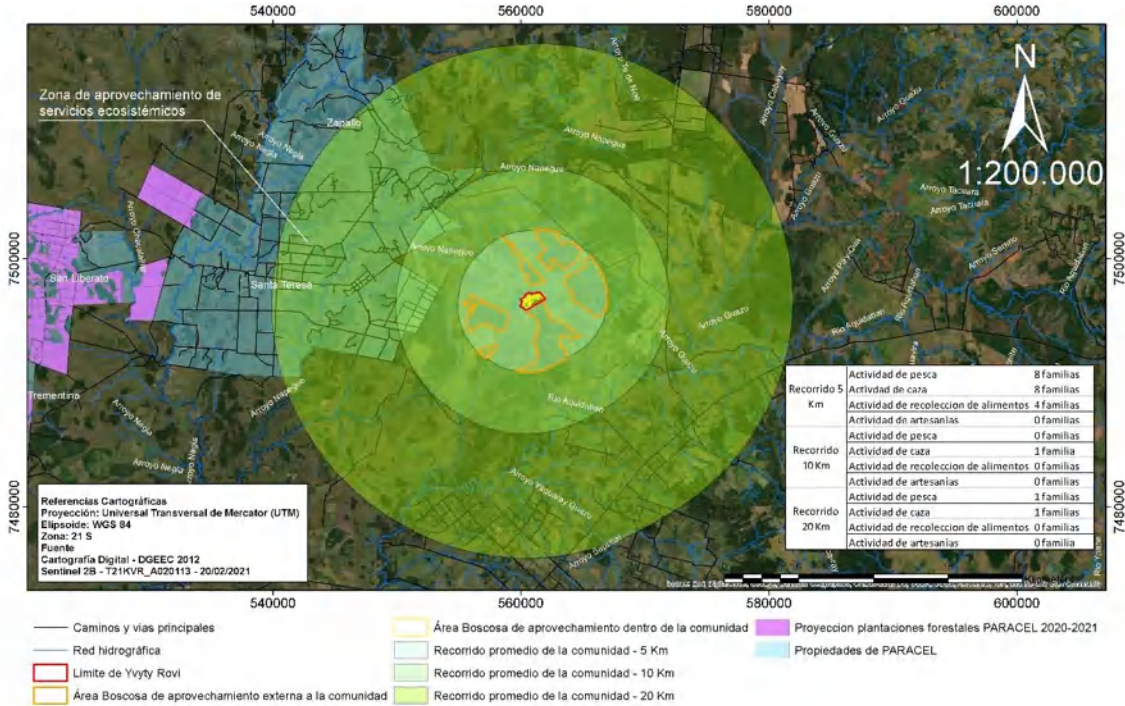
Source: Geo-processing of the Natán Foundation technical team.

4.11.3.1.5. Water.

The community does not have potable water distribution, people drink from springs (ykoa) and from a stream that runs through the community and is a tributary of the Aquidabán River, which is the main water resource from which they extract food through fishing.

4.11.3.1.6. Use of ecosystem services for livelihoods.

Map 58. Map of the use of ecosystem services for the Yvyty Rovi indigenous community.



Source: self made.

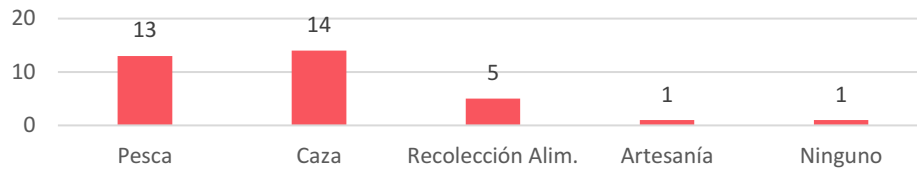
The Yvyty Rovi indigenous community is located within the life zone denominated by Holdridge (1969) as “humid temperate forest” and central forest by Tortorelli (1966). Within this are several forest formations, determined by the different soils and differences in precipitation and average annual temperature. These forests are traveled by indigenous communities for the use of ecosystem services as a means of subsistence.

Depending on the vegetation, the region shows a predominance of tall forest, still rich in species or varieties of species, as well as areas occupied by medium and low growth vegetation in the vicinity of the river.

The high forest is composed of species of commercial value and of high size and with dense understory, the general vegetation of the area is classified as of the type "High forest of the temperate - warm climate", reaching up to 30 m. high in the upper part of good drainage, completing the structure with lianas, herbs, ferns, shrubs and epiphytes.

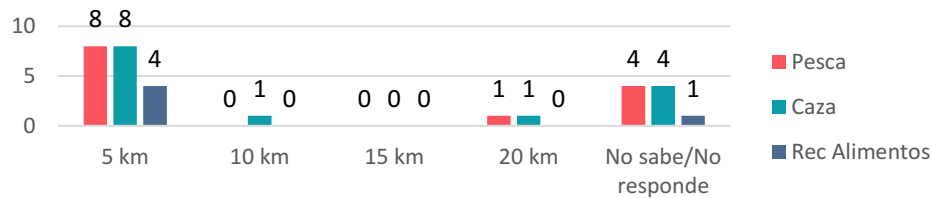
The middle forest is composed of a large number of species of less commercial value with an average height of 12 to 18 m., Generally more spaced with somewhat tortuous trunks, among which are the species of curupay râ, tiliaceae, laurels, timbo, among others such as guayaivi, yvyra ovi, among others, which are traditionally more limited in use.

Graph 114. Families that carry out traditional means of subsistence in the Yvyty Rovi community.



Source: own elaboration based on field collection.

Graph 115. Maximum distance traveled by the families of the Yvyty Rovi community to carry out traditional.



Source: own elaboration based on field collection.

In the graphic “Families that carry out traditional means of subsistence - Yvyty Rovi community”, it can be seen that there are still families in the community that practice traditional means of subsistence for the generation of food, mainly fishing, hunting and food gathering. Subsequently, in the graph “Maximum distance that the families of the Yvyty Rovi community travel for the realization of traditional means of subsistence” it can be seen that those families that practice means of subsistence and use of ecosystem services usually travel a maximum of up to 5 km around their community and that there is a family that claims to travel 20 km.

4.11.3.1.6.1. Flora.

According to Tortorelli (1969), this area is located within the “central jungle” forest formation, characterized by the presence of a certain number of deciduous tree species, together with evergreen families, typical of these forests (Mirtáceas, Lauráceas, etc.).

López, JA (1987), describes the forests of the Eastern Region of Paraguay as A) High Forests: "these forests seem to be typically formed by 3 main floors or strata that are dominant, intermediate and oppressed"; B) Rivereño Forest: "they are generally low forests and are clearly delimited by the natural vegetation that extends along the streams and rivers"; C) Low humid forest: "similar to the riverine forest, but it differs because they are distributed in the form of islets in the fields ..." and; D) Sabana Forest (closed): "composed of low scrub pastures, small forests ...". The first 2 types of forests, described by López, are characteristic forests of the high forest and the riverine forest, the families resort to the forests of their own indigenous community for the extraction of wood, fruits, honey, herbs and vegetable fibers, which are used for food, medicine, construction and as fuel for cooking or shelter on the coldest days.

Among the predominant forest species in the community:

Table 63. Characteristic flora species of the Yvyty Rovi community.

Nº	COMMON NAME	SCIENTIFIC NAME
1	Yvyra pyta	Peltophorum dubium
2	Tajy	Tabebuia sp
3	Yvyra'ro	Pterogine nitens.
4	Cocotero	Acrocomia totai
5	Kurupay	Anadenanthera colubrina var.
6	Kurupa'yra	Parapiptadenia rigida
7	Incienso	Plectranthus Coleoides
8	Urunde'y	Astronium balansae
9	Tata jyva	Maclura tinctoria
10	Timbo	Enterolobium contortisiliquum
11	Peterevy	Cordia trichotoma
12	Aguai	Chrysophyllum gonocarpum

Source: own elaboration based on the DRP.

4.11.3.1.6.2. Fauna.

The families fish in the stream that runs through the community, which is a tributary of the Aquidabán River. Among the species they fish are tarey'i, surubi, carimbata and pira pyta among others.

Families also hunt in the forests within their community, hunting wild animals such as kure'i, deer, tajy kati, tapir, capybara, armadillo, and others. Outside their community, they practice the house in Cerro po'i and in Estancia Santa Teresa, the latter is owned by PARACEL.

The frequency of carrying out these activities varies among families, most of the people consulted state that they practice it between one to three times a week. The animals that hunt and fish are destined for self-consumption.

Considering the great extension of forests, it can be considered as the habitat of a great variety of native fauna. Among the fauna species that exist, the following species can be mentioned:

Table 64. Fauna of the Yvyty Rovi community.

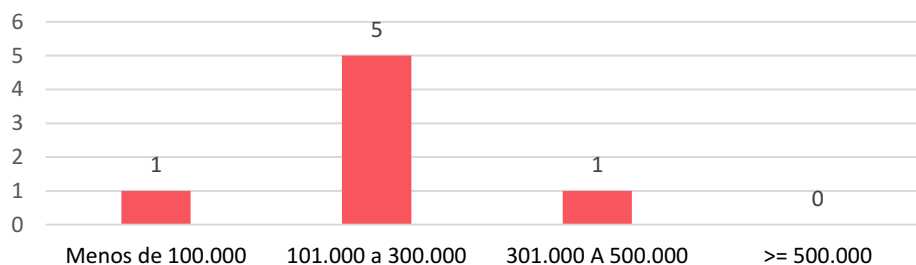
N°	COMMON NAME	SCIENTIFIC NAME
1	Teju Guasu	Tupinambis mericanae
2	Tortolita	Columbina sp
3	Jeruti	Ceptotila verreauxi
4	Pycasu	Zenaida auriculata
5	Piririta	Guira guira.
6	Tatu poju	Euphractus sexcintus
7	Tatu hu	Dasypus novemcintus
8	Aguara´i	Cerdocyon thous
9	Coati	Nasua nasua
10	Guasu vira	Mazama gouazoubira
11	Apere´a	Covia Aperea
12	Akuti	Dsyprocta azarae
13	Kure´i	Tajassu tajasu
14	Tapiti	Dsyprocta sp.

Source: DRP Yvyty Rovi 2021, El Zapallo 2020.

4.11.3.2. Economic area.

In Yvyty Rovi there are very few people who frequently leave their community to work in exchange for money, only 7 people were found. Some families practice bartering in nearby estates to obtain products they need.

Graph 116. Number of people distributed by weekly economic income of the community Yvyty Rovi (in Guaraníes).



Source: own elaboration based on field collection.

Among the entire population of the community, 7 people are doing paid work, of which 1 person receives weekly income that fluctuates between Gs 301,000 and Gs 500,000, 5 people receive income between Gs 101,000 and Gs 300,000 and 1 person receives an income of less than Gs 100,000.

4.11.3.2.1 Primary production.

4.11.3.2.1.1. Agricultural.

Community members mention that their main work activity is related to cleaning, plowing, planting and harvesting activities on their own farm. The land destined for family farming ranges between 0.25 Ha and 2 Ha and its production is mainly intended for home consumption.

Families who wish to allocate more land area for agricultural cultivation can do so, without prejudice to the use of other families.

Some indigenous people in the community mention using basic tools to prepare the land, such as shovel, machete and ax, among others, from their perspective they feel that their tools are insufficient in quality and quantity to carry out a good preparation of the land and to improve its productive capacity.

People who are dedicated to carrying out daily trades in neighboring communities or livestock establishments, mainly in the MM ranch, sporadically carry out cleaning, livestock management and harvesting tasks on the farms, receiving a daily payment of around Gs 60,000 to 70,000 Gs.

4.11.3.2.1.2. Livestock.

The members of the Yvyty Rovi community do not have cattle, however, in the community you can see the neighbor's cattle grazing, as well as in the Apyka Jegua community, some people mentioned that the chief authorizes the entry of the animals. Some of the families raise home poultry in minimal quantities and mention that the main problem for raising animals is the lack of water in the houses.

4.11.3.2.1.3. Forest.

The forested area of the community lands reaches approximately 83.44 Ha, corresponding to 49.18% of the total area, it is of a natural type with native species. Lack of care and tree felling practices are something to consider because families do it without a proper management plan.

4.11.3.2.1.4. Work force.

The agricultural work and the raising of poultry animals are activities commonly carried out by the ladies in the company of their children, at the same time that the women take care of the housework and the raising of the children, creating an over-occupation to the same. The majority of men are engaged in off-farm work, such as hunting and fishing, and doing paid work in neighboring farm.

In the community they do not have draft animals or animal traction machinery.

4.11.3.2.1.5. Machinery and equipment.

The agricultural implements identified are the machete, foizas, hoe, shovel, and manual seeders. Most of these tools date back 4 or 5 years of use and need to be renewed, it is observed that the number of tools per family is insufficient to carry out all agricultural tasks.

According to their land use capacity, they have enough land for agricultural practices that are currently classified as natural fields and pastures.

4.11.3.2.1.6. Technology.

The use of state-of-the-art technology for production, such as heavy machinery and certified or transgenic seeds, is not detected. The sowing system practiced is the conventional one, with the clearing of the area to be cultivated and subsequent burning of the weeds, to carry out the sowing with hoe or yvyra hakua (pointed stick used to pierce the ground and place the seeds in each hole).

4.11.3.2.1.7. Marketing of primary sector products.

According to the perceptions collected in the Participatory Rural Diagnosis, the indigenous people feel that the poor condition of the roads into / out of their community makes it difficult for them to market their products. Some families think that some alternatives that could help them generate more income are the production of honey and the sale of wild animals obtained through hunting.

4.11.3.2.1.8. Production supplies and materials.

The seeds used are from their own production, as a result of the storage of grains from the previous season and the exchange of seeds that are not available on the farm (post-harvest), the use of chemical or natural products for production is not detected. The quantities of available seeds are not sufficient for the extension of the surface, since they generally consume the crops in quantities almost in their entirety.

4.11.3.2.2. Secondary production.

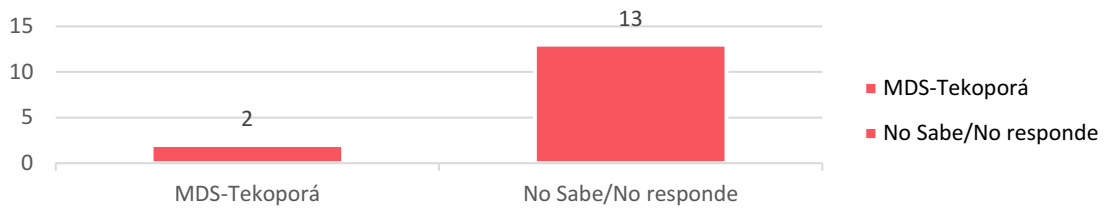
No secondary production was found in the community.

4.11.3.2.3. Services.

4.11.3.2.3.1. Technical assistance.

In the community they do not receive technical assistance and training in the agricultural area and only two families receive the subsidy from the Tekopora program of the Ministry of Social Development.

Graph 117. Number of people from the Yvyty Rovi community who receive assistance.



Source: own elaboration based on field collection.

It can be seen that 2 families claim to receive the economic subsidy from the Tekoporã program of the Ministry of Social Development (MDP) and that 13 families do not receive any type of subsidy from the MDP or the Ministry of Finance.

4.11.3.2.3.2. Commercialization.

Marketing is informal and is carried out in nearby settlements and in neighboring ranches, some of which are adjacent to the community. The main items that are traded are tupi corn and cassava, both at a price of around 1,500 Gs / Kg, they also tend to sell minor livestock items such as chickens and pigs within the same community.



Photo: cassava plantation.

Families perceive a deterioration in the terms of trade, in the sense that the products they sell are getting cheaper and those they buy are getting more and more expensive.

The lack of means of transportation, the small planting area and the little training in marketing are problems that hinder the commercial development of the community.

4.11.3.2.3.3. Financing.

Each producer family plans and finances its production according to its possibilities. No institution accompanies families in financing for production and they do not have access to public or private loans.

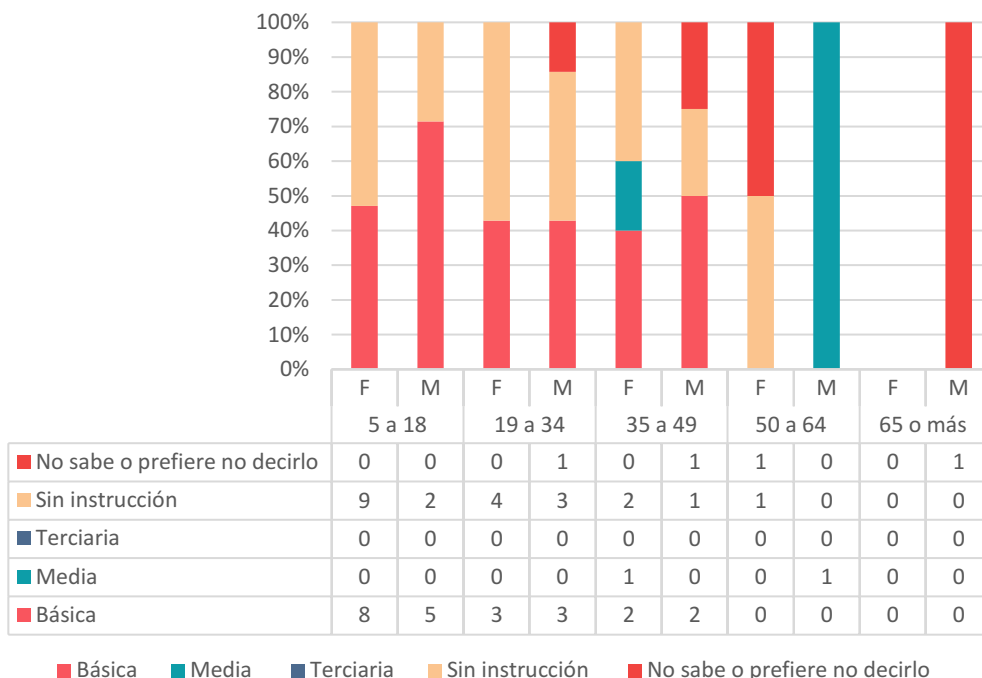
4.11.3.3. Social area.

4.11.3.3.1. Education.

In the Yvyty Rovi community there is no public school, children must travel 10 kilometers to attend a school called Tranquerita.

Regarding the distribution of the population by age range and gender, it can be observed that there is a majority of young people between 5 and 34 years old who are studying or who have completed basic school education and that there is a minority in this same segment without education, as can be seen in the following graph:

Graph 118. Distribution of the population by age range and gender according to education status in the Yvyty Rovi community. F = female | M = male.



Source: own elaboration based on field collection.

Thanks to field work, it was possible to appreciate that the educational status of men and women in the indigenous community of Yvyty Rovi is usually similar throughout all age ranges, which means that both genders face similar gaps in formal education, except in the 50-64 age bracket where 1 male person shows to have received high school education, which in statistical terms is called outlier or outlier. It should be noted that only 54% of girls, boys and adolescents are receiving formal education - basic - which may be related to a high level of school dropout.

As an additional piece of information, it was detected that the chief's wife takes advantage of her free time to teach reading and writing voluntarily to the girls and boys, in order to correct that they cannot reach the Tranquerita school, which is 10 km away.

4.11.3.3.2. Health and sanitation.

4.11.3.3.2.1. Health and conventional medicine.

Regarding the basic health service, the families state that months ago they received periodic visits from the nearest Health Post on a monthly basis, but that since the COVID-19 pandemic began in March 2020 these visits stopped.

Families mention that the most frequent illnesses are cough, toothache, diarrhea, tesá rasy (conjunctivitis), vomiting, aká rasy (headache), belly pain, ear pain, fever, and parasitosis.

Dental problems are frequent, many of the indigenous people have a great deterioration in their oral health and a large number of missing teeth. In the case of suffering pain in a tooth, they extract their teeth themselves or wait for it to fall.

As an additional piece of information, it was detected that the chief's wife plays the role of Health Promoter.

4.11.3.3.2.2. Health and traditional medicine.

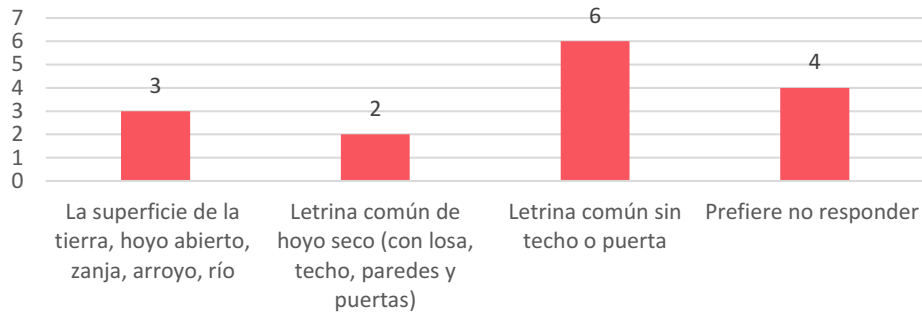
The traditional medicine of the community is based mainly on the use of natural remedies with therapeutic properties that are extracted from the flora of the forests and that are administered by the elderly.

Within the indigenous community, shamanic practices are also carried out to achieve cures for the affections of the body and spirit.

4.11.3.3.2.3. Sanitation.

In the Yvyty Rovi community there are precarious toilets and in some cases the disposal of feces is done in holes or in the open.

Graph 119. Types of drains used by the families of the Yvyty Rovi community.



Source: own elaboration based on field collection.

As can be seen in the graph, most (8) of the families have a common latrine, some of them without a roof or door and others with a roof and walls. Only 3 families use the same surface of the land, a small shallow hole, a ditch, the stream or the river to relieve themselves. There were 4 families who preferred not to comment on the type of drainage in their home.

4.11.3.3.2.4. Waste management.

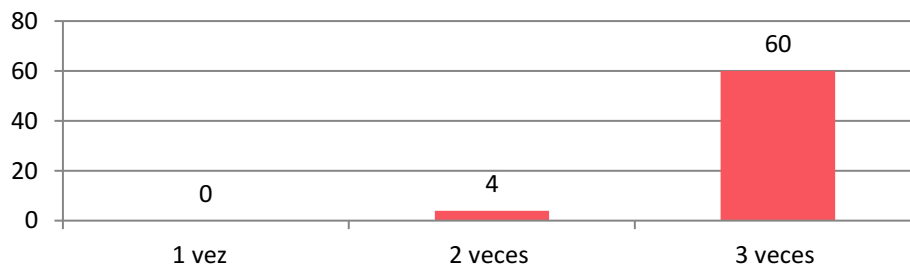
Solid and liquid domestic waste is deposited around the houses, in many cases solid waste is burned and there is no adequate treatment for this type of waste.

4.11.3.3.3. Feeding.

The families’ diet is proportional to the availability of food produced in the family farms, where cassava, beans, corn, peanuts and sweet potatoes predominate. Also, families carry out hunting and fishing activities that help supplement and diversify the food they eat.

Purchases for basic household supplies are made in a warehouse near the community, where sugar, salt and oil are supplied, among other things.

Graph 120. Frequency of feeding according to number of people.



Source: own elaboration based on field collection.

The families comment that they eat 2 to 3 times a day (breakfast, lunch and dinner). According to what the families mention, 94% of the people in the community eat 3 times a day. The diet is

mainly composed of hypercaloric foods and the variety of foods is limited. They do not normally consume fruits, vegetables and dairy.

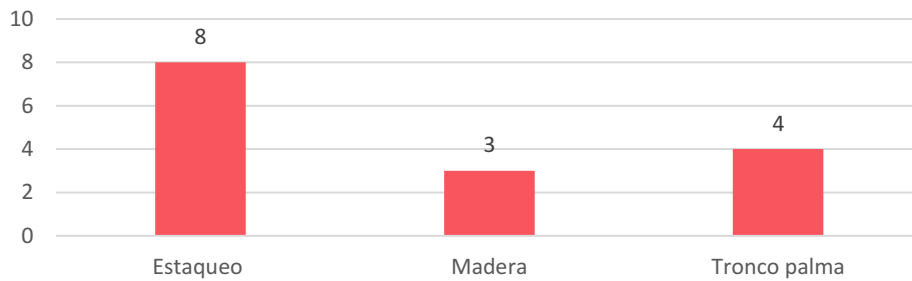
4.11.3.3.4. Housing.

The households characterize for to be precarious constructions, with boards on the walls and thatched roofs and dirt floors. The houses have 1 bedroom, which generates overcrowding and prevents the intimacy of the couple. They also do not have appropriate kitchens for preparing food, which is often cooked on the floor between dogs and chickens.



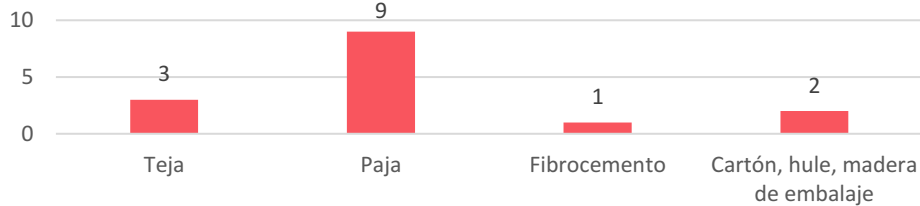
Photo: room of an indigenous family.

Graph 121. Type of material used for the construction of the house.



Source: own elaboration based on field collection.

Graph 122. Type of material used for the roof of the house.



Source: own elaboration based on field collection.

In the preceding graphs, it can be seen that 8 of the houses are built with staking, 3 with wood and 4 with palm trunk, the latter being the most rudimentary construction material. Of the 15 houses, 60% use thatched roof.



Photo: makeshift house with palm trunks and plastic.

100% of the homes lack basic services of electricity and drinking water.

4.11.3.3.5. Safety.

In this indigenous community it was detected that there is intervention of evangelical cults. Some families state that the interference of evangelical pastors has contributed to the reduction of internal conflicts and has favored an increase in the sense of internal security in the community, they mentioned that thanks to the fact that pastors go to the community to evangelize them, they decreased the riots.

4.11.3.3.6. Social organization and own political institutions.

In the community they have a system of community organization where there is a leader elected in assembly, whose mandate is revoked only when he dies or because the community finds that he is in serious fault. The leaders are called caciques and in Yvyty Rovi there are three leaders recognized by resolution of the executive power through the INDI.

In the community they do not have a religious leader, but the political leader usually officiates this role by leading the prayers that are carried out collectively within the community.

Table 65. Leaders of the Yvyty Rovi Indigenous community.

Role	Name
Political leader	Inocencio Esteban González Céspedes
Political leader	Rosalino Mendoza
Political leader	Juancito Corvalán

Source: own elaboration based on field collection.

For every Paraguayan citizen, it is necessary to obtain the Birth Certificate and the Identity Card. In addition to the two documents mentioned, indigenous people must obtain their Indigenous Card to fully enjoy all the benefits, programs and public policies that the State has provided for the indigenous population. However, not all members of the community have this documentation.

Then, it is observed in the following table that, of a total of 60 people residing in the community, how many claim to have these documents.

Table 66. Registration of identification documents in Yvyty Rovi.

Birth certificate	Indigenous card	ID
8	41	34

Source: own elaboration based on field collection.

4.11.3.3.7. Institutional aspects.

The Yvyty Rovi indigenous community is recognized by the INDI and has its own land and all legal documentation (recognition of a leader, legal status, among others).

No internal conflicts were detected between members of the community or with adjacent populations.

The community regularly interacts with external institutions such as the MSPBS, MEC, the Municipality of Bella Vista and, as a result of this study, PARACEL. The community is also related to a lesser extent with the INDI, an Evangelical Church that comes to the community to pray, the Government, the police station and the Tranquerita ranch.

4.11.3.3.8. Cultural heritage.

In the community they still carry out ancestral practices of the Paí Tavyterá, especially Pai Reko, a set of knowledge and practices that are at the base of Paî life and that are expressed in various aspects: Teko Katu, Teko Porã, Teko Joja, Teko Upyty, Teko Johayhu, Teko Piro'y and Teko Marane'y.

Among the traditions still practiced is the mitâ pepy (male initiation ritual), the

avatykyry (celebration of corn) and the ñembo'e. The Paî usually dress in a traditional way with cotton or wool clothes that are worn with fringes and feather crowns and ritual objects and

musical instruments. The community makes handicrafts that are occasionally sold.

4.11.3.3.9. Religious aspects and spiritual beliefs.

The indigenous people state that they do not occupy land within PARACEL's undertakings for the performance of religious rites, traditions and practices.

Most of their rites and prayers are performed inside the "oypysy" or great temple. In the community they do not have a "Tekoaruvicha" or religious leader.

Some families feel that evangelical religious influence has done them good and that it has helped reduce conflict within the community.



Photo: indigenous tombstone.

4.11.3.3.10. Public services infrastructure.

Water supply: they do not have potable water distribution in the community and they do not have a common well for community use. They consume water from a stream that crosses the community. This problem urgently needs to be remedied.

Electric power: There is no electricity service in the community, but a private power line runs through the neighboring estates that could be extended to the homes of Yvyty Rovi.

Transport and road infrastructure: They do not have public transportation to the community, their main means of transportation is the motorcycle and walking. To leave or enter the community, you must travel 15 km of an internal road from Route 3, and the road conditions are terrible.

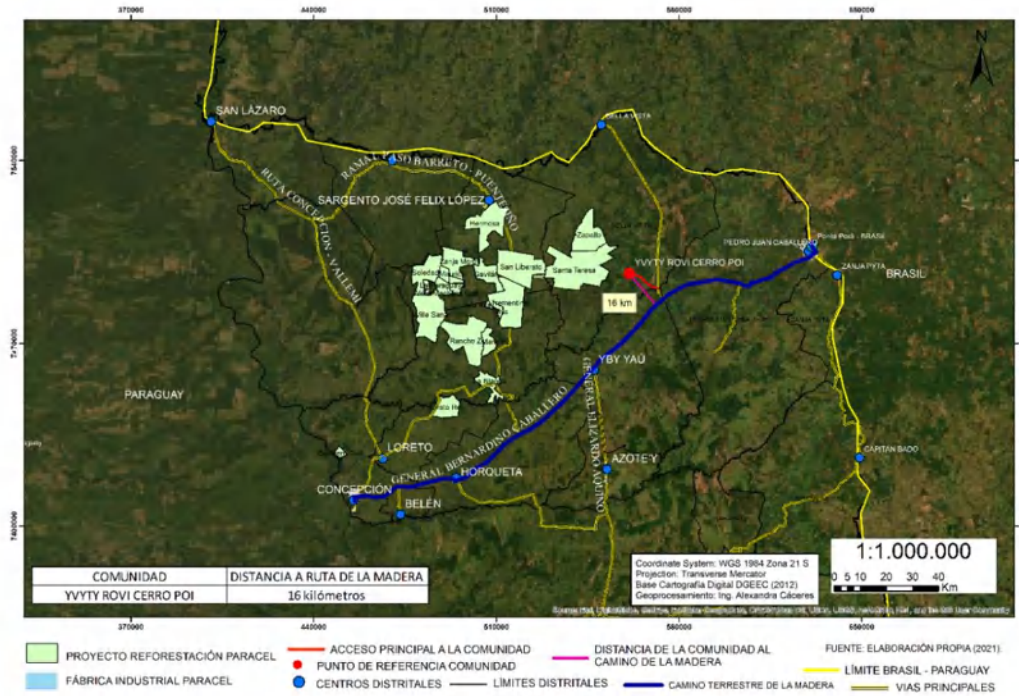
Graph 123. Means of transport used by families in Yvyty Rovi.



Source: own elaboration based on field collection.

In the graph “Means of transport used by the family” it can be seen that 73% of families use the motorcycle as a means of transport.

Map 59. Distance of the Yvyty Rovi community with respect to the wood road.



Source: self made.

The Yvyty Rovi indigenous community is located 16 kilometers from the General Bernardino Caballero route, also called “the wood route”. It is not identified that the transport of wood or the increase in traffic on the route will affect the community.

Communications: the mass media are participatory meetings. Some indigenous people use cell phones and radios that connect to radio stations in the area.

4.11.3.3.11. Demographic aspects.

The area occupied by homes and family farms is progressively expanding at the same rate as the population density within the community increases.

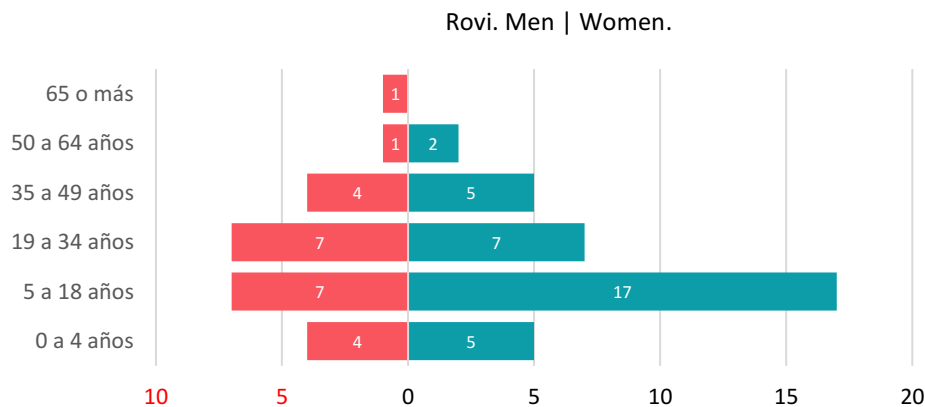
Regarding demographic aspects, the number of people settled in the Yvyty Rovi community is 60 people in total, distributed in 15 families.

Table 67. Total population distributed by gender, Yvyty Rovi indigenous community.

Yvyty Rovi Cerro Poi		
Total population	Men	Women
60	24	36

Source: own elaboration based on field collection.

Graph 124. Distribution of the population by gender and age range for the Yvyty Indigenous Community



Source: own elaboration based on field collection.

Yvyty Rovi's population pyramid shows that 55% of the population is distributed between 0 and 18 years of age. It is especially striking that, in the 5 to 18 age bracket, women are 2.4 times more than those mens.

It can also be seen that the population of adults over 65 years of age or over represents 1.6% of the total population, significantly less than 6.63% of the national population of Paraguay in the same age range (DGEEC, 2019), which reflects a lower life expectancy and, possibly, less access to quality health services, varied and nutritious food sources, risk of accidents, among others.



Photo: indigenous father and daughter drinking tereré.

4.11.3.3.12. Migration.

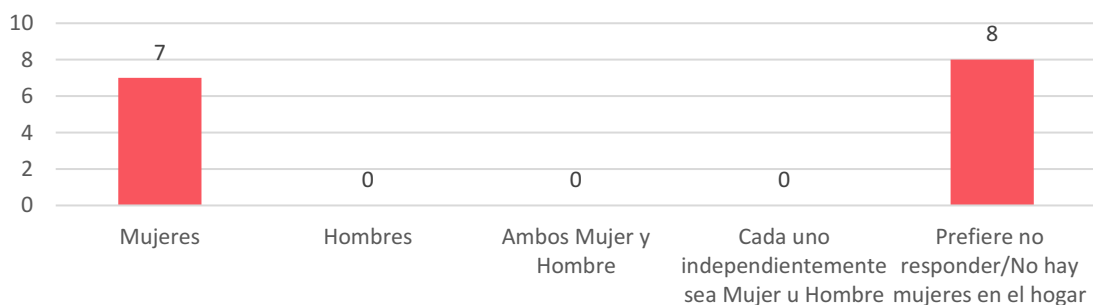
Pendular migration between Pai Tavytera communities is a tradition deeply rooted in the ethnic group, families often migrate from one community to another, mainly for reasons of job search or to visit relatives.

Young people are the group that most often migrate permanently from the community, many of them migrate to urban centers with the expectation of improving their standard of living. Another segment of young people who migrate does so to establish their own families.

4.11.3.3.13. Gender.

It was found in the field work that the roles of men and women are very well defined. As can be seen in the following graph, in 47% of families women are engaged in housework, the remaining 53% prefer not to answer the question.

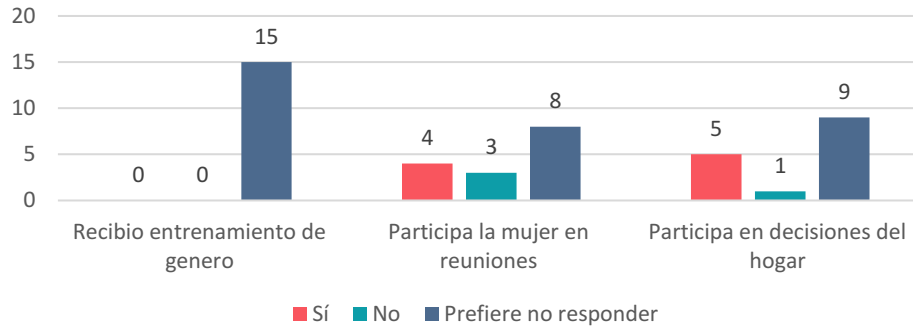
Graph 125. Distribution of tasks at home.



Source: own elaboration based on field collection.

In relation to family planning, it was detected that in couples it is the woman who is mainly responsible for the use of contraceptive methods. In the field work, 8 women reported using injectable contraceptives, 1 woman reported using natural remedies (forest herbs) and 1 using pills.

Graph 126. Participation of women in public and private activities.



Source: own elaboration based on field collection.

Regarding the participation of women in public and private life, 27% of families state that women participate in public meetings and assemblies and 33% of families mention that women participate in household decision-making. It should be noted that the vast majority preferred not to answer the questions.

4.11.3.3.14. Human rights.

Some indigenous people state that when they go to the city and have to interact with other people in supermarkets, public offices or hospitals, they feel that they receive a different treatment compared to the treatment received by people who are not indigenous.

Regarding work, some people of working age comment that it has happened to them that they have received a lower payment for doing the same work than other people who are not indigenous and that, from time to time, they do not receive food, while the others do receive. In general, it is observed that older children take care of their younger siblings and that they collaborate in housework and work on the farm, putting aside their studies. Although the police come to their aid when they have a security need that they cannot solve independently, the distance between the police station and the community and the lack of good roads means that the police take a long time to arrive.

Regarding the right to privacy, a high level of overcrowding of families is observed in small houses with one or, in the best of cases, two rooms.

Some people mention that to enter their communities they need to go through adjoining ranches and that during the nights they are closed off to circulate freely, even on occasions, they are threatened by the caretakers of the ranches. Some nearby private ranches prevent them from hunting in their communities. In no case, these rooms belong to PARACEL.

Regarding the right to nationality, the families mention that the processes for obtaining birth certificates, identity cards and indigenous cards are centralized through the INDI with offices only in the city of Asunción. The INDI usually activities in situ in the communities for the preparation of these documents, but these activities are infrequent. Families usually collect money to send the chief to Asunción to manage several certificates in the same trip.

The families state that they do not feel trust in the political groups and that, during election periods, some political groups go to the community to request that they rent or lend them their identity cards so that they can be used in voting by other people.

It can be observed in the field work, that a large number of families do not have access to drinking water and sanitation. Sanitation conditions are precarious, with families who use the flat directly to relieve themselves.

Access to electricity was not observed in the community.

4.11.3.4. Summary of the baseline of the indigenous community.

The families of the Yvyty Rovi community develop various livelihood activities, taking advantage of the natural resources available in the environment and the provision of ecosystem services, such as gathering food from forests, hunting and fishing, extracting water and the collection of firewood as fuel and for the manufacture of houses, as well as taking advantage of the application of agricultural production techniques for their subsistence, which are mainly used for food and barter.

The communities are not alien to the conditions of poverty and extreme poverty of the district in which they are located and face difficulties related to vulnerability and exclusion, such as lack of access to public services, long distances to access health centers and risk of being attacked at night by the shooting of a "gunman" from a nearby room.

In relation to the soil, they have class V and VI, which means that they have slight fertility and depth problems, however, agricultural activities are carried out. The community needs to implement sustainable production systems with technical assistance, focused on training them in better agricultural techniques for consumption and income.

Most of the families feel that the influence of evangelical sects has been positive for the community. It would be advisable to establish alliances with the INDI and the MEC, to develop programs to promote the maintenance of the culture of this community, provided that the families themselves choose it, respecting at all times the right to self-determination.

In the Yvyty Rovi community, the form of social organization is established by two main institutions: the assembly and the political leader or cacique, who collaborate to guide their community towards the development and sustainability of their town.

Throughout the diagnosis stage, the community leaders and members supported all the work, actively participating in the informative meetings, the planning and the Participatory Rural Diagnosis, always in an atmosphere of enthusiasm, cooperation and respect

5. Evaluation of Social Impacts.

5.1. Presentation.

This section presents the Social Impact Assessment of the Indigenous Component (EISCI) of AID, according to the international standards of environmental and social sustainability with indigenous communities of the Performance Standard of the International Finance Corporation (in particular Standard 7) to the that PARACEL responds, specifically as a complement to the "Evaluation and management of environmental and social risks and impacts" and for the preparation of the Environmental and Social Management System (SGAS). In addition, PARACEL's commitment to the unrestricted fulfillment of the rights of indigenous peoples is aligned with the achievement of the United Nations Sustainable Development Goals and the Paraguay 2030 National Development Plan.

For this evaluation, the Indigenous Social Baseline elaborated in this study was taken into account, using as inputs the bibliographic sources and the field data collection described in the Methodology section.

This present EISCI is essential as an instrument of preventive analysis and to provide guidance on the aspects susceptible to being affected in indigenous communities, during all stages of the project, both the Forest component and the Industrial component, in compliance with the regulations regarding interventions and relations with indigenous communities in Paraguay, governed by Decree No. 1039/18, Law 904/81 and Law No. 919/96 that modifies and expands it, Law No. 294/93 and its regulatory decrees No. 453/2013 and No. 954/2013.

This document is also a valuable tool that helps to foresee the corresponding measures of avoidance, minimization, mitigation and compensation in the face of negative impacts that the project could cause, and it also provides guidelines for the prioritization of mitigation strategies.

Taking into account the field information collected in the Baseline of the indigenous communities within the area of influence of the undertaking, the social factors of the indigenous component have been detected that could be impacted during the various activities of the project and that should be considered to assess the social impacts of it. Each of the social factors of indigenous communities has been analyzed in relation to the stages and activities of the Forest and Industrial components and has been evaluated according to an impact assessment methodology that has been adapted from PARACEL's Social Studies and that allows evaluating the impacts identified according to the "social factors" considered; crossing them in correlation matrices with the "aspects of the environment".

5.2. Methodology for the evaluation of social impacts.

The social impact assessment of the indigenous component follows the principles applied in the Environmental and Social Impact Assessment (EIAS) of PARACEL, the IFC performance standards, the Equator Principles and good local and international practices related to unrestricted respect for the rights of indigenous peoples.

For the purposes of this Social Impact Assessment of the Indigenous Component, the area of direct influence presented in the chapter "Characterization of the areas of influence" was taken into account. The AID is made up of indigenous communities located between 1 to 15 kilometers from the prospective development and that could be affected by the project. The indigenous communities identified are from the Pañ Tavyterã and Mbya Guaraní ethnic groups and a multicultural indigenous community made up of indigenous people of different ethnicities, mainly from the Maskoy language. The indigenous communities identified are:

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Below, and in summary, the main activities developed to configure the evaluation of social impacts of the indigenous component are cited.

- Analysis of the bibliography and secondary sources related to the project's AID, including the previous studies carried out by PARACEL and giving priority to everything related to indigenous communities;
- Assemblies were held with leaders of the indigenous communities of the AID and the AI to socialize the project, find out their expectations and disseminate the stages of carrying out this study;
- A process of consultation and survey of the baseline of the indigenous communities was carried out, through the participatory rural diagnosis methodology and within the framework of compliance with Decree 1039/18 and IFC Performance Standard 7.
- With the results of the study, the social factors of the indigenous communities that could be affected by the undertaking were defined in relation to the forestry and industrial components;
- The social impact evaluation matrices of this study are adaptations of the matrices used for the impact evaluation of PARACEL's Social Studies, keeping in accordance with the indigenous peoples, allowing the crossing of activities with factors related to indigenous peoples;

- The impact assessment was carried out following the concept of “social significance”, used by the impact assessment of the PARACEL Social Studies.
- A description of each of the identified impacts is made, which will then be addressed by specific mitigation / compensation measures in the Indigenous Peoples Plan.

5.3. Entrepreneurship activities in relation to potentially impacted social environment factors.

For the purposes of this EISCI, the Social Studies of the industrial component and the forestry component of PARACEL were considered as the basis for the preparation of the evaluation matrix of the entrepreneurship activities in its various phases, since these are relevant for indigenous communities. rural.

Within the AID it was identified that the indigenous community of Redención is located within the urban area of the city of Concepción and culturally shares many of the customs of city life that have been considered in the PARACEL Social Studies. For this reason, the impacts described in the Social Studies of the Industrial and Forestry components are valid for this indigenous community and, even though it has been considered for the impact evaluation of this report, it is recommended that it also be considered in all plans. that are deployed from the results of the aforementioned impact evaluations, without prejudice to also incorporating it in the management plans that arise as a result of this evaluation.

For practical purposes, it has been decided to develop a single matrix that combines the stages of the Forestry component and the Industrial component, with the purpose of including the indigenous community of Redención in the same analysis as the other communities that are closer to the undertakings. forestry. Likewise, in the matrices of this report, those stages of the Industrial component that do not generate impacts on the Redención community have been omitted.

5.3.1. Entrepreneurship activities that generate potential impacts.

Next, the aspects derived from the activities of the undertaking are presented, in the stages of the Forestry and Industrial components, which were considered in the PARACEL Social Study.

Table 68. Activities of the Forest component by phase.

N°	Installation	N°	Operation
1	Hiring of personnel for nurseries and plantations.	1	Hiring of personnel for maintenance, harvest and transfer.
2	Nursery installation.	2	Cultural care of growing plants.
3	Controlled burning.	3	Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers).
4	Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers).	4	Maintenance of internal and access / exit roads, and drainage works.
5	Soil preparation, land tillage, plantings (and replacements).	5	Forest harvest.
6	Construction and / or adaptation of internal and access roads and drainage works.	6	Transfer of wood to the Industrial Plant.
7	Solid waste and effluent management.	7	Solid waste and effluent management.

Source: adapted from PARACEL Social Studies.

Table 69. Activities of the Industrial component by phase.

N°	Pre-construction stage	N°	Constructive stage	N°	Operational stage		
1	Perception of the general population.	1	Hiring of personnel for the construction of the Industrial Plant and related services	1	Hiring of personnel for the operation of the Industrial Plant and related services		
2	Units located in the immediate surroundings of the enterprise.	2	Construction of the Industrial Plant and related services	2	Operation of the Industrial Plant and related services		
		3	Transportation of materials, supplies and machinery	3	Transportation of raw materials, supplies and products		
		4	Transportation of personnel / operators linked to the work	4	Transportation of workers from the Industrial Plant		
		5	Construction and / or adaptation of access roads to the Industrial Plant	5	Production and management of emissions (gases, noise and odors)		
		6	Construction and operation of temporary accommodation	6	Effluent production and management		
		7	Management of solid waste, effluents, emissions	7	Solid waste production and management		
		8	Closure or completion of the works	8	Maintenance of access roads to the Industrial Plant	8	Maintenance of access roads to the Industrial Plant
				9	Accommodation of the workers of the Industrial Plant	9	Accommodation of the workers of the Industrial Plant

Source: adapted from PARACEL Social Studies.

Next, the unified aspects of the entrepreneurship activities are presented, omitting those stages of the Industrial component that do not generate impacts on the Redención community.

Table 70. Unification of activities of the Forest and Industrial components by phase.

N°	Installation / Construction	N°	Operation
1	Hiring of personnel (for nurseries, plantations, construction of the Industrial Plant and related services) and temporary accommodation.	1	Hiring of personnel (for maintenance, harvesting and transfer, operation of the Industrial Plant and related services) and accommodation of the workers of the Industrial Plant.
2	Nursery installation and construction of the Industrial Plant and related services.	2	Cultural care of growing plants and operation of the Industrial Plant and related services.
3	Controlled burning.	3	Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers).
4	Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers).	4	Maintenance of internal roads and access / exit to forestry enterprises and Industrial Plant, and drainage works.
5	Soil preparation, land tillage, plantings (and replacements).	5	Forest harvest.
6	Construction and / or adaptation of internal roads and access to forestry enterprises and the Industrial Plant and drainage works.	6	Transfer of raw materials, supplies and wood products to the Industrial Plant and transfer of workers from the Industrial Plant.
7	Management of solid waste, effluents and emissions.	7	Production and management of solid waste and effluents.

Source: self made.

5.3.2. Installation / construction stage.

The installation / construction and operation stages are described below, faithfully adapted from PARACEL's Social Studies:

Hiring of personnel (for nurseries, plantations, construction of the Industrial Plant and related services) and temporary accommodation: process by which PARACEL hires qualified and unskilled labor, suppliers, among others; for seedling production activities in nurseries and their subsequent planting in forest fields. The construction and operation of temporary accommodation is considered an activity related to hiring and which will have as a main consequence an increase in the flow of people.

Installation of nurseries and construction of the Industrial Plant and related services: process of growing eucalyptus seedlings, in specific areas of forest fields or in neighboring towns. And civil works related to the construction of the Industrial Plant, including other related activities, such as possible hydraulic works, foundations, metal structures, concrete, as well as construction and operation of workplaces in the works area, construction and operation of the electric station, construction of its own port terminal, security services, logistics services, among others.

Controlled burning: exceptional and unusual process of planned burning (prescribed burning regulated by local regulations), which could be used only in very particular circumstances. Considered in this study, from the point of view of possible and exceptional effects on indigenous communities.

Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers): process by which appropriate management measures are adopted through the use of chemical products (pesticides, including herbicides and insecticides) and fertilization (fertilizers), in order to control the presence of weeds, insects, as well as enrich the substrate of soil where the plantations will be made. The handling of the products could occur, eventually and on a smaller scale, through aerial spraying.

Soil preparation, tillage, plantings (and replacements): actions are considered from the design of plantations (design and definition of changes in land use); that is, from the planning of forest management, the subsequent mechanical tillage of the soil, the planting of the seedlings prepared in the nurseries (own or outsourced), as well as the possible replacement of those that require it.

Construction and / or adaptation of internal roads and access to forestry enterprises and the Industrial Plant and drainage works: both the access / exit roads of the properties and the Industrial Plant, as well as internal roads within the limits of the PARACEL land. In addition, land drainage works and other related works.

Solid waste, effluent and emissions management: aspects related to the generation, storage, transport and possible final management of waste and effluents from processes and sub-activities in nurseries, during soil preparation and fertilization, chemical control of plantations, as well as those derived from activities human beings themselves, which occur in staff accommodation (staff

dwellings, helmets, administrative positions linked to nurseries, among others), and the emissions that may derive from the works.

5.3.3. Operation / maintenance stage.

The operation / maintenance stages are described below, faithfully adapted from PARACEL's Social Studies:

Hiring of personnel (for maintenance, harvesting and transfer, operation of the Industrial Plant and related services) and accommodation of the workers of the Industrial Plant: As for the installation stage, specialists, unqualified personnel, and labor will be hired for the forest management of the plantations, until their harvest and transfer to the PARACEL Industrial Plant. Temporary accommodations that continue in operation once the works are completed are considered an activity related to hiring and which will have as a main consequence an increase in the flow of people.

Cultural care of growing plants and operation of the Industrial Plant and related services: process by which the mechanical maintenance of the plantations and processes related to the operation of the Industrial Plant is carried out, with emphasis on the "cellulose" production line.

Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers): process by which appropriate management measures are adopted through the use of chemical products (use of herbicides and insecticides); and fertilization (fertilizers). The handling of the products could occur, eventually and on a smaller scale, through aerial spraying.

Maintenance of internal roads and access / exit to forestry enterprises and Industrial Plant, and drainage works: refers to road maintenance works, both for the access / exit of the properties and the Industrial Plant as well as internal roads, and their complementary works (signaling, others), as well as the (drainage) systems.

Forest harvest: the planned set of activities related to the cutting, processing and extraction of logs or other usable parts of the trees is considered for their subsequent transformation, which occurs from year 6-7 after the first planting; and it is carried out mainly in a mechanized way, which guarantees greater safety of the operators. They are debarked and delimbed on site, then they are conditioned in the extraction and stacking area, for their subsequent transfer to the Industrial Plant.

Transfer of raw materials, supplies and wood products to the Industrial Plant and transfer of workers from the Industrial Plant: transport process of harvested wood and raw material to be processed in the Industrial Plant, and of inputs and / or related equipment, also considers the transport of the final products that can be carried out by land and river. In addition, it includes the transportation of workers from the Industrial Plant.

Production and management of solid waste and effluents: Aspects related to the generation, transport, storage and possible final management of waste and effluents generated by processes and sub-activities in nurseries, those derived from human activities of the activities, which are

generated in the accommodation of the staff and the produced by the activities of the Industrial Plant.

5.3.4. Potentially impacted social factors.

Qualitative methodologies based on observation were used and supported by a checklist of social factors that was structured based on a bibliographic review and secondary sources, this allowed the identification of the social factors of the indigenous component that could be affected in the communities as a product of the project stages, and which also guided the elaboration of the Baseline of the communities.

The social factors considered for all these stages are presented in Table 70. The factors are subdivided into specific indicators for indigenous peoples, in order to have a more detailed view of the possible impacts.

Table 71. Social factors and indicators.

Nº	Social factor	Indicator
1	Quality of life, uses and customs	Traditions
2		Rites
3		Native language
4		living place
5		Access to public services
6		Standard of living
7		Feeding
8	Use of ecosystem services related to livelihoods	Hunting and fishing
9		Collection of food, plant tissues, medicinal plants, timber and non-timber
10		Agricultural and livestock production
11	Social organization and own political institutions	Community assembly and decision making
12		Leadership
13		Links with other organizations and representativeness
14	Work and working conditions	Permanent or long-term jobs (> 1 year)
15		Temporary or short-term jobs (<1 year)
16		Sources of income generation
17		Occupational health and safety
18		Exploitative working conditions.
19		Freedom of association and / or collective bargaining
20		Financial services
21		Vocational training
22	Community health and safety	Diseases
23		Crimes
24		Health services and sanitary facilities
25		Propensity to man-made / natural disasters
26	Road safety	
27	Gender equality	Gender equality
28		Changes in the position of women in the social structure
29	Heritage	Changes in the archaeological, cultural, historical and / or religious heritage
30	Demography	Physical displacement
31		Economic displacement
32		Migration
33		Flow of people
34	Land use	Right of way
35		Land tenure

Source: self made.

Next, the social factors are defined, in order to clarify the scope considered in each of them and linked to potential impacts, highlighting that both for the installation and operation phases in forest management there are the same factors:

Quality of life, uses and customs: favorable and unfavorable / negative effects that could be produced by the activities of the undertaking with an effect on the quality of life, uses and customs of the indigenous communities in the area of influence. Regarding quality of life, aspects valued by indigenous families have been considered; such as access to public services (water and electricity), standard of living, food (frequency and nutritional quality) and quality of housing. In relation to the uses and customs, those daily practices carried out by the communities are taken into account, such as leisure / recreational activities, the performance of rites and traditions, the use of the native language.

Use of ecosystem services related to livelihoods: favorable and unfavorable / negative effects that could be produced by the entrepreneurial activities with an effect on the capacity of the indigenous communities in the area of influence to use ecosystem services in relation to their livelihoods. Continuing with the same line of analysis of PARACEL's Social Studies, it has been considered that there are four types of ecosystem services (IFC, 2012): (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulation services, which are the benefits that people obtain from the regulation of ecosystem processes (iii) cultural services, which are the non-material benefits that people obtain from ecosystems and (iv) supporting services.

Social organization and own political institutions: favorable and unfavorable / negative effects that could be produced by the activities of the undertaking with an effect on the social organization and political institutions of the indigenous communities in the area of influence. Regarding social organization, the type of leadership, the connection with other organizations and the representativeness are considered. In relation to their own political institutions, the mechanisms used by indigenous communities to make decisions through participatory community assemblies are considered.

Work and working conditions: favorable and unfavorable / negative effects that could be produced by the entrepreneurial activities on the job opportunity and working conditions of indigenous people. Regarding work, the opportunity to obtain permanent and temporary jobs, the diversification of sources of income in the department, the opportunity to access professional training and the freedom of association and / or collective bargaining are considered. Regarding working conditions, the occupational health and safety of indigenous people, everything related to discrimination, work under exploitative working conditions and access to financial services are considered.

Community Health and Safety: Favorable and unfavorable / negative effects that could be produced by the activities of the undertaking on the health and safety of indigenous communities. Regarding health, the risk of suffering diseases and access to health services and health facilities are considered. Regarding security, the risk of crimes (assaults, drug addiction, prostitution, etc.), road safety and the propensity to anthropic / natural disasters are considered.

Gender equality: favorable and unfavorable / negative effects that could be produced by entrepreneurial activities on gender equality, understanding equality as a universal principle that to be fulfilled, a path of equitable actions that promote equality must first be paved and women must be empowered to strengthen its role within the social structures in which it participates.

Heritage: favorable and unfavorable / negative effects that could be produced by the entrepreneurial activities on the tangible and intangible heritage of indigenous communities, composed of sites, materials, stories and knowledge transmitted orally that are considered part of the archaeological, cultural heritage and resources, spiritual and historical of indigenous peoples.

Demography: favorable and unfavorable / negative effects that could be produced by the activities of the undertaking on the number of population in the indigenous communities of the area of influence, related to displacement, migration and flow of people.

Land use: favorable and unfavorable / negative effects that could be produced by the entrepreneurial activities on the lands of indigenous peoples, related to land tenure and right of way.

5.4. Criteria for impact assessment.

For the evaluation of environmental and social impacts, the quantification methodology used by the PARACEL Social Studies has been taken into account, based on an adaptation of Leopold's methodology, and whose purpose is to assess the impacts according to their importance and magnitude.

For the present study, criteria similar to those of Leopold are used, but where the variables considered have a greater focus on the social environment of indigenous communities, adopting the indicator of "Social Significance" of the impacts. The "nature" (NA) of the impacts can be positive (+) or negative (-), depending on the effect they produce, that is, depending on whether they are favorable or unfavorable.

Table 72. Nature of the social index.

Nature of impact (NA)	Sign	Meaning
Positive Impact	IP (+)	Results in favorable effects and benefits
Negative impact	IN (-)	Indicates unfavorable or negative effects

Source: Social Studies of PARACEL.

The social index of each identified impact is calculated from a formula that relates the estimate of the number of affected (C), the duration of the impact (D), the importance (I) and the occurrence (O), that is, with four variables, according to the following equation:

$$\text{Social Index (IS)} = \frac{(C + D + I) \times O}{3}$$

The explanation of each variable has been adapted to the characteristics of the indigenous peoples and the characteristics of the forestry and industrial component of the enterprise. The value range of each of the variables and their explanation are defined according to the following detail.

Table 73. Variables of the social index and its valuation.

Variable	Initials	Variable value	Detail
Number of affected	C	1 to 3	An indigenous community within AID
		4 to 6	Two to five indigenous communities within AID
		7 to 9	Six to ten indigenous communities within AID
Duration	D	1 to 3	Temporary: less than six months
		4 to 6	Medium: greater than six months less than two years
		7 to 9	Permanent: more than two years
Importance	I	1 to 3	Unimportant: will not have a significant effect on indigenous communities.
		4 to 6	Medium importance: the effect will be of considerable magnitude.
		7 to 9	Very Important: it will generate significant or irreversible changes in indigenous communities.
Idea	O	0.1 to 0.39	Unlikely
		0.4 to 0.69	Medium probability
		0.7 to 0.99	High probability

Source: Adapted from PARACEL Social Studies.

Following the same methodology of the PARACEL Social Studies, after crossing the aspects / activities of the Project, with the social factors of the environment and, according to the formula presented, the result of the social index of the identified social impacts is obtained, where finally, the impacts are quantified in high, medium and low social significance, according to the scores presented in the following table:

Table 74. Social index and category of impacts.

Impact Type	Social significance	Social Index
High Impact	HIGH	6.01 to 9
Medium Impact	HALF	3.01 to 6
Low Impact	SHORT	0.1 to 3

Source: Social Studies of PARACEL.

Impacts of low and medium significance can be minimized with preventive measures and best practices, while those of high significance must be addressed in a particular way, considering that some of them may require prevention, mitigation or compensation measures, as each impact warrants.

5.5. Interaction matrix between social factors of indigenous communities and the stages of the Project.

To guide the process of quantification and analysis of the project's impacts, interactive matrices have been developed that allow previewing which project activities could generate impacts on social factors, whether positive or negative. The activities of hiring workers, the influx of people and the construction, adaptation and maintenance of roads are those that show the greatest relationship to changes in indigenous social factors.

Likewise, it has been observed that some of the social indicators identified at the beginning for the realization of this evaluation and in light of the baseline elaborated for this study, will not be affected, such as "Rites", "Native language", "Community assembly and decision-making", "Changes in archaeological, cultural, historical and / or religious heritage", "Physical displacement" and "Economic displacement".

Table 75. Matrix of social factors and aspects derived from the activities of the installation / construction stage of the project.

			PARACEL activities in the operation / maintenance stage						
Nº	Social factor	Indicator	Hiring of personnel (for nurseries, plantations, construction of the industrial plant and related services) and temporary accommodation.	Installation of nurseries and construction of the industrial plant and related services.	Controlled burning	Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers).	Soil preparation, land tillage, plantings (and replacements).	Construction and / or adaptation of internal roads and access to forestry enterprises and the industrial plant and drainage works.	Management of solid waste, effluents and emissions.
1	Quality of life, uses and customs	Traditions	X					X	
2		Rites							
3		Native language							
4		living place	X						
5		Access to public services						X	
6		Standard of living	X					X	
7		Feeding	X						
8	Use of ecosystem services related to livelihoods	Hunting and fishing	X		X	X		X	
9		Collection of food, plant tissues, medicinal plants, timber and non-timber	X		X			X	
10		Agricultural and livestock production	X					X	

			PARACEL activities in the operation / maintenance stage						
Nº	Social factor	Indicator	Hiring of personnel (for nurseries, plantations, construction of the industrial plant and related services) and temporary accommodation.	Installation of nurseries and construction of the industrial plant and related services.	Controlled burning	Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers).	Soil preparation, land tillage, plantings (and replacements).	Construction and / or adaptation of internal roads and access to forestry enterprises and the industrial plant and drainage works.	Management of solid waste, effluents and emissions.
11	Social organization and own political institutions	Community assembly and decision making							
12		Leadership	X						
13		Links with other organizations and representativeness	X						
14	Work and working conditions	Permanent or long-term jobs (> 1 year)	X						
15		Temporary or short-term jobs (<1 year)	X						
16		Sources of income generation	X					X	
17		Occupational health and safety	X	X	X	X	X		X
18		Exploitative working conditions.	X						
19		Freedom of association and / or collective bargaining	X						
20		Financial services	X						
21		Vocational training	X						
22	Community health and safety	Diseases	X						X
23		Crimes	X					X	
24		Health services and sanitary facilities	X					X	
25		Propensity to man-made / natural disasters			X	X			X
26		Road safety						X	X

			PARACEL activities in the operation / maintenance stage						
Nº	Social factor	Indicator	Hiring of personnel (for nurseries, plantations, construction of the industrial plant and related services) and temporary accommodation.	Installation of nurseries and construction of the industrial plant and related services.	Controlled burning	Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers).	Soil preparation, land tillage, plantings (and replacements).	Construction and / or adaptation of internal roads and access to forestry enterprises and the industrial plant and drainage works.	Management of solid waste, effluents and emissions.
27	Gender equality	Gender equality	X						
28		Changes in the position of women in the social structure	X						
29	Heritage	Changes in the archaeological, cultural, historical and / or religious heritage							
30	Demography	Physical displacement							
31		Economic displacement							
32		Migration	X						
33		Flow of people	X	X			X	X	
34	Land use	Right of way			X			X	
35		Land tenure							

Source: self made.

Table 76. Matrix of social factors and aspects derived from the activities of the operation / maintenance stage of the project.

			PARACEL activities in the operation / maintenance stage						
Nº	Social factor	Indicator	Hiring of personnel (for maintenance, harvesting and transfer, operation of the industrial plant and related services) and accommodation of the workers of the industrial plant.	Cultural care of growing plants and operation of the industrial plant and related services.	Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers).	Maintenance of internal roads and access / exit to forestry enterprises and industrial plants, and drainage works.	Forest harvest.	Transfer of raw materials, supplies and wood products to the Industrial Plant and transfer of workers from the industrial plant.	Production and management of solid waste and effluents.
1	Quality of life, uses and customs	Traditions	X			X			
2		Rites							
3		Native language							
4		living place	X						
5		Access to public services				X			
6		Standard of living	X			X			
7		Feeding	X						
8	Use of ecosystem services related to livelihoods	Hunting and fishing	X		X	X			
9		Collection of food, plant tissues, medicinal plants, timber and non-timber	X			X			
10		Agricultural and livestock production	X			X			
11	Social organization and own political institutions	Community assembly and decision making							
12		Leadership	X						
13		Links with other organizations and representativeness	X						

			PARACEL activities in the operation / maintenance stage						
Nº	Factor social	Indicador	Hiring of personnel (for maintenance, harvesting and transfer, operation of the industrial plant and related services) and accommodation of the workers of the industrial plant.	Cultural care of growing plants and operation of the industrial plant and related services.	Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers).	Maintenance of internal roads and access / exit to forestry enterprises and industrial plants, and drainage works.	Forest harvest.	Transfer of raw materials, supplies and wood products to the Industrial Plant and transfer of workers from the industrial plant.	Production and management of solid waste and effluents.
14	Work and working conditions	Permanent or long-term jobs (> 1 year)	X						
15		Temporary or short-term jobs (<1 year)	X						
16		Sources of income generation	X			X			
17		Occupational health and safety	X	X	X		X	X	X
18		Exploitative working conditions.	X						
19		Freedom of association and / or collective bargaining	X						
20		Financial services	X						
21		Vocational training	X						
22	Community health and safety	Diseases	X						X
23		Crimes	X			X			
24		Health services and sanitary facilities	X			X			
25		Propensity to man-made / natural disasters			X				X
26		Road safety				X		X	X

			PARACEL activities in the operation / maintenance stage						
Nº	Social factor	Indicator	Hiring of personnel (for maintenance, harvesting and transfer, operation of the industrial plant and related services) and accommodation of the workers of the industrial plant.	Cultural care of growing plants and operation of the industrial plant and related services.	Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers).	Maintenance of internal roads and access / exit to forestry enterprises and industrial plants, and drainage works.	Forest harvest.	Transfer of raw materials, supplies and wood products to the Industrial Plant and transfer of workers from the industrial plant.	Production and management of solid waste and effluents.
27	Gender equality	Gender equality	X						
28		Changes in the position of women in the social structure	X						
29	Heritage	Changes in the archaeological, cultural, historical and / or religious heritage							
30	Demography	Physical displacement							
31		Economic displacement							
32		Migration	X						
33		Flow of people	X			X	X	X	
34	Land use	Right of way			X		X		
35		Land tenure							

Source: self made.

According to the factor interaction matrices, for both stages of the project, it can be seen that the factors "Quality of life, uses and customs", "Use of ecosystem services related to subsistence modes", "Social organization and political institutions own", "Work and working conditions", "Community health and safety", "Gender equality" and "Demography", could be affected, positively or negatively, by the various activities of the enterprise.

The following indicators will not be affected: "Rites", "Native language", "Community assembly and decision-making", "Changes in archaeological, cultural, historical and / or religious heritage", "Physical displacement", "Economic displacement" And "Land tenure".

By way of explanation of the aforementioned, the indigenous communities do not practice rites or ceremonies on the lands where PARACEL's undertakings will be carried out, nor do the project activities hinder the performance of any rite. The native languages of the indigenous communities are used in ceremonies and rites that will not be affected by PARACEL and the language they usually use is preferably Guaraní, with which they communicate on a daily basis with people inside and outside their community.

The project activities do not affect the holding of community assemblies nor do they positively or negatively influence the deliberative processes of each community, which can take from a few

hours to weeks, by virtue of favoring consensus and participation. The indigenous communities do not have any patrimonial link with the lands on which PARACEL's undertakings will be carried out, so they will not have losses in their archaeological, cultural, historical and religious heritage, the same cemeteries are within the properties of the indigenous communities, except for the cemetery of the urban indigenous community of Redención, which uses the city's cemetery.

The project will not be carried out in the territories of the communities nor will it force the physical displacement of indigenous families. Likewise, the project will not affect the land tenure of the communities, fully respecting what is dictated by Law 904/81 and all other laws that promote the self-determination of indigenous peoples to usufruct and decide on their lands. Finally, the change from livestock production to forestry production will not harm families, it will not affect the use of ecosystem services of nearby indigenous communities or force families to make economic displacement to other areas of the department or the country to be able to work.

5.6. Result of Social Impacts.

5.6.1. Matrices of social impacts identified by activities and stages of the project.

Next, the social impact matrices are presented, designed from the matrices of social factors and aspects derived from the activities of the installation / construction and operation / maintenance stages of the project.

In the following matrices it can be seen which factors, indicators and impacts are associated with each project activity.

Table 77. Social impacts identified in the installation / construction stage.

Activity	Social factor	Indicator	Impact
Hiring of personnel (for nurseries, plantations, construction of the industrial plant and related services) and temporary accommodation.	Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.
		living place	Increase in purchasing power to improve homes in accordance with their welfare standards.
		Standard of living	Increase in the degree of well-being or wealth.
		Feeding	Improvement of food security conditions.
	Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.
		Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.
		Agricultural and livestock production	Decrease in family farming and livestock production practices.
	Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.
		Leadership	Increased internal conflict to take leadership positions.
		Links with other organizations and representativeness	Increase and strengthen ties with local organizations.
	Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).
		Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (< 1 year).

		Sources of income generation	Expansion of sources of income generation in the department.
		Occupational health and safety	Improvement of the occupational health and safety conditions of hired indigenous people.
		Exploitative working conditions.	Reduction of work in exploitative conditions.
		Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.
		Financial services	Access to financial services and banking.
		Vocational training	Increased opportunities for professional training.
	Community health and safety	Diseases	Increased risk of disease, including STDs.
		Crimes	Increase in the flow of people and the probability of suffering crimes.
		Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.
	Gender equality	Gender equality	Greater equal opportunities for personal and professional development.
Changes in the position of women in the social structure		Strengthening the role of women in the social structure thanks to education and work.	
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnic group.	
	Flow of people	Increased flow of people from outside the communities	
Installation of nurseries and construction of the industrial plant and related services.	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
	Demography	Flow of people	Increased flow of people from outside the communities
Controlled burning.	Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.
		Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.
	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
	Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.
	Land use	Right of way	Difficulty navigating access roads to the community.
Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers).	Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.
	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
		Occupational health and safety	Propensity to man-made / natural disasters.
Soil preparation, land tillage, plantings (and replacements).	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
	Demography	Flow of people	Increased flow of people from outside the communities
Construction and / or adaptation of internal roads and access to forestry enterprises and the industrial plant and drainage works.	Quality of life, uses and customs	Traditions	Improvement of the routes for the realization of customs, such as, for example, leisure walks.
		Access to public services	Greater access to public services
		Standard of living	Increase in the degree of well-being or wealth.
	Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.

		Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.
		Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.
		Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.
	Work and working conditions	Sources of income generation	Expansion of sources of income generation in the Department.
	Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.
		Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.
		Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.
Demography	Flow of people	Increased flow of people from outside the communities	
Land use	Right of way	Difficulty navigating access roads to the community.	
Management of solid waste, effluents and emissions.	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
	Community health and safety	Diseases	Increased risk of disease, including STDs.
		Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.
		Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.

Source: self made.

Table 78. Social impacts identified in the operation / maintenance stage.

Activity	Social factor	Indicator	Impact
Hiring of personnel (for maintenance, harvesting and transfer, operation of the industrial plant and related services) and accommodation of the workers of the industrial plant.	Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.
		living place	Increase in purchasing power to improve homes in accordance with their welfare standards.
		Standard of living	Increase in the degree of well-being or wealth.
		Feeding	Improvement of food security conditions.
	Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.
		Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.
		Agricultural and livestock production	Decrease in family farming and livestock production practices.
	Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.
		Leadership	Increased internal conflict to take leadership positions.
		Links with other organizations and representativeness	Increase and strengthen ties with local organizations.
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	
	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	

		Sources of income generation	Expansion of sources of income generation in the Department.
		Occupational health and safety	Improvement of the occupational health and safety conditions of hired indigenous people.
		Exploitative working conditions.	Reduction of work in exploitative conditions.
		Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.
		Financial services	Access to financial services and banking.
		Vocational training	Increased opportunities for professional training.
	Community health and safety	Diseases	Increased risk of disease, including STDs.
		Crimes	Increase in the flow of people and the probability of suffering crimes.
		Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.
	Gender equality	Gender equality	Greater equal opportunities for personal and professional development.
		Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.
	Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnic group.
Flow of people		Increased flow of people from outside the communities	
Cultural care of growing plants and operation of the industrial plant and related services.	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers).	Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.
	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
	Community health and safety	Propensity to man-made / natural disasters	Propensity to man-made / natural disasters
Maintenance of internal roads and access / exit to forestry enterprises and industrial plants, and drainage works.	Quality of life, uses and customs	Traditions	Improvement of the routes for the realization of customs, such as, for example, leisure walks.
		Access to public services	Greater access to public services
		Standard of living	Increase in the degree of well-being or wealth.
	Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.
		Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.
		Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.
		Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.
	Work and working conditions	Sources of income generation	Expansion of sources of income generation in the Department.
	Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.
		Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.

		Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.
	Demography	Flow of people	Increased flow of people from outside the communities
	Land use	Right of way	Difficulty navigating access roads to the community.
Forest harvest.	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
	Demography	Flow of people	Increased flow of people from outside the communities
Transfer of raw materials, supplies and wood products to the Industrial Plant and transfer of workers from the Industrial Plant.	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
	Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.
	Demography	Flow of people	Increased flow of people from outside the communities
Production and management of solid waste and effluents.	Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.
	Community health and safety	Diseases	Increased risk of disease, including STDs.
		Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.
		Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.

Source: self made.

5.6.2. Result of valuation of social impacts.

Next, the quantifications of the impacts are presented using the method presented in the chapter “Criteria for impact assessment”. For the practical purposes of this study, it has been decided to quantify only once those impacts related to more than one Project activity, giving priority to the activity where the impact is most affected. Likewise, an impact quantification table has been prepared for each stage of the project.

It has been decided to write in blue the results of the Social Index and Social Significance of the positive impacts, in order to facilitate reading and help the reader to direct their attention to what is most important to attend to.

Table 79. Assessment of the social significance of the social impacts identified in the installation / construction stage.

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs that are assigned to them on a dependent basis for PARACEL or its suppliers.	-1	9	7	3	0,7	-4,43	Half

Quality of life, uses and customs	Traditions	Improvement of the routes for the realization of customs, such as, for example, leisure walks.	1	4	9	1	0,9	4,20	Half
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0,5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	1	3	8	6	0,6	3,4	Half
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0,7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0,5	4,17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0,2	-1,13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	-1	4	1	2	0,4	-0,93	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	1	4	8	3	0,9	4,50	Half
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0,1	-0,8	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0,2	-1,07	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	1	4	2	2	0,3	0,80	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short

Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0,9	6,60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,8	6,40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,8	5,6	Half
			Social variables					Social index	Significance
Social factor	Indicator	Impact	Sign	C	D	I	O		
Work and working conditions	Sources of income generation	Expansion of sources of income generation in the Department.	1	9	7	8	0,9	7,20	High
Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.	-1	9	4	4	0,2	-1,13	Short
Work and working conditions	Occupational health and safety	Improvement of the occupational health and safety conditions of hired indigenous people.	1	9	8	9	0,9	7,80	High
Work and working conditions	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0,8	6,93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0,5	3,33	Half
Work and working conditions	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and working conditions	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0,8	-6,13	High

Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0,7	-5,13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0,5	3,00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	-1	5	7	4	0,6	-3,2	Half
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	-1	4	8	9	0,8	-5,60	Half
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0,4	2,53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,20	Half

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnic group.	-1	5	8	6	0,8	-5,07	Half
Demography	Flow of people	Increased flow of people from outside the communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	-1	4	1	4	0,3	-0,90	Short

Source: self made.

Table 80. Assessment of the social significance of the social impacts identified in the operation / maintenance stage.

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs that are assigned to them on a dependent basis for PARACEL or its suppliers.	-1	9	7	3	0,7	-4,43	Half
Quality of life, uses and customs	Traditions	Improvement of the routes for the realization of customs, such as, for example, leisure walks.	1	4	9	1	0,9	4,20	Half
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0,5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	1	3	8	6	0,6	3,4	Half
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0,7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0,5	4,17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0,2	-1,13	Short

Factor social	Indicador	Impacto	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	-1	4	1	2	0,4	-0,93	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	1	4	8	3	0,9	4,50	Half
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0,2	-1,07	Short

Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	9	7	9	0,1	-0,83	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	1	4	2	2	0,3	0,80	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0,9	6,60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,6	4,80	Half
			Social variables					Social index	Significance
Social factor	Indicator	Impact	Sign	C	D	I	O		
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,6	4,20	Half
Work and working conditions	Sources of income generation	Expansion of sources of income generation in the Department.	1	9	7	8	0,6	4,80	Half
Work and working conditions	Occupational health and safety	Risk of contracting occupational diseases related to work activities.	-1	9	4	4	0,2	-1,13	Short
Work and working conditions	Occupational health and safety	Improvement of the occupational health and safety conditions of hired indigenous people.	1	9	8	9	0,8	6,93	High
Work and working conditions	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0,8	6,93	High

Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0,5	3,33	Half
Work and working conditions	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and working conditions	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,6	3,60	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0,8	-6,13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0,7	-5,13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0,5	3,00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	-1	5	7	4	0,4	-2,13	Short
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	-1	4	8	9	0,8	-5,60	Half
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0,4	2,53	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,20	Media
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnic group.	-1	5	8	6	0,8	-5,07	Media
Demography	Flow of people	Increased flow of people from outside the communities	-1	7	9	7	0,9	-6,90	Alta
Land use	Right of way	Difficulty navigating access roads to the community.	-1	4	1	4	0,3	-0,90	Baja

Source: self made.

Thirty-five (35) potential social impacts were identified and grouped for both stages of the project, which share, in most cases, the same assessments.

Although most of the indicators maintain their Social Index and Significance, the abrupt decrease in hiring of workers by PARACEL and the enterprises related to its value chain once the Installation / Construction phase is completed and the Operation / Maintenance phase is completed. In both the Industrial and Forestry components, a decrease could be observed in the impacts related to the Labor factor and Labor Conditions.

It should be noted that, in some cases, social impacts with "low" social significance may be had, especially due to the small universe of indigenous communities potentially affected, however, many of the social impacts with "low" social significance must also be addressed. for affecting vulnerable groups, in order to guarantee respect for the rights of indigenous peoples and to comply with the current legal regulatory framework, as well as the international standards of social and environmental management to which this project subscribes. This is especially observed in those social factors and indicators that are directly related to the daily life of indigenous families and their quality of life, such as "Agricultural and livestock production", "Gender equity" and "Right of way".

5.6.3. Result of the assessment of social impacts.

Next, the contextualization and analysis of the impacts valued with high and medium significance is presented, grouped by social factors, specifying the activities of the undertaking that generate them and listing the communities that could be most affected.

For each impact, a table of "Impact Characterization" has been prepared, which contains the following information differentiated by stage of the project:

Table 81. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive negative	+ / -
Number of affected communities	One / Two to Five / Six to Ten	1 to 3/4 to 6/7 to 9
Duration	Temporary / Medium / Permanent	1 to 3/4 to 6/7 to 9
Importance	Little important / Medium importance / Very important	1 to 3/4 to 6/7 to 9
Idea	Unlikely / Medium probability / High probability	0.1 to 0.39 / 0.4 to 0.69 / 0.7 to 0.99
OPERATION / MAINTENANCE STAGE		
Concept	Concept	Concept
Nature	Positive negative	+ / -
Number of affected communities	One / Two to Five / Six to Ten	1 to 3/4 to 6/7 to 9
Duration	Temporary / Medium / Permanent	1 to 3/4 to 6/7 to 9
Importance	Little important / Medium importance / Very important	1 to 3/4 to 6/7 to 9
Idea	Unlikely / Medium probability / High probability	0.1 to 0.39 / 0.4 to 0.69 / 0.7 to 0.99

Source: self made.

In addition, the measures that the project could implement to avoid, prevent or mitigate impacts are mentioned. No impact was detected that requires the implementation of a compensation strategy.

5.7. Analysis of Social Impacts.

5.7.1. QUALITY OF LIFE, USES AND CUSTOMS.

5.7.1.1. Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

As reported in the field work by the families of rural indigenous communities, their times for getting up and going to bed are often strongly influenced by the cycles of nature and the sun, such as dawn and dusk, the song of the animals that begins at dawn, among others. Although the indigenous people state that they use alarm mechanisms - such as their cell phones - to wake up earlier when they have to go to activities outside their community, such as meetings or go to a health center, this is usually atypical to their daily lives and does not hinder carrying out other practices of their daily life, such as drinking hot mate before breakfast.

A very typical dynamic of work in the Paraguayan field is that the laborers usually stop their work to form rounds of 4 to 5 people who gather to drink tereré (yerba mate with cold water) and rest from the heat. This practice carried out by the workers and which is deeply rooted in the customs of life in the countryside, has its roots in indigenous customs, who tend to come together to share rounds of tereré while they work. In many cases, these dynamics are considerably accepted in the field, both due to the great difficulty of preventing them and the obvious need for workers to cool off in seasons when the heat exceeds 40º Celsius, as well as because of the informal work conditions that allows pawns certain licenses.

The formalization of the work that PARACEL proposes for the departments where it will have operations and the high levels of excellence that it will demand from the ventures of its value chain, could mean that the hired indigenous people have to adapt to new schedules and customs.

Table 82. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Ten communities	9
Duration	Permanent	7
Importance	Less important	3
Idea	High probability	0,7
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Ten communities	9
Duration	Permanent	7
Importance	Less important	3
Idea	High probability	0,7

Source: self made.

Measures.

It is recommended to implement an indigenous Labor Inclusion Program that allows:

- Promote indigenous labor inclusion in PARACEL and in the ventures of its value chain, considering the cultures of origin of indigenous workers.
- Monitor the adaptation of indigenous people who must reside in temporary accommodation.
- Prevent disrespect for the rights of indigenous peoples and discrimination against hired indigenous people and those residing in temporary accommodation.

Responsible for the application of the measures.

PARACEL and companies in its value chain.

Forecast after application of measures.

The implementation of measures will allow the hired indigenous workers to feel comfortable in their new jobs and work teams, it will favor adaptation and respect for their rights.

5.7.1.2. Improvement of the routes for the realization of customs, such as, for example, leisure walks.

Activities of the installation stage that generate the impact.

- Construction and / or adaptation of internal and access roads and drainage works.

Activities of the maintenance stage that generate the impact.

- Maintenance of internal and access / exit roads, and drainage works.

Indigenous communities that will be mainly affected.

- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

The construction, adaptation and improvement of roads that PARACEL will carry out will allow indigenous families to move more easily from one place to another.

The improvement of the Ramal Paso Barreto / Puentesíño route will allow the indigenous communities Vy'a Renda and Takuarendyju, located on one side of the same route, to travel more easily on foot or vehicle, reducing the effort they make and the travel times. The improvement of the roads surrounding the communities will be of benefit so that families can enter and leave their communities more easily, both for carrying out leisure activities and to go to health and educational centers.

Likewise, the Takuarita indigenous community will be able to take advantage of the construction, adaptation and improvement of roads that will be carried out for the forestry undertakings of the Hermosa and Gavilán ranches, located 1 km away.

Table 83. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Three communities	4
Duration	Permanent	9
Importance	Less important	1
Idea	High probability	0,9
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Three communities	4
Duration	Permanent	9
Importance	Less important	1
Idea	High probability	0,9

Source: self made.

Measures.

As can be seen in the preceding table, the impact is positive and it is not observed that it requires a specific measure. However, it is indirectly linked to road safety, therefore, it is recommended to articulate a Community Health and Safety Program that allows:

- Strengthen road safety on the roads that are used in a shared way by the project and the indigenous communities.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will allow indigenous people who use shared roads to feel safer to travel on foot or by vehicle, reducing the risk of accidents.

5.7.1.3. Increase in purchasing power to improve homes in accordance with their welfare standards.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

From the gathering of information for the elaboration of the Baseline, it was possible to perceive that a comment made by the families in a transversal way in all the socialization activities and participatory rural diagnosis workshops, is the desire to own houses of “material”, Made from bricks and cement, as they perceive that the quality of the home is a symbol of quality of life and well-being.

The humblest dwellings found in indigenous communities are built with dirt floors, without foundations or concrete supporting structures other than six or eight wooden posts that support a structure of branches and a roof of kapi’í thatch, tied with fibers, ysypo vegetables, in many cases the rain and storms require families to add extra materials to their precarious homes, who waterproof their homes using plastics from garbage bags and political advertising posters.

In relation to the construction materials with which the houses of rural communities within the AID have been made, 40% have walls made with palm trunks, adobe, staking, cardboard or rubber, while 51% use wood or plywood, the remaining 9% use brick, cement or sheet metal. On the other hand, 95% of the homes have dirt floors and only 5% have brick or grout floors. Regarding roofs, 40% of the houses use thatch roof or reinforced with cardboard or rubber, 51% use zinc sheet and the remaining 9% use better quality materials such as concrete, tile, tile or fiber cement.

Regarding the dimensions of the dwellings of rural indigenous communities, 59% of indigenous dwellings have a single environment, mainly intended to be a multipurpose room where they sleep and store their belongings. 29% have 2 rooms, most of these families use one of the rooms as a bedroom and the other as a kitchen and storage room. The remaining 12% of the homes have more than 3 rooms.

In the urban indigenous community of Redención, the characteristics of the houses are different from those of the rural indigenous communities, because access to construction materials is much easier. In this community, 56% of the homes are built with bricks and 64% of the homes have brick, grout, tile or ceramic floors. Although the improvement of the roads will not affect the Redención community so that they have access to better construction materials for their homes, the families state that one of their expectations is that the increase in income from working for PARACEL will allow them to save money enough to improve their homes.

Table 84. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Nine communities	9
Duration	Permanent	8
Importance	Very important	8
Idea	Medium probability	0,5
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Nine communities	9
Duration	Permanent	8
Importance	Very important	8
Idea	Medium probability	0,5

Source: self made.

Measures.

As can be seen in the preceding table, the impact is positive and it is not observed that it requires a specific measure. However, it is indirectly linked to improved income and employment, so it is recommended to articulate this impact to a Labor Inclusion Program, with a financial education component, which allows:

- Educate hired indigenous people and their families in household financial management concepts, tools and strategies.

Responsible for the application of the measures.

PARACEL and the enterprises that work in its value chain.

Forecast after application of measures.

The implementation of measures will allow the indigenous people hired by PARACEL or by the enterprises that work in its value chain, to carry out good money management that allows them to meet their personal and family goals and improve their living standards.

5.7.1.4. Greater access to public services.

Activities of the installation stage that generate the impact.

- Construction and / or adaptation of internal and access roads and drainage works.

Activities of the maintenance stage that generate the impact.

- Maintenance of internal and access / exit roads, and drainage works.

Indigenous communities that will be mainly affected.

- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

The activities of construction, adaptation and maintenance of the roads are directly linked to the development of the region and will positively affect the indigenous communities within the AID, but there are some communities that due to their geographical position could be especially benefited.

The indigenous communities of Vy'a Renda and Takuarendyju, located on the side of the Ramal Paso Barreto / Puentesíño route that connects the La Blanca, Mandiyú and Trementina ranches, and Takuarita, located between the Zanja Morotí, Gavilán and Hermosa ranches, could be considered in the garbage and waste collection path of PARACEL.

The Vy'a Renda and Takuarita communities have access to electricity services from ANDE and potable water from ESSAP and, although they are not able to distribute these services to all families, they are on track to eventually do so. However, the indigenous community of Takuarendyju, one of the communities with fewer families within the AID, is totally disconnected from public services - water and electricity -, this community could take advantage of the improvement in the sector that arises as a result of the conversations between PARACEL and public bodies, such as ANDE and ESSAP, to benefit from the activities arising from future agreements and access these public services.

Table 85. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Three communities	3
Duration	Permanent	8
Importance	Medium importance	6
Idea	Medium probability	0,6
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Three communities	3
Duration	Permanent	8
Importance	Medium importance	6
Idea	Medium probability	0,6

Source: self made.

Measures.

As can be seen in the preceding table, the impact is positive and it is not observed that it requires a specific measure. However, it is indirectly linked to the increase and strengthening of links with local organizations, such as ANDE, so it is recommended to articulate this impact to a Social Management Program with indigenous communities of the AID that allows:

- Strengthen the link and social capital between indigenous communities and other interest groups, such as local and regional public institutions.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will allow indigenous communities to develop greater social capital with public institutions, being able to favor their access and distribution of public services, such as electricity.

5.7.1.5. Increase in the degree of well-being or wealth.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

The department of Concepción is one of the departments in the country with the highest rates of poverty and extreme poverty. According to the DGEEC (2016), in the Incidence of Poverty and Extreme Poverty by Department 1997 to 2016, in general terms, poverty and extreme poverty in the department of Concepción are 40.62% and 9.36%, respectively, and according to the DGEEC (2012) with an index of households with at least one Unsatisfied Basic Need (NBI) of 56.2%. While poverty in the department of Amambay reaches 19.42% and extreme poverty is 3.19%, and according to the DGEEC (2012) with an index of households with at least one Unsatisfied Basic Need (NBI) of 48.3%.

Of the total working population, considered between 18 and 65 years of age, it is identified that 70% do not receive an income, 7% declare that they earn less than Gs 100,000 per week, 7% declare that they receive between Gs 101,000 and Gs 300,000, the 9% declare that they receive between Gs 301,000 and Gs 500,000 and 7% declare that they receive an income higher than Gs 500,000, in most cases well below the average per capita income in the sector of occupation of farmers and agricultural and fishing workers of Gs 1,693,000 that reflects the EPH (2017).

During the fieldwork, some families mentioned that they usually travel economically during certain periods of the year to work in ranches in the Chaco, where they work in exchange for housing, food and money, the latter usually being around Gs 400,000 (guaraníes) per month.

The creation of jobs that will be attributed to the activities of PARACEL and the entire value chain that will be developed, will promote economic growth that will be experienced, especially, in the department of Concepción, providing new opportunities to generate income for indigenous families, not only because of the possibility of working for PARACEL or the companies that will outsource services, but also because of the possibility of joining other value chains that grow as a consequence of the economic development of the department.

Table 86. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Very important	9
Idea	High probability	0,7
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Very important	9
Idea	High probability	0,7

Source: self made.

Measures.

As can be seen in the preceding table, the impact is positive and it is not observed that it requires a specific measure. However, it is indirectly linked to the expansion of sources of income generation in the department and employment, so it is recommended to articulate this impact to a Labor Inclusion Program, with a financial education component, which allows:

- Educate hired indigenous people and their families in household financial management concepts, tools and strategies.

Responsible for the application of the measures.

PARACEL and the enterprises that work in its value chain.

Forecast after application of measures.

The implementation of measures will allow the indigenous people hired by PARACEL or by the enterprises that work in its value chain, to carry out good money management that allows them to meet their personal and family goals and improve their living standards.

5.7.1.6. Improvement of conditions for food security.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

Food safety and nutrition are fundamental elements for the biopsychosocial development of people, it is widely studied in medicine and it is popular domain that nutrition is especially important in early childhood, where the central nervous system is in full swing. development and that the lack of adequate nutrition at this stage could trigger irreversible damage to the child (Mönckeberg, 2014).

In this sense, the majority of rural indigenous families have prioritized that a large part of their time is allocated to the production of food for their families. 96% of the families living in rural indigenous communities state that they dedicate themselves to agricultural production to meet their food needs. Of the families that are dedicated to family farming production, 78% of them state that they allocate all of their production to food at home, while 20% mention that a part uses it for their own food and another part for food. sale or barter and only 2% state that they fully allocate their production to sale or barter.

The agricultural species that indigenous families have mainly chosen to produce are cassava, beans, corn, sweet potatoes, peanuts, bananas and squash. And the animal species that they mostly breed are pigs, chickens, goats and cows.

In relation to barter, there are some indigenous communities within the AID that claim to barter products in exchange for meat in ranches that are owned by PARACEL and that are currently being used for livestock production. In this context of bartering, some families of the Takuarita indigenous community usually do it frequently in the Gavilán ranch and, occasionally, in the Zanja Moroti ranch, on the other hand, some families of the Vy'a Renda indigenous community do it in the ranch. Turpentine. The move from livestock to forestry production in PARACEL farms could mean a reduction in protein intake for these families, which should be of special care given the vulnerable conditions in which these families find themselves.

Although for the present study no specific diagnoses were made to know the degree of malnutrition of girls, boys and adolescents, in light of the results of the III National Census of Population and Housing for Indigenous Peoples carried out by the DGEEC in 2012 that they mention Since 41% of indigenous children under 5 years of age suffer from chronic malnutrition, it could be assumed that a large part of the families in these communities could be within these rates. However, 72% of families state that they eat three times a day, 24% state that they eat twice a day, and 4% of rural indigenous families state that they eat only once a day.

Due to the aforementioned, the hiring of indigenous people in PARACEL activities or in the ventures of its value chain, can become an opportunity for many families of the communities within the AID to improve their food and nutrition conditions, accessing a greater dietary diversity.

Table 87. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Very important	8
Idea	Medium probability	0,5
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Very important	8
Idea	Medium probability	0,5

Source: self made.

Measures.

It is recommended to implement a Program to Strengthen Family Production and Generation of Added Value that allows:

- Carry out agricultural technical assistance that favor the installation of capacities in indigenous families to increase and improve family production.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will allow families to implement better agricultural production strategies and methodologies that favor an increase in production volume and an improvement in food quality.

5.7.2. USE OF ECOSYSTEM SERVICES RELATED TO LIVELIHOODS.

5.7.2.1. Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.

Activities of the installation stage that generate the impact.

- Construction and / or adaptation of internal and access roads and drainage works.

Activities of the maintenance stage that generate the impact.

- Maintenance of internal and access / exit roads, and drainage works.

Indigenous communities that will be mainly affected.

- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

As mentioned in previous points, the activities of construction, adaptation and maintenance of the roads are directly linked to the development of the region and will positively affect the indigenous communities within the AID, but there are some communities that due to their geographical position could be especially benefited.

Of all the indigenous communities within the AID, there are three that state that they make use of ecosystem services within PARACEL's properties, carrying out hunting, fishing and gathering activities: forty families from the Vy'a Renda indigenous community and two families from the community indigenous Takarendyju declare that they make use of ecosystem services in the forests of Estancia Trementina and thirty-four families of the indigenous community of Takuarita that claim to use ecosystem services in Estancias Gavilán, Trementina, Hermosa, San Liberato and Zanja Morotí.

Indigenous families mostly use the following species from ecosystem services:

- Hunting: mborevi (*tapirus terrestris*), capybara (*hydrochoerus hydrochaeris*), tajy kati (*tayassu pecari*) and tatu guazu (*prionodontes maximus*).
- Fishing: tare'yi (*hoplias malabaricus*), mandí'i (*pimoleodus clarias*) and piraju (*salminus brasiliensis*).
- Collection: honey, yvapura (*plinia cauliflora*), guava (*psidium*), inga (*Inga*) and apepu (*citrus aurantium*).

As shown by the maps of the PARACEL forest plantations in the aforementioned ranches, none will affect the forests in which indigenous families practice their hunting and fishing activities, but the internal roads that are developed for the circulation of PARACEL workers could facilitate them the transit to these forests.

Table 88. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Three communities	4
Duration	Permanent	8
Importance	Less important	3
Nature	Positive	0,9
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Three communities	4
Duration	Permanent	8
Importance	Less important	3
Idea	High probability	0,9

Source: self made.

Measures.

As can be seen in the preceding table, the impact is positive and it is not observed that it requires a specific measure. However, it is indirectly linked to road safety, therefore, it is recommended to articulate a Community Health and Safety Program that allows:

- Strengthen road safety on the roads that are used in a shared way by the project and the indigenous communities.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will allow indigenous people who use shared roads to feel safer to travel on foot or by vehicle, reducing the risk of accidents.

5.7.2.2. Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.

Activities of the installation stage that generate the impact.

- Construction and / or adaptation of internal and access roads and drainage works.

Activities of the maintenance stage that generate the impact.

- Maintenance of internal and access / exit roads, and drainage works.

Indigenous communities that will be mainly affected.

- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

The improvement of the General Elizardo Aquino and Ramal Paso Barreto / Puentesíño routes that will be used for the transport of wood and the increase in population density in the departments of Concepción and Amambay, could generate the development of interdistrict private transport lines that seek to respond to the greater demand among the urban centers of Concepción, Yby Yaú, Sargento José Félix López and Bella Vista Norte, favoring the mobilization of those communities that use these same routes to reach urban centers with the aim of obtaining tools for agricultural production.

All indigenous communities within AID use these routes. In relation to the General Elizardo Aquino route that connects the cities of Yby Yaú and Bella Vista Norte, the closest indigenous communities are Yvyty Rovi 7 km from the route, Mberyvo 7 km from the route, Apyka Jegua 11 km from the route, Guyra Ñe'engatu Amba 12 Km from the route and Sati 15 Km from the route.

In relation to the Ramal Paso Barreto / Puentesíño route that connects the cities of Concepción and Sargento José Félix López, the closest indigenous communities are Vy'a Renda 0.4 km from the route, Takuarendyju 0.4 km from the route, Takuarita 14 km from the route.

Jeguahaty is located at an equidistant point 15 km from both routes, General Elizardo Aquino and Ramal Paso Barreto / Puentesíño.

Table 89. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Nine communities	8
Duration	Permanent	8
Importance	Medium importance	6
Idea	High probability	0,9
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Nine communities	8
Duration	Permanent	8
Importance	Medium importance	6
Idea	High probability	0,9

Source: self made.

Measures.

It is recommended to implement a Program to Strengthen Family Production and Generation of Added Value that allows:

- Train families in the production of higher value-added products that allow them to enter the market and take advantage of the economic growth of the department.
- Prioritize the hiring of indigenous entrepreneurs who develop products and services that meet PARACEL's purchasing needs.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measur

The implementation of measures will allow families to take advantage of the economic growth of the department, developing products that adapt to the needs of the new market segments that will appear as the PARACEL project is implemented.

5.7.3. SOCIAL ORGANIZATION AND OWN POLITICAL INSTITUTIONS.

5.7.3.1. Strengthening the role of the leader within the community.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

Law No. 904/81 of Paraguay makes it explicit that any organization outside the indigenous communities is strictly prohibited from influencing their political administration or the election of representative leaders. However, it is important to be aware that the majority of indigenous communities are vulnerable groups that, in many cases, have fragile governance that is administered by family groups that prioritize their own interests, the mere fact that an external organization such as PARACEL has The initiation of relations with the communities through the mediation of the chiefs is already an action that can trigger the strengthening or weakening of the internal governance of the community, depending on how this relationship develops.

The election of political leaders in indigenous communities is carried out in assemblies, sometimes these election processes are usually long, demanding several days, weeks and even months, before the family groups reach agreements about who will be the designated person. as a chief, who will be responsible for working for the well-being of all the families that make up the community and representing them publicly in front of external organizations, such as public institutions, civil society organizations and private companies. Both the appointment and removal of political leaders is the responsibility of all members of the community and is usually driven by one or more family groups.

According to the indigenous families in the participatory rural diagnosis activities, they are satisfied with their leaders for having started relations with PARACEL and for allowing surveys and meetings to be carried out within the community. These statements, however simple they may

seem, in an indigenous community can reflect deep political support for the leader, which has an impact on the strengthening and maintenance of the person in their role.

Table 90. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Half	4
Importance	Less important	2
Idea	High probability	0,8
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Half	4
Importance	Less important	2
Idea	High probability	0,8

Source: self made.

Measures.

It is recommended to implement a Social Management Program with Indigenous Communities of AID, with a leadership component that allows:

- Empower leaders who mediate relations between PARACEL and indigenous communities, to promote the construction of solid and lasting collaborative relationships, based on trust, commitment and mutual respect.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will allow communities to strengthen the governance of their own institutions and for their leaders to develop competencies that empower them in their role, helping communities to have better relationships with their own stakeholders.

5.7.4. WORK AND LABOR CONDITIONS.

5.7.4.1. Increase in indigenous people hired with permanent or long-term jobs (> 1 year).

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

According to the information provided by the PARACEL Social Studies, the company will require up to 70% of unskilled labor that will be properly trained, 20% of qualified professionals and 10% of qualified technicians, foreseeing that around 47.5 % is local workforce living within the AID of the Project delimited by Social Studies. Considering that in the first 2 to 3 years of the project, the hiring of between 5,000 and 8,000 people is expected, this means that it is estimated that between 3,500 and 5,600 unqualified people will be hired within the AID.

In the rural indigenous population there is a population of 446 people of working age, between 18 and 65 years of age, who could mostly be considered as unskilled labor. 45% of this population has not received any type of education, 45% attended or completed basic education, 5% completed or completed secondary education and less than 1% have received some type of instruction in higher education. Of the 446 people of working age living in rural indigenous communities studied in this report, 50% cannot read or write. The majority of people of working age, in addition to the tasks they carry out in their own family productions, work on ranches carrying out agricultural peonage and domestic cleaning activities,

In the urban indigenous population there is a population of 245 people of working age, between 18 and 65 years of age, which could mostly be considered as unskilled labor. 18% of this population has not received any type of education, 64% attended or completed basic education, 16% completed or completed secondary education and less than 2% have received some type of instruction in higher education. Of the 245 people of working age living in the urban indigenous

community, 22% cannot read or write. Most people of working age work in telebingo sales, house cleaning, masonry, and agricultural peonage.

Table 91. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Half	6
Importance	Very important	9
Idea	High probability	0,8
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Half	6
Importance	Very important	9
Idea	High probability	0,6

Source: self made.

Measures.

It is recommended to implement a Labor Inclusion Program that allows:

- Promote the labor inclusion of indigenous people in PARACEL and the ventures of its value chain, through the identification of positions adjusted to the training levels of indigenous people of working age and the needs of the companies.
- Ensure that indigenous wages are leveled at the same wages as non-indigenous workers who perform the same tasks.

Responsible for the application of the measures.

PARACEL and the enterprises that work in its value chain.

Forecast after application of measures.

The implementation of measures will allow the hiring of indigenous people to be promoted in PARACEL and in the enterprises that work in its value chain, favoring the improvement of the standard of living of families and the general economic growth of their community.

5.7.4.2. Increase in indigenous people hired with temporary or short-term jobs (<1 year).

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

As mentioned in the preceding point, the indigenous working-age population of the communities in the rural and urban sectors amounts to 446 and 245 people, respectively. They will have the possibility of being hired by PARACEL and the ventures of its value chain, being mostly unskilled labor.

Table 92. Characterization of the impact.

ETAPA DE INSTALACIÓN/CONSTRUCCIÓN		
Concepto	Cualitativa	Cuantitativa
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Half	4
Importance	Very important	8
Idea	High probability	0,8
ETAPA DE OPERACIÓN/MANTENIMIENTO		
Concepto	Cualitativa	Cuantitativa
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Half	4
Importance	Very important	8
Idea	High probability	0,6

Source: self made.

Measures.

It is recommended to implement a Labor Inclusion Program that allows:

- Promote the labor inclusion of indigenous people in PARACEL and the ventures of its value chain, through the identification of positions adjusted to the training levels of indigenous people of working age and the needs of the companies.
- Ensure that indigenous wages are leveled at the same wages as non-indigenous workers who perform the same tasks.

Responsables en la aplicación de las medidas.

PARACEL and the enterprises that work in its value chain.

Pronóstico después de la aplicación de medidas.

The implementation of measures will allow the hiring of indigenous people to be promoted in PARACEL and in the enterprises that work in its value chain, favoring the improvement of the standard of living of families and the general economic growth of their community.

5.7.4.3. Expansion of sources of income generation in the department.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.
- Construction and / or adaptation of internal and access roads and drainage works.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.
- Maintenance of internal and access / exit roads, and drainage works.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

PARACEL is expected to become a milestone in the development of Concepción and the country, being a potential dynamizer of the economy, generating a hiring of between 5,000 and 8,000 people at the highest point of the construction phase of the plant and promoting the generation of between 10,000 and 30,000 indirect jobs in different business clusters that will be developed along with the progress of PARACEL's activities, such as hotels, gastronomy, hospitals, laboratories and schools, among others, they could become important industries that benefit from economic growth.

Indigenous families will be able to expand their income generation possibilities, taking advantage of the employment opportunities of PARACEL and the companies in its value chain, as well as inserting themselves into the new business clusters that are developed or deploying their own enterprises to satisfy the demands of the new market segments.

Table 93. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	7
Importance	Very important	8
Idea	High probability	0,9
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	7
Importance	Very important	8
Idea	High probability	0,6

Source: self made.

Measures.

It is recommended to implement a Social Management Program with Indigenous Communities of the AID that allows:

- Monitor the impacts of the department's economic growth on indigenous communities.
- Strengthen the linkage of communities with interest groups that can promote their inclusion in the labor market.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will make it possible to promote the inclusion of indigenous people of working age and the insertion of indigenous enterprises in business clusters that arise as a consequence of the economic growth of the department.

5.7.4.4. Improvement of the occupational health and safety conditions of hired indigenous people.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

Most of the indigenous people who participated in this study work in the informal sector, this means that they do not receive labor benefits for their work and are not registered with the Social Security Institute (IPS), which is in charge of ensuring health and safety. the retirement of all workers.

The formalization of the labor ties related to the hiring of PARACEL and of the ventures of its value chain, will help to comply with the current national legislation and will improve the quality of life of the people directly employed by PARACEL and by the companies. that they provide services

In addition, the formalization of labor ties with indigenous labor could set a positive precedent at the national level, denoting the importance of respect for the Rights of Indigenous Peoples, the protection of Fundamental Rights at Work of the ILO and the correct compliance with Performance Standard 2 of the International Finance Corporation.

Table 94. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Very important	9
Idea	High probability	0,9
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Very important	9
Idea	High probability	0,8

Source: self made.

Measures.

It is recommended to implement a Program of Good Practices and Audits for Suppliers that allows:

- Audit the correct compliance with working conditions and occupational health and safety conditions of the indigenous people hired in PARACEL and in the ventures of its value chain, in addition to preventing the disrespect for the rights of indigenous peoples.

Responsible for the application of the measures.

PARACEL and the enterprises that work in its value chain.

Forecast after application of measures.

The implementation of measures will prevent non-compliance with the occupational health and safety conditions required by the Labor Code and current Paraguayan legislation, in addition to promoting respect for the rights of indigenous peoples.

5.7.4.5. Reduction of work in exploitative conditions.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected..

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

The Paraguayan State has ratified most of the norms and conventions that provide protection against contemporary forms of slavery, such as the 1926 Slavery Convention and the 1956 Supplementary Convention; has ratified its commitment to the International Convention on the Elimination of All Forms of Racial Discrimination of the United Nations General Assembly, the United Nations Declaration on the Rights of Indigenous Peoples, the American Declaration on the Rights of Peoples Indigenous people of the Organization of American States, the Protocol of San Salvador, the American Convention on Human Rights and the American Declaration of the Rights and Duties of Man;

Despite all the aforementioned, Ms. Urmila Bhoola, Special Rapporteur of the Office of the United Nations High Commissioner for Human Rights, was able to verify during her visit to Paraguay in 2017 that work-related practices continue to exist in the country. forced in the indigenous communities of the Paraguayan Chaco, such as debt bondage, servanthood and payment with food.

In the indigenous communities identified within the AID, it was observed in the Baseline that many of the indigenous people who are working in ranches close to their communities are informally employed, many of them receiving lower payments than the daily wage stipulated by law. of Gs 84,340, on many occasions they are not provided with safety clothing and tools nor do they have medical insurance that allows them to face the costs of an accident or occupational disease. It was

even identified that there are cases of child exploitation of girls, boys and adolescents in the indigenous community of Redención, where some are dedicated to working day and night selling gambling cards.

The indigenous communities identified within the AID seem to be in a better situation than those located in the Paraguayan Chaco, but it is worth mentioning that due to the distance between the city of Concepción and the Chaco, many indigenous families in the department often cross the river. Paraguay in search of work, this means that the exploitative working conditions in which they live, especially rural ones, are one step away from becoming forced labor, according to what was exposed by Ms. Urmila Bhoola (2017).

As mentioned in the previous impact, the formalization of the labor ties related to the hiring of PARACEL and of the ventures of its value chain, will help to reduce work in exploitable conditions, to comply with current national legislation and improve the quality of life of the people directly employed by PARACEL and by the companies that provide services, contributing to compliance with Performance Standard 2 of the International Finance Corporation.

Table 95. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Very important	9
Idea	High probability	0,8
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Very important	9
Idea	High probability	0,8

Source: self made.

Measures.

It is recommended to implement a Program of Good Practices and Audits for Suppliers that allows:

- Audit the correct compliance with working conditions and occupational health and safety conditions of the indigenous people hired in PARACEL and in the ventures of its

value chain, in addition to preventing the disrespect for the rights of indigenous peoples.

Responsible for the application of the measures.

PARACEL and the enterprises that work in its value chain.

Forecast after application of measures.

The implementation of measures will prevent non-compliance with the occupational health and safety conditions required by the Labor Code and current Paraguayan legislation, in addition to promoting respect for the rights of indigenous peoples.

5.7.4.6. Opportunity to participate in labor associations and unions.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

The historical informality in which the indigenous people of the communities within the AID work and the ignorance of everything established in the Paraguayan Labor Code promulgated by

Law No. 213/93, has generated a total inexperience regarding everything related to labor associations and unions.

The formalization of the labor ties related to the hiring of PARACEL and the ventures of its value chain, will allow the hired indigenous people to participate in new types of associativity, such as the union, favoring the development of their social capital and strengthening their leadership role. in the decisions of your working life.

Table 96. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Less important	3
Idea	Medium probability	0,5
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	8
Importance	Less important	3
Idea	Medium probability	0,5

Source: self made.

Measures.

It is recommended to implement a Labor Inclusion Program that allows:

- Advise hired indigenous people about the opportunities for association that formal work entails.

Responsible for the application of the measures.

PARACEL and the enterprises that work in its value chain.

Forecast after application of measures.

The implementation of measures will allow indigenous people who are formally hired to be aware of associativity opportunities related to formal work, such as unionization and membership in cooperatives, especially those that favor agricultural and rural development.

5.7.4.7. Access to financial services and banking.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

The labor formalization of PARACEL's contracts and of the enterprises that work in its value chain, will promote an increase in the bankarization of the indigenous people who are hired, allowing them to access other instruments related to financial inclusion, such as savings accounts, credit and insurance.

In Paraguay, two public programs of monetary transfers are carried out that have contributed to the bankarization of the most vulnerable population, including indigenous families living in conditions of poverty and extreme poverty, these are the Tekopora program of the Ministry of Social Development and the Pension Food for Older Adults of the Ministry of Finance.

The Tekopora Program is designed with the purpose of becoming a socio-family and community accompaniment carried out by social technicians who guide families to access public services and to implement better hygiene, food and health habits; and of being a financial aid through bimonthly monetary transfers that are delivered to families in situations of poverty, extreme poverty and vulnerability and that are stipulated according to the number of eligible people in each household - boys and girls under 18 years of age, pregnant women , older adults and people with disabilities -. In the case of indigenous families, a single amount of Gs 225,000 is paid.

Alimony Pension for Older Adults is a program of monetary transfers to adults over 65 who live in poverty, it is a monthly assistance equivalent to 25% of the current minimum wage, that is, of Gs 548,209 for the year 2021.

On the one hand, financial inclusion is a great step in the development of indigenous families that, well conducted, can contribute to the achievement of the Sustainable Development Goals and the 2030 Agenda (Kappler, 2016), but, on the other hand, puts families in a new scenario of risks related to consumption and credit that, without adequate financial education, could lead to a decrease in their quality of life.

Table 97. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	8
Duration	Permanent	9
Importance	Less important	3
Idea	Medium probability	0,5
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	8
Duration	Permanent	9
Importance	Less important	3
Idea	Medium probability	0,5

Source: self made.

Measures.

It is recommended to implement a Labor Inclusion Program, with a financial education component, which allows:

- Educate hired indigenous people and their families in concepts, tools, and strategies for household financial management and the use of financial instruments, with an emphasis on responsible debt acquisition.

Responsible for the application of the measures.

PARACEL and the enterprises that work in its value chain.

Forecast after application of measures.

The implementation of measures will prevent indigenous families from misusing financial instruments, especially loans and credit cards, since misuse could lead to a decrease in their quality of life.

5.7.4.8. Increased opportunities for professional training.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

As mentioned in point 5.7.4.1., The PARACEL project will require up to 70% of unskilled labor that will require technical training and that the vast majority of indigenous people of working age in the communities within the AID have a low level of education or formal training.

In order to train people from the Concepción Department in skills that will be employable by PARACEL and its value chain, the company has established agreements with the Ministry of Labor, Employment and Social Security (MTESS) and the National Service for Professional Promotion (SNPP), for the training of 1,000 people in areas such as special foundations, construction manager, soil mechanics, construction worker and surveying assistant, among others.

To date, a group of indigenous people from the Redención community states that they have participated in the training courses that PARACEL is conducting in alliance with the MTESS and the SNPP, including 22 people who have already graduated from the Home Electricity Course.

Table 98. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Temporary	3
Importance	Medium importance	6
Idea	Medium probability	0,8
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Temporary	3
Importance	Medium importance	6
Idea	Medium probability	0,6

Source: self made.

Measures.

It is recommended to implement different programs that promote opportunities for indigenous technical and professional training. The programs that should be linked to indigenous training are the Labor Inclusion Program, the Program for Strengthening Family Production and Generation of Added Value and the Program for the Empowerment of Women, allowing:

- Develop skills that favor the labor inclusion of vulnerable groups.

Responsible for the application of the measures.

PARACEL, the enterprises that work in its value chain and the public institutions linked to the training of skills and the promotion of employment.

Forecast after application of measures.

The implementation of measures will enhance the labor inclusion of indigenous people of working age and will allow them to develop capacities that align with their own interests, vocations and possibilities.

5.7.5. COMMUNITY HEALTH AND SAFETY.

5.7.5.1. Increased risk of disease, including STDs.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

The increase in the temporary and permanent population associated with the PARACEL project activities could increase the spread of diseases, including sexually transmitted diseases. The risk of spreading diseases is especially risky during the context of the COVID-19 pandemic, due to the lack of documentation on basic diseases in the indigenous population and the difficulty that families have in reaching health centers where they can receive care suitable.

The increase in vehicular traffic and road construction and maintenance work could raise the levels of pollution in the air and soil, affecting the health of indigenous people, especially those communities closest to forestry enterprises, such as Vy ' to Renda, Takuarendyju and Takuarita. On the other hand, the increase in population density and the development of illicit practices such as drug addiction and prostitution in Concepción could increase the risk of suffering health conditions for the indigenous people of the Redención community, especially due to the spread of diseases.

Likewise, the risk of improper handling of waste, effluent and emissions from the construction of the plant and forestry enterprises could generate harmful effects on the health of people who come into contact with contaminated substances or materials.

It should be noted that all preventive measures to anticipate and avoid adverse impacts on the health and safety of communities are set out in IFC Performance Standard 4 on Community Health and Safety.

Table 99. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Four communities	5
Duration	Permanent	9
Importance	Very important	9
Idea	High probability	0,8
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Four communities	5
Duration	Permanent	9
Importance	Very important	9
Idea	High probability	0,8

Source: self made.

Measures.

It is recommended to implement a Community Health and Safety Program that allows:

- Monitor the health of families in the communities.
- Promote and monitor access to health posts that are built in PARACEL's rooms.
- Carry out a preventive health plan that prevents the spread of diseases and the performance of illicit practices that affect health, such as drug addiction and alcoholism.
- Carry out a sex education plan, especially aimed at warning about sexually transmitted diseases and ways to avoid them.

Responsible for the application of the measures

PARACEL.

Forecast after application of measures.

The implementation of measures will prevent and mitigate the impacts related to the contagion and spread of diseases, including sexually transmitted diseases, caused by the increase in the flow of the temporary and permanent population.

5.7.5.2. Increase in the flow of people and the probability of suffering crimes.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.
- Construction and / or adaptation of internal and access roads and drainage works.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for nurseries and plantations.
- Construction and / or adaptation of internal and access roads and drainage works.

Indigenous communities that will be mainly affected.

- Redención.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

As described in point 5.7.1.1., The increase in the temporary and permanent population, the improvement of roads and the economic growth of the department of Concepción, are expected to affect an increase in the population surrounding the indigenous communities, mainly those closest to the PARACEL forestry enterprises and the roads.

The increase in the flow of people and the greater purchasing power of the population could be attractive to certain groups that could decide to migrate to the departments of Concepción and Amambay, with the aim of carrying out illegal activities, such as drug sales, assaults, prostitution and human trafficking, among others.

As detected in the field work, in general the indigenous communities face and solve their security problems autonomously, but the increase in the flow of people, the remoteness of the police stations and a lower proportion of the number of police officers per number of inhabitants, it could mean that indigenous communities are more defenseless to face more serious or frequent security problems.

As shown in the Management Report of the Public Ministry, in the period between January 1 and October 31, 2019, 5,364 cases were entered in the department of Concepción, of which the most frequent were aggravated theft, family violence, theft, coercion and cattle rustling. On the other hand, in the department of Amambay, 5,667 cases were registered in the same period, of which the most frequent were family violence, theft, aggravated robbery, injury and exposure to danger in land traffic.

In the case of the urban indigenous community of Redención, due to the context of vulnerability in which they live, their geographical location within the city of Concepción and the information collected in the Baseline, it can be assumed that the youth of this community could be seen mostly affected. Although there are no conclusive means of verification, some key people who were interviewed during the field phase asserted that there are young people within the community who use drugs and who practice prostitution and crime, practices that could be exacerbated due to economic growth that the city of Concepción will face.

Table 100. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Four communities	5
Duration	Permanent	9
Importance	Very important	8
Idea	High probability	0,7
OPERATION / MAINTENANCE STAGE		
Concepto	Cualitativa	Cuantitativa
Nature	Negative	-
Number of affected communities	Four communities	5
Duration	Permanent	9
Importance	Very important	8
Idea	High probability	0,7

Source: self made.

Measures.

It is recommended to implement a Community Health and Safety Program that allows:

- Advise communities for the prevention of crimes inside and outside their properties, especially those that harm the health and well-being of people, such as drug addiction and prostitution.
- Legally advise indigenous families who have been victims of crimes.
- Monitor the safety of families in indigenous communities.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will prevent the impacts related to the increased risk of suffering crimes, caused by the increase in the flow of the temporary and permanent population.

5.7.5.3. Increased risk of man-made disasters due to waste management.

Activities of the installation stage that generate the impact.

- Controlled burning.
- Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers).
- Management of solid waste, effluents and emissions.

Activities of the maintenance stage that generate the impact.

- Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers).
- Production and management of solid waste and effluents.

Comunidades indígenas que se verán principalmente afectadas.

- Redención.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

As mentioned by the PARACEL Social Studies, the garbage collection service in the city of Concepción is provided to a limited population of 8,500 taxpayers and the waste is directed to a landfill that no longer supplies enough. The Sargento José Félix López, Yvy Yaú, Paso Barreto, Bellavista districts, which are those where rural indigenous communities are located, do not have or have very limited garbage collection services.

Most of the population resorts to burning or burying garbage as a means of controlling their waste. In the case of the indigenous communities studied, only the indigenous community of Redención has access to garbage collection services, since it is located in the city of Concepción. The other indigenous communities carry out the practices of burning, burying and piling up garbage in vacant places.

The increase in the temporary and permanent population in the department will impact on an increase in the problem of waste management, promoting the practices of burning and burying garbage and the stacking in streets, vacant places and mountains, with potential effects on health and the quality of life of the communities.

Although PARACEL declares that it will not carry out controlled burning activities to reduce the amount of combustible material that could generate possible fires and to reduce weeds in the lands where the forest plantations will be carried out, it must be borne in mind that in the event that PARACEL carries out Controlled burning activities, known in Paraguay as Prescribed Burning, according to Law 4014 of Prevention and Control of Fires, these activities will generate fumes and dust that will affect the indigenous communities bordering the plantations, this could trigger respiratory affectations and any other affectation related to poor air quality. Regarding ecosystem services, burning could temporarily scare away some species of local fauna.

Taking into consideration PARACEL's declaration that it will not carry out controlled burning, it is estimated that the probability of this impact occurring is low, however, it should also be

considered that poor management of a controlled burning could turn into a fire and trigger a man-made disaster, putting at risk the physical integrity of nearby indigenous communities, especially those of Takuarita, Vy'a Renda and Takuarendyju, and endangering plant, timber and non-timber species, and wildlife.

Table 101. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Four communities	5
Duration	Permanent	7
Importance	Medium importance	4
Idea	High probability	0,7
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Four communities	5
Duration	Permanent	7
Importance	Medium importance	4
Idea	High probability	0,4

Source: self made.

Measures.

It is recommended to implement a Community Health and Safety Program that allows:

- Monitor waste management.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will prevent man-made disasters related to the mismanagement of waste, such as the burning and burial of garbage and the piling in streets, vacant places and mountains.

5.7.5.4. Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.

Activities of the installation stage that generate the impact.

- Nursery installation.

- Chemical control of plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers).
- Soil preparation, land tillage, plantings (and replacements).
- Construction and / or adaptation of internal and access roads and drainage works.
- Solid waste and effluent management.

Activities of the maintenance stage that generate the impact.

- Cultural care of growing plants.
- Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers).
- Maintenance of internal and access / exit roads, and drainage works.
- Forest harvest.
- Transfer of wood to the Industrial Plant.
- Solid waste and effluent management.

Indigenous communities that will be mainly affected.

- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

The implementation of the project will mean an increase in vehicular traffic on the roads of the Concepción department, both for light vehicles and heavy vehicles, due to the transportation needs of people, wood, supplies, machinery, waste and effluents.

There will be a greater increase in vehicular traffic in the areas surrounding the industrial plant, the roads that lead to the forestry enterprises and on the General Bernardino Caballero route, also called the "timber route". According to the data provided by the PARACEL Social Studies, there will be stages of the project where the traffic is greater than in others, for example, during the harvest season and the transfer of wood to the industrial plant, an estimated flow of 1 truck each 4 minutes from ages 6-7 from the moment of installation of the plantations in each room. Vehicle traffic will also be affected by the private vehicles of the temporary and permanent population related to the project, who will use motorcycles, cars and trucks.

The improvement of the roads, the increase in vehicular traffic and the increase in family income, could mean that a greater number of indigenous families will have access to the purchase of motorcycles, who sometimes drive without a driver's license, generating an increase in the risk of accidents, especially from driving motorcycles at high speed and without safety equipment, in those indigenous communities that are located on the side of the road.

According to reports from the National Traffic and Road Safety Agency (ANTSV) from 2018 to 2019, 53% of those killed in road accidents were motorcycle drivers. The number of motorcycle accidents has increased by 3,070% in the last 18 years, rising from 20 fatal motorcycle accidents in 2000 to 614 accidents in 2018. According to the ANTSV, only 34.5% of motorbike drivers controlled motorcycle wore a safety helmet. In 2017 there were 711 deaths from motorcycle accidents throughout the country, of which 4% occurred in the department of Concepción and 4% in the department of Amambay.

In addition, the increase in vehicular traffic represents an additional risk for pedestrians, who use these roads to go to cities or to get closer to places where they take advantage of ecosystem services.

It is important to note that ISO 39001 is a complete guide for the development of Road Safety management systems focused on reducing the number of deaths and injuries due to traffic accidents and that its field of action may favor other stakeholders of the PARACEL project, in addition to indigenous peoples.

Table 102. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Three communities	4
Duration	Permanent	8
Importance	Very important	9
Idea	High probability	0,8
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Three communities	4
Duration	Permanent	8
Importance	Very important	9
Idea	High probability	0,8

Source: self made.

Measures.

It is recommended to implement a Community Health and Safety Program, with a road safety component that allows:

- Design and implement educational activities for road safety.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will prevent the risk of road accidents related to increased traffic of light and heavy vehicles.

5.7.6. GENDER EQUALITY.

5.7.6.1. Strengthening the role of women in the social structure thanks to education and work.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Jeguahaty.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.
- Sati.
- Guyra Ñe'engatu Amba.
- Mberyvo.
- Yvyty Rovi.
- Apyka Jegua.

Description.

Gender equality refers to the installation of social contexts where all women and all men enjoy the same rights, without the distinction of sex being detrimental to equal opportunities, remuneration, training and social patterns of relationship.

Indigenous women around the world represent a vulnerable group that faces greater barriers than others, because they face triple discrimination, this means that they are discriminated against for being women, indigenous and poor (United Nations, 2021). Indigenous women from the communities within the AID are not immune to triple discrimination, especially those who live in rural indigenous communities, who face conditions of social and economic exclusion, in addition to overcoming enormous difficulties in defending their rights. In the case of being hired, many

indigenous women become the object of discrimination, due to gender issues related to their ethnic and socioeconomic origin.

As mentioned by the OIT (2019), the situation of poverty and vulnerability of indigenous women around the world has been aggravated by the lack of care services and political infrastructures that enable women to combine paid employment with service work unpaid care they perform in their homes. This coincides with the information collected in the Baseline, where it can be seen that, for the performance of household tasks, in 92% of families the woman is in charge of cooking, cleaning and washing clothes, showing a great difference with the 2% of the families who mention that the man is in charge of these activities and the 5% who state that they perform household chores in a collaborative way between the man and the woman.

It should be taken into consideration that the inclusion of indigenous women is necessary for the achievement of sustainable development and that the implementation of plans that allow for socio-labor inclusion will have repercussions on the social dynamics within the communities.

In relation to the social and family dynamics in the rural indigenous communities studied in this report, it was observed that 81% of the women participate in the assemblies or *aty guazu*, instances of discussion and deliberation about the public affairs of each community, 88% of women state that they participate in household decision-making. Also, in relation to the administration of household finances, 48% of households declare that it is the woman or head of household who manages the money, in 25% of households it is the man or head of household who manages money, in 32% of households it is women and men who agree together to manage money and that in 11% of households women and men decide independently how to manage their money.

In the indigenous community of Redención, a very different situation occurs in the public and household dynamics. In the Redención community, 87% of the households declare that it is the woman who manages the family's money, 91% of the women mention participating in the assemblies or *aty guazu* and 92% of the women declare that they participate in the decisions of home. However, 99% of families state that it is the woman who is in charge of household chores, that is, cooking, cleaning and washing clothes.

The inclusion of indigenous women through education and work will represent one of the great challenges that the PARACEL project will have to deal with if it intends to favor this vulnerable group. When reviewing the PARACEL documentation that could institutionalize the promotion of the hiring of indigenous women, it has been detected that in the Human Talent Policy and in the PARACEL Recruitment and Selection Policy, it is declared that vulnerable groups, including indigenous and women will be favored and not discriminated against in job calls and opportunities; and in the Equal Opportunities and Non-Discrimination Policy, it is declared that PARACEL assumes the commitment to promote gender equality by creating initiatives that allow the participation of women in activities, responsibilities,

Finally, contributing to the empowerment of indigenous women favors the achievement of 4 of the Sustainable Development Goals -goals 5, 8, 10 and 15- and contributes to guaranteeing full

respect for the rights of indigenous peoples. To carry out work that lasts over time, it is recommended to work in alliance with the different public institutions and organizations that are aligned with this goal, generating synergies for the creation of propitious environments for the full participation of indigenous women.

Table 103. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	7
Importance	Medium importance	5
Idea	Medium probability	0,6
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Positive	+
Number of affected communities	Ten communities	9
Duration	Permanent	7
Importance	Medium importance	5
Idea	Medium probability	0,6

Source: self made.

Measures.

It is recommended to implement a Women's Empowerment Program and a Health and Safety Program, which allow:

- Narrow gender and ethnic inequality gaps.
- Train indigenous women in skills that promote their labor inclusion.
- Raise awareness about the Human Rights of Women and the importance of gender equality.
- Promote the linkage of women with indigenous people with government programs focused on the empowerment of women.
- Prioritize and promote the hiring of indigenous women.

Responsible for the application of the measures.

PARACEL and the enterprises that work in its value chain.

Forecast after application of measures.

The implementation of measures will enhance the empowerment, training and formal hiring of women, assuming improvements in the standard of living for them, their families and their communities, as well as contributing to the reduction of ethnic and gender inequality gaps.

5.7.7. DEMOGRAPHY.

5.7.7.1. Immigration of relatives to the indigenous community from other communities of the same ethnic group.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.

Indigenous communities that will be mainly affected.

- Redención.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

Migration is a practice embedded in the cultures of rural indigenous communities, in this case of the Paĩ Tavyterã and Mbyá Guaraní ethnic groups. Indigenous people usually carry out pendular migration between one community and another, the main reasons for their migration are for work and for the reunion with their relatives whom they visit for a few days, weeks and even, sometimes, months or years. This does not mean that they lose their roots in the community of origin in which they live.

The opportunity to work in the construction phase of the plant and the installation of forestry enterprises could spread expectations among the indigenous communities furthest from AID, triggering migratory processes towards the communities closest to the places where there could be a greater demand for hand working. In this sense, the indigenous communities that could be more likely to receive relatives with the expectation of finding work in PARACEL or in the enterprises of its value chain, are Vy'a Renda, Takuarendyju, Takuarita and Redención, the latter more than anything, due to the economic growth that the city of Concepción will experience.

Table 104. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Four indigenous	5
Duration	Permanent	8
Importance	Medium importance	6
Idea	High probability	0,8
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Four indigenous	5
Duration	Permanent	8
Importance	Medium importance	6
Idea	High probability	0,8

Source: self made.

Measures.

It is recommended to implement a Social Management Program with AID indigenous communities that allows:

- Disseminate accurate information about the project that allows adjusting the expectations of the indigenous people of the indigenous communities.
- Monitor the impacts produced by the migratory behavior of indigenous people to the communities within the AID.

Responsible for the application of the measures.

PARACEL.

Forecast after application of measures.

The implementation of measures will make it possible to monitor migratory behavior in indigenous communities within AID and to disseminate accurate information about hiring opportunities, in order to adjust the expectations of indigenous people and their families.

5.7.7.2. Increase in the flow of people from outside the communities.

Activities of the installation stage that generate the impact.

- Hiring of personnel for nurseries and plantations.
- Nursery installation.
- Soil preparation, land tillage, plantings (and replacements).

- Construction and / or adaptation of internal and access roads and drainage works.

Activities of the maintenance stage that generate the impact.

- Hiring of personnel for maintenance, harvest and transfer.
- Cultural care of growing plants.
- Maintenance of internal and access / exit roads, and drainage works.
- Forest harvest.
- Transfer of wood to the Industrial Plant.

Indigenous communities that will be mainly affected.

- Redención.
- Sati.
- Jeguahaty.
- Guyrá Ñe'engatu Amba.
- Mberyvo.
- Vy'a Renda.
- Takuarendyju.
- Takuarita.

Description.

PARACEL's activities will increase the influx of people in the departments of Concepción and Amambay, especially in the district of Concepción, where a large part of the workers will be accommodated during the construction period of the pulp mill, installation of forestry enterprises and maintenance. of the operation.

The increase in the flow of people within the AID is directly related to the hiring and outsourcing to carry out PARACEL activities, which during the construction phase will be around 5,000 to 8,000 people hired, during the first 2 years. 3 years, additionally the indirect generation of 10,000 to 30,000 new jobs is expected, adding to an increase in the temporary and permanent population that, attracted by the economic growth of the area, would migrate to AID with the expectation of generating income through the sale of products or services.

According to data provided by the company and ratified by the Social Studies of PARACEL, the employment opportunities for unskilled labor that will be generated as a result of the activities of the installation and operation of plantations and forest nurseries, will be 70% Of the total number of people hired, who could be interested in finding accommodation for their families in small urban centers close to forestry enterprises, which have cheaper rents and more quiet areas, such as Yby Yaú and Sargento José Félix López.

The increase in population in these urban centers could increase the flow of people from outside the indigenous communities that are located near these cities or between the cities and the forestry enterprises. However, indigenous communities are quite far from the nearest cities.

The closest communities to Yby Yaú are Sati which is 15 Km away, Jeguahaty which is 17 Km away, Guyrá Ñe'engatu Amba which is 17 Km away, Mberyvo which is 20 Km away, Vy'a Renda which is 20 Km and Takuarendyju, which is 20 km away, these last two communities are located just 5 km from the PARACEL ranch called Mandiyú and are on the Ramal Paso Barreto / Puentesíño route that connects the PARACEL ranches, so it could see a significant increase of the volume of people outside their communities.

On the other hand, the indigenous community closest to the city of Sargento José Félix López is the Takuarita community, which is 21 km from the town and its land is only 1 km away from the forestry undertakings that will be carried out in the Hermosa and Gavilán stays. Due to the proximity to the ranches and the increase in workers in the forestry enterprises, the Takuarita indigenous community could see a significant increase in the volume of people outside their community in the surroundings.

The increase in the population density of the city of Concepción will directly affect the urban indigenous community of Redención. However, this does not represent a significant change in the customs of the community, since indigenous families are used to living in the city and interacting with the population of Concepción. On the contrary, the increase in population density in the city provides them with positive effects that will be addressed in the descriptions of other impacts.

Table 105. Characterization of the impact.

INSTALLATION / CONSTRUCTION STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Eight communities	7
Duration	Permanent	9
Importance	Very important	7
Idea	High probability	0,9
OPERATION / MAINTENANCE STAGE		
Concept	Qualitative	Quantitative
Nature	Negative	-
Number of affected communities	Eight communities	7
Duration	Permanent	9
Importance	Very important	7
Idea	High probability	0,9

Source: self made.

Measures.

It is recommended to implement a Social Management Program with Indigenous Communities of the AID that allows:

- Monitor the impacts of increased flow of people in the vicinity of indigenous communities.

Responsible for the application of the measures.

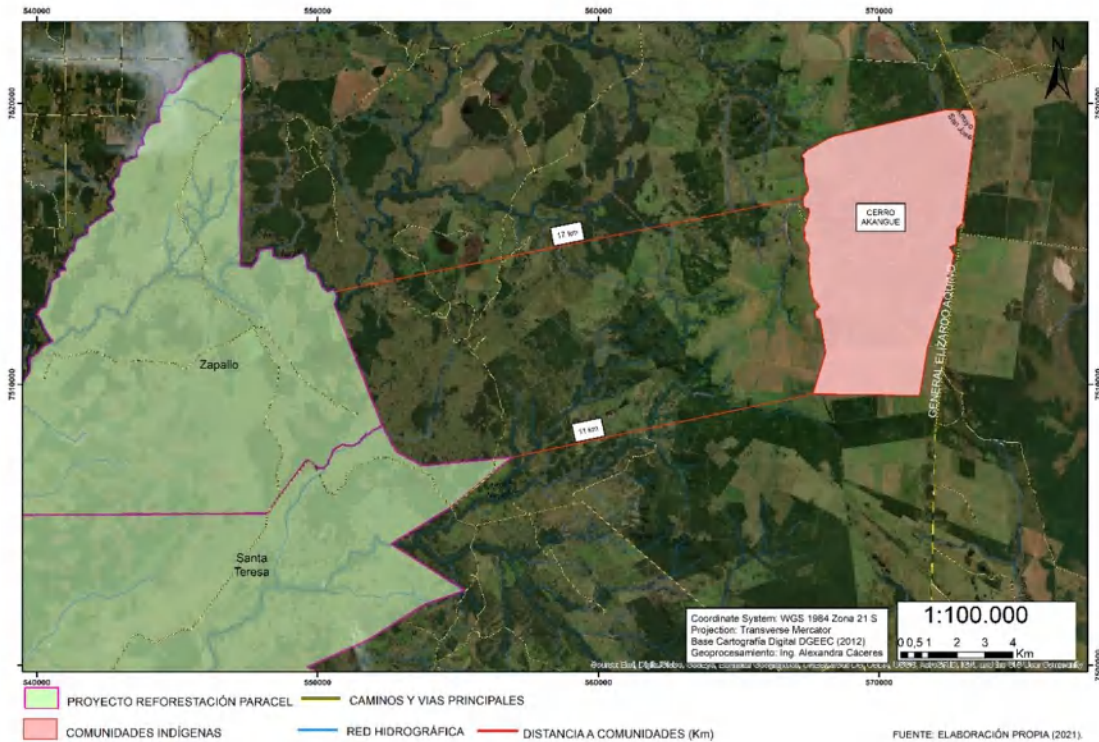
PARACEL.

Forecast after application of measures.

The implementation of measures will make it possible to monitor the impacts that the communities may be living in due to the increased flow of people around the communities and collaboratively design strategies that are attentive to the reality of each community.

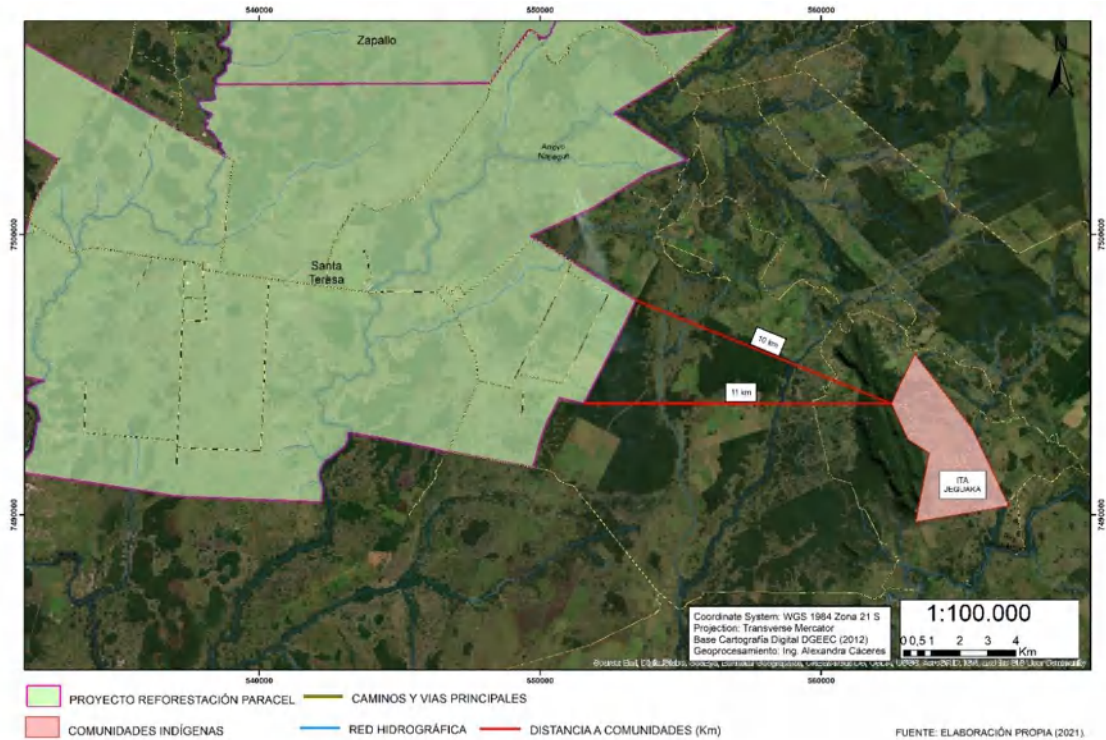
5.8. Indigenous communities that decided not to participate in the Social Studies of the Indigenous Component.

Map 60. Location of the Cerro Akangue indigenous community.



Source: self made.

Map 61. Location of the Ita Jeguaka indigenous community.



Source: self made.

During the first phase of the Social Studies of the Indigenous Component, a delimitation of the AID was made based on a radius of 20 km around the indigenous communities, considering the previous experience with communities where it has been seen that there are families who come to travel this distance for the use of ecosystem services, mainly for hunting, fishing and gathering.

This led the research team to make a first identification of the communities that were in that radius, identifying 12 communities, who could be involved in the land where the undertakings would be carried out.

Within the framework of compliance with Decree 1039/18, it was decided to make a visit to each community in order to request the Permit to Consult. The 12 indigenous communities were visited, to whom the project and everything related to the realization of the Social Studies of the Indigenous Component were socialized. During these visits, two communities were identified, Ita Jeguaka and Cerro Akangue, who stated that they were not interested in participating in the consultation process, arguing that they did not feel it was necessary because they did not use ecosystem services or carry out cultural activities, such as rituals or rituals. leisure walks, on the land where the forestry undertakings will be carried out.

The indigenous communities Ita Jeguaka and Cerro Akangue voluntarily decided not to participate in the consultation process, both from the Pai Vavyterá ethnic group and located in the Bella Vista Norte district of the Amambay department. As indicated on the map, according to data provided by the PARACEL firm, the Ita Jeguaka indigenous community is located 10 kilometers from

the Santa Teresa ranch and the Cerro Akangue indigenous community is 11 kilometers from the Santa Teresa ranch and 17 kilometers from Zapallo Farm.

According to the Atlas of Indigenous Communities in Paraguay prepared by the DGEEC in 2002, the indigenous community of Ita Jeguaka has a population of 467 people distributed in 93 homes and the community of Cerro Akangue has a population of 572 people distributed in 100 homes.

As the process of Consultation and Free, Prior and Informed Consent (CCLPI) is mandatory for any project that could generate adverse effects on indigenous communities, as dictated by Decree 1039/18 and widely recommended by international organizations, such as the FAO, the UN and the BID, among others, both communities were visited by the consulting team in the presence of a representative of the Instituto Paraguayo del Indígena who acted as Minister of Faith that the process be carried out in full and unrestricted compliance with all the guarantees for the respect of the rights of indigenous peoples.

As a result of these visits, both communities expressed their voluntary desire not to participate in the consultation process because, according to themselves, they do not use the land that will be used by PARACEL's undertakings for the use of ecosystem services or for the realization of ancestral practices and customs, they do not share paths for access roads and rights of way.

In order to analyze whether any of these communities could be negatively affected by the project, it was decided to submit both communities to an analysis of social factors in relation to PARACEL's activities, selecting those social factors and indicators that, even with the lack of In situ diagnoses, could envision affectations in these communities.

Due to the fact that the communities declare that they do not use ecosystem services on the PARACEL lands nor do they pass through its ranches, the communities do not detect any affectation in their traditional hunting, fishing and gathering practices, nor in their customs, rites, native language, housing, standard of living and food. Neither is it detected any type of affectation due to physical or economic displacements and, much less, the right of way and land tenure will be affected.

Because the communities feel that it is not necessary for them to link up with PARACEL, their forms of social organization and political institutions of the communities will not be affected either. Even though PARACEL has left the door open for those members of indigenous communities who wish to approach the project to receive training and work, the distance they have preferred to maintain with PARACEL suggests that they will not be able to benefit from the formal work that the firm and the enterprises within its value chain.

In terms of community health and safety, indigenous communities are not located near roads or temporary accommodation, so they will not be affected by a greater flow of people or increase their level of exposure to diseases, much less they will perceive an increase in vehicular traffic around their communities.

As a result of this analysis, it was determined that the indigenous communities of Ita Jeguaka and Cerro Akangue will not be negatively affected by PARACEL's undertakings and that, in the best of cases, will be positively affected, being able to take advantage of the improvement of the roads to access a greater supply of inputs for agricultural and livestock production. For inclusion in value chains that are developed as a result of economic growth in the department of Concepción, thus they could also benefit from greater access to public services.

Finally, the decision of the indigenous communities was formalized through a report prepared by Mr. Ariel Vallejos, INDI CCLPI Inspector, and an attached letter written by Ms. Alexandra Cáceres, Director of Fundación Natán, both documents were received by Mr. Carlos Castro, CCLPI Inspector Chief of the INDI.

6. Management Plan for Indigenous Peoples.

6.1. Identification and justification of programs.

The baseline is the main tool for the evaluation and analysis of the impacts that will occur in the indigenous communities related to the PARACEL project, serving as a starting point for the development of the Indigenous Peoples Plan, as well as to guide the development of strategies and programs focused primarily on avoiding, minimizing, mitigating and compensating the identified socio-environmental impacts.

The strategies, programs and actions resulting from this plan are especially relevant for the indigenous communities identified because there are vulnerable groups that are highly dependent on some type of assistance to enhance their development.

The dialogue and work activities done in partnership with the indigenous communities should always seek horizontal relationships, emphasizing the strengths and all kind of resources that families have, in order to contribute to the improvement of their living conditions and increase their level of well-being.

The purpose of the programs presented below is to avoid, prevent, mitigate or compensate for negative impacts and enhance positive impacts.

6.2. Indigenous Peoples Plan (IPP).

The Indigenous Peoples Plan (PPI) is linked to PARACEL's Social Management Plan and Environmental Management Plan; this plan is designed for the 10 indigenous communities analyzed in this study, one of them located in the urban area in the district of Concepción and the homonymous city called Redención and 9 rural indigenous communities distributed in the departments of Concepción and Amambay, called Jeguahaty, Vy'a Renda, Takuarendyju, Takuarita, Sati, Guyra Ñe'engatu Amba, Mberyvo, Yvyty Rovi and Apyka Jeguá.

The objectives of the PPI are:

- Ensure full respect for the rights of indigenous peoples and carry out activities established by current legislation and international regulations.
- Establish a participatory, healthy and predictable relationship framework with indigenous communities.
- Strengthen support for indigenous communities with the project.
- Promote local and community development.
- Influence PARACEL's stakeholders for the improvement of the relationship practices with indigenous communities.
- Generate a successful experience of social management with indigenous communities in the country in order to inspire future work related to local and foreign investment projects of similar characteristics.

The selection of these communities within the AID was made under the following criteria:

Location of the PARACEL project; Distance from PARACEL undertakings; Watercourses of the Aquidabán Basin; Common access roads between the communities and the undertakings; Protected wilderness areas (PWA) bordering PARACEL properties; Social indicators; and Traditions and customs.

The AID is in accordance with Paraguay's current legal framework, the international regulations ratified by the Paraguayan government and the frameworks that guide this report, using as guidelines the Equator Principles, the IFC Performance Standards and the World Bank's Operational Policy for Indigenous Peoples. Likewise, all the design, execution and evaluation of the activities contemplated in this program or that may result as a product of some of the strategies presented here, must be framed strictly within the respect for the self-determination model of each community.

The implementation of the PPI is the responsibility of PARACEL's Communication and Social Sustainability Management, which should work towards the commitment and cooperation of other areas of the company that are linked to the indigenous issues analyzed in this report. The PPI must be integrated into the other management plans of the company and also incorporated into the PARACEL Socio-Environmental System.

Collaboration with other company departments and stakeholders is essential for the success of this plan. To this purpose, it is recommended that no effort be spared to achieve a clear understanding and awareness of the importance of working responsibly, systematically and permanently on the programs and actions described in this PPI, essentially in those areas and groups in which their actions may directly affect the respect for the rights of indigenous peoples.

Throughout the implementation process of the PPI and in accordance with Decree No. 1039/18, PARACEL is responsible for maintaining fluid, clear and complete communication with indigenous communities about actions involving their physical integrity, cultural identity, use of ecosystem

services, livelihoods, heritage, territories and any elements that are part of their traditional way of life, as well as to carry out free, prior and informed consultations, in all cases when necessary.

For the PPI, as for all other management plans, it is recommended to supervise and audit external organizations to ensure the proper and timely implementation of this plan, including documentation of the activities carried out and verification of participation with broad support from the communities.

The execution of the PPI will be the responsibility of the Socio-Environmental Committee formed to execute the Social Management Plan, who may assume responsibility for carrying out the programs and activities or may delegate their execution to external and competent organizations. The Socio-Environmental Committee is responsible for establishing the dates, frequency of meetings, work spaces and activities, while in conversation with the indigenous communities and attending institutions, as well as representing the company before local government organizations.

Some of the stipulated measures in this PPI are mandatory to ensure full respect for the rights of indigenous peoples from the pre-construction phase of the project, so they should be implemented as soon as possible and continue throughout the life of the project; other activities should be implemented during the operation phase. As stipulated in INDI's regulations, this organization will act as supervisor and guarantor of the indigenous peoples' rights, therefore, the Socio-Environmental Committee and/or the organization in charge of implementing this plan must coordinate actions in collaboration with this government institution, especially those stipulated in the Law, such as Decree 1039/18.

The following is the PPI designed to be added to the management plans of the Industrial and Forestry components mentioned in the Social Studies and which are especially focused on rural indigenous communities. For the urban indigenous community of Redención, it is proposed (in addition to their participation in the PPI programs), to include them in the management plans designed for the Industrial Component presented in the Social Studies, because they reside in the urban area and their socio-demographic characteristics and means of subsistence are more similar to an urban vulnerable group than to a vulnerable group of a rural indigenous community, since they have practices that are typical of the predominant culture in the country. According to what was found during fieldwork, they celebrate 15th birthday parties, work informally in the city, and engage in banditry. In addition, population at risk of drug addiction, prostitution, domestic violence, among others, was found.

Table 106 shows the programs and measures of the PPI, including the stages of the project at which implementation should begin and the impacts that each of them is intended to mitigate or strengthen.

Table 106. PPI programmes and measures.

PROGRAMS/ MEASURES	PROJECT STAGE	RELATED IMPACTS
Social Management Program with indigenous communities of the AID	Installation and operation of the Forest Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> Decreased poverty levels. Increasing the flow of people outside the communities Expanding sources of income generation in the department. Strengthening the role of the leader within the community. Increasing and strengthening links with local organizations. Immigration of relatives to the indigenous community from other communities of the same ethnicity. Right of way
Labor Inclusion Program	Installation and operation of the Forestry Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> Modification in customs and schedules of the indigenous people hired by the project and their families, to responsibly work in the jobs assigned to them in a dependent manner for PARACEL or its suppliers. Increase of indigenous people hired with permanent or long-term jobs (> 1 year). Increase of indigenous people hired with temporary or short-term jobs (< 1 year). Opportunity to participate in labor associations and trade unions. Access to financial services and banking. Increased opportunities for professional training. Strengthening the role of women in the social structure through education and work. Risk of occupational diseases related to the use of chemicals.
Good Practices and Supplier Audit Program	Installation and operation of the Forestry Component and construction and operation of the Forestry Component. Industrial.	<ul style="list-style-type: none"> Reduction of work in exploitative conditions. Improvement of the health and safety conditions of indigenous people under contract. Increased traffic for light and heavy vehicles around communities and the risk of traffic accidents. Risk of occupational diseases related to the use of chemicals..
Community Health and Safety Program	Installation and operation of the Forestry Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> Increased risk of diseases, including STDs, and accidents. Improved coverage and access to health services and sanitary facilities. Increased risk of anthropic disasters from waste management. Increased flow of people and the likelihood of crimes. Increased traffic for light and heavy vehicles around communities and the risk of traffic accidents.
Family Production Strengthening and Value Added Generation Program	Installation and operation of the Forestry Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> Expanding the sources of income generation in the district. Lower poverty levels. Improved conditions for food security. Improved conditions for access to agricultural production inputs and commercial inclusion in value chains. Increasing vocational training opportunities.
Women's Empowerment Program	Installation and operation of the Forestry Component and construction and operation of the Industrial Component.	<ul style="list-style-type: none"> Strengthening the role of women in the social structure through education and work. Participation in strategies for the visibility and improvement of gender equity. Increasing vocational training opportunities.

Source: Elaborated by autor

It is worth mentioning that the company has created a communication and follow-up committee, made up of representatives from the districts considered within the areas of influence, whose objective is to involve the population in each stage of the project and serve as a direct

communication channel between PARACEL and its different stakeholders, which should be used as a communication and diffusion channel with the indigenous peoples.

As PARACEL has already developed a "Complaints, Suggestions and Consultations Management Program" and a "Dissemination and Communication Program" aimed at its stakeholders, a specific program for indigenous communities has not been recommended, but it has been recommended that an indigenous component be incorporated into both programs.

6.3. Social management programme with indigenous communities within the AID.

6.3.1. Justification.

According to articles 65 and 66 of the National Constitution, Law No. 904/81, Decree No. 1039/18 and the normative frameworks of the Equator Principles and the IFC Performance Standards, the project must ensure respect for the human rights and rights of indigenous peoples, so that the impossible must be done to ensure that they are fulfilled throughout the implementation of the project.

The activities of the social management programme with indigenous communities within the AID, as well as the rest of the PPI programmes, should be discussed and had the broad support of the community.

Dialogues with the communities should take place in the instances that they have culturally established for this purpose (such as assemblies). In this instance, all members of the community can give their opinion on equal terms and influence the decision-making process in the community.

The activities within this program should consider the cultural particularities of each community; the design of some of these actions should be focused on grouping all or several communities at the same time, while other actions are specially designed to work with an individual community.

With special interest, it should be considered that one of the impacts that could occur in indigenous communities is the migration of families to communities closer to forestry undertakings with the expectation of working for PARACEL, so the social monitoring mechanisms to be implemented should consider the increase or decrease in population density of indigenous communities.

Finally, most of the rural indigenous communities live in remote conditions; some of them have difficulties to exercise the right of way so they are forced to travel long distances and roads in poor conditions to access public services, without vehicles to reduce distances or travel time.

6.3.2. Objectives.

Guarantee the respect of indigenous peoples and the fulfillment of their rights.

6.3.3. Implementation phase.

Installation and operation phases of the Forestry Component, and construction and operation phases of the Industrial Component.

6.3.4. Social factors.

- Life quality, uses and customs.
- Social organization and political institutions.
- Labor and working conditions.
- Health and community safety.

6.3.5. Type of measure.

Prevention.

6.3.6. PARACEL's programs, plans and actions to which this program is linked.

The Social Management Program with Indigenous Communities within AID can be articulated with the following programs, plans and actions that PARACEL is already implementing or plans to implement:

- Social Monitoring Program.
- Complaints, Inquiries and Suggestions Management Program.
- Indigenous Peoples Relationship Program.
- Internal Management Program for Land Affectation and Risks due to External Agents.

6.3.7. Legal component.

- Law No. 234/93 approving Convention No. 169 on Indigenous and Tribal Peoples in Countries Independent of the National Labor Organization.
- Law No. 2128/03 approving the International Convention on the Elimination of All Forms of Racial Discrimination of the United Nations General Assembly.
- United Nations Declaration on the Rights of Indigenous Peoples, 2007.
- American Declaration on the Rights of Indigenous Peoples of the Organization of American States, 2016.
- Law No. 904/81. Statute of Indigenous Communities.
- Law No. 919/96 amending and extending Law No. 904/81.
- Decree No. 2794/14 approving the Paraguay National Development Plan 2030, which specifies that "Indigenous peoples, as a historically deferred vulnerable group, should receive priority attention in poverty reduction".
- Decree No. 1039/18 approving the Protocol for the Consultation process and the Free, Prior and Informed Consent with Indigenous Peoples living in Paraguay.

6.3.8. Scope.

All indigenous communities within the AID who wish to participate in a social development process through the relationship with the firm PARACEL.

6.3.9. Measures and action guidelines.

For the implementation of the Social Management Program with Indigenous Communities within the AID, the following measures are proposed:

Sistema de monitoreo de impactos. Planificación conjunta y participativa, donde la empresa o una entidad tercerizada, participa en las reuniones o asambleas, con el fin de demostrar el interés en la comunidad y conocer la percepción y expectativas que las comunidades tienen acerca del estado en que se encuentran los impactos relacionados al proyecto. La empresa puede añadir este componente de monitoreo a comunidades indígenas dentro de su "Programa de Monitoreo Social".

Impact monitoring system. Participatory planning where the company or a third party participates in meetings or assemblies to demonstrate the interest in the community, to know the perception and expectations that they have about the current situation of the impacts related to the project. The company can add this monitoring component to indigenous communities within its "Social Monitoring Program".

Leadership empowerment. Due to the fragility of relationships within indigenous communities, often perverted by social, political and religious groups, it is recommended to establish opportunities for conversation and training that contribute to the development of skills, abilities, and especially leadership to help promote and strengthen the governance of communities and to socialize the rights of indigenous peoples.

Stakeholder engagement. It is recommended that PARACEL invite indigenous community leaders to participate in meetings related to the project with local institutions, to strengthen the development of social capital among indigenous communities, institutions and local governments.

Strengthen the two-way communication channel. In addition to the communication mechanisms that PARACEL has established in its "Complaints, Consultations and Suggestions Management Program", it is recommended to strengthen communication channels to which the indigenous communities can turn to express their claims, complaints, concerns, provide feedback, and receive a timely and clear response in their own language.

Immigration monitoring strategy. It should be established (along with the indigenous communities) mechanisms to monitor the impacts produced by migratory behavior, to observe it's possible the increases or decreases in the number of people living in each community. While PARACEL cannot control the number of people migrating from one community to another, it can disseminate accurate information about the project to adjust the expectations of members of each community.

Adjustments to the Indigenous Peoples Relationship Program. In addition to the work guidelines and the specification of the regulatory frameworks governing the "Program for Relations with Indigenous Peoples" prepared by PARACEL, it is suggested that the "Policy for Relations with Indigenous Peoples" incorporate relationship protocols that guide the step-by-step relationship, considering that cultural practices must be respected and good practices for the implementation of management plans.

Right-of-way monitoring. It is recommended that PARACEL monitor the right of way given to indigenous communities, incorporating an indigenous component within the "Internal Management Program for the Affectation of Lands and Risks by External Agents", guaranteeing the right of indigenous peoples to freely enter/exit their communities.

PARACEL will be responsible for carrying out the following actions:

- Develop and disseminate to the indigenous communities a monthly report that provides relevant and updated information about the progress of the project and the execution of the management plans.
- Strengthen a two-way communication channel.
- Provide timely, clear and complete answers about deadlines, responsibilities and social investment actions.
- Implement training programs that favor the strengthening of leadership, governance and representativeness of indigenous communities.
- Monitor together with the indigenous communities the expectations of their families and their relationship with migration.
- Finance transportation for indigenous people to attend meetings related to the project that is held outside their community.
- Monitor right-of-way compliance.

6.3.10. Participation and monitoring strategies.

For the full implementation of this program, PARACEL must periodically participate in the assemblies of each community, with prior coordination and authorization of its recognized leaders, and carry out participatory diagnostics with the communities at least once every six months to monitor progress and determine the degree of satisfaction of the families in relation to the management plans.

6.3.11. Monitoring indicators.

- Assemblies in which the company participated in the year.
- Number of reports shared with communities.
- Semiannual evaluation of the level of satisfaction of families and communities.
- Percentage of implementation of management plans.

6.3.12. Documentation and means of verification.

Monthly reports.
Meeting and activity attendance lists.
Photographs.

6.4. Labor Inclusion Program.

6.4.1. Justification.

Long-term hiring and the formalization of employment are mechanisms that contribute to overcoming poverty, provided that working conditions and labor relations reflect genuine respect for the fundamental rights of workers.

In the best-case scenario, formal hiring will contribute to improving the quality of life of indigenous families, since job security and a monthly salary will allow them to increase their purchasing power, register with social security, have access to banking and the use of financial instruments, as well as increase their ability to save and plan a budget, placing indigenous families in a new scenario of consumption capacity and access to credit that, without adequate financial education, could lead to a decrease in their quality of life..

The hiring of indigenous personnel will allow access to new opportunities for the development of skills with greater employment opportunities, favoring the strengthening of social capital within and outside the community.

From a gender equity point of view, women will have access to new sources of secure income, revaluing their role in their community and giving them access to health insurance and social security that they did not have before.

However, the formalization of work will mean enormous challenges for indigenous families, who will have to adapt to new schedules and customs in order to responsibly perform the tasks of their jobs.

6.4.2. Objectives.

Promote the labor inclusion of indigenous people in PARACEL and its value chain undertakings.

6.4.3. Implementation phase.

Installation and operation phases of the Forestry Component, and construction and operation phases of the Industrial Component.

6.4.4. Social factors.

- Quality of life, uses and customs.

- Work and working conditions.
- Gender equality.
- Demographics.

6.4.5. *Type of measure.*

Prevention and empowerment.

6.4.6. *PARACEL's programs, plans and actions to which this program is linked.*

The Labor Inclusion Program can be articulated with the following programs, plans and actions that PARACEL is already implementing or plans to implement:

- Sensitization and Monitoring Program for Contractors and Workers.
- Local Workforce Development and Linking Program.
- Local Supplier Promotion and Development Program.
- Indigenous Peoples Relationship Program.

6.4.7. *Legal component.*

- Decree No. 14390/92. General Technical Regulation on Occupational Safety, Hygiene and Medicine.
- Law No. 213/93 Labor Code.
- Law No. 234/93 approving Convention No. 169 on Indigenous and Tribal Peoples in Countries Independent of the National Labor Organization.
- Decree No. 2794/14 approving the Paraguay National Development Plan 2030, which specifies that "Indigenous peoples, as a historically deferred vulnerable group, should receive priority attention in poverty reduction".

6.4.8. *Scope.*

All indigenous people who are hired by PARACEL and the undertakings of its value chain.

6.4.9. *Measures and action guidelines.*

For the implementation of the Labor Inclusion Programme, the following measures are proposed:

Mapping positions for job inclusion. In the baseline it can be identified that a large majority of the indigenous population of working age has a clear educational disadvantage, so it is recommended to identify within PARACEL's organizational chart those positions where the level of skills and knowledge requirements favor labor inclusion, that is, to prioritize the hiring of indigenous personnel in those positions where the educational level and training are not an obstacle for them to perform well.

Collaborative mapping of positions for job inclusion with suppliers. PARACEL and its suppliers must identify those positions where they can favor the labor inclusion of indigenous employees. It is recommended to implement this measure as soon as possible, within the framework of the "Sensitization and Follow-up Program for Contractors and Workers".

Monitoring in temporary accommodation. For those indigenous people who must move out of their community and reside in temporary accommodations, they should be considered in a monitoring program to ensure that they are not being discriminated against.

Compensation system. The company must design a compensation and benefits system in accordance with the contributions made by each employee and the salary levels of the national labor market, and in no case should it allow indigenous employees to receive less compensation than their non-indigenous colleagues for performing the same tasks, ensuring the same compensation and benefits conditions.

Career plans. It is recommended that the career plans developed by PARACEL consider the traditional ways of life of the indigenous people, in order to reduce the risk of losing the customs and traditions of each ethnic group and to reduce the risk of absenteeism.

Financial education. For many families, working for PARACEL or in its value chain undertakings will mean a significant increase in their monthly income, giving them the opportunity to acquire goods and services they were previously unable to obtain, including credit. It is recommended to carry out a financial education program, specially designed so that indigenous people working at PARACEL and their families are able to effectively manage new household incomes.

PARACEL will be responsible for carrying out the following actions:

- Identify the positions within the organization chart that favor the labor inclusion of indigenous collaborators.
- To identify together their key suppliers, those positions within their organization charts where indigenous labor inclusion can be favored.
- Monitor respect and non-discrimination of indigenous people in temporary accommodation.
- Monitor the correct fulfillment of the contractual conditions with hired indigenous people, especially considering their payments and job growth opportunities.
- Conduct a financial education program for indigenous collaborators and their families.

6.4.10. Participation and monitoring strategies.

To implement this program, PARACEL must hold periodic group meetings with indigenous people hired at the plant and in the forestry undertakings, and participate every six months in the assemblies of each community, with prior coordination and authorization from the recognized leaders of each community.

6.4.11. *Monitoring indicators.*

- Number of indigenous people hired at each stage of the project.
- Training hours for financial education.
- Number of people who participated in the financial education program.
- Percentage of indigenous women hired from the total indigenous people hired.
- Percentage of indigenous women hired from PARACEL's total collaborators.

6.4.12. *Documentation and means of verification.*

Formal contracts with indigenous collaborators.
 Training program assistance forms.

6.5. **Good Practices and Supplier Audit Program.**

6.5.1. *Justification.*

In fieldwork, indigenous communities expressed feeling that, historically, private ventures have taken advantage of their vulnerable conditions.

For many indigenous families, PARACEL and its suppliers are an indivisible entity, as they could interpret that the work they do for a provider could be done directly for PARACEL.

Promoting indigenous inclusion as collaborators of value chain suppliers expands work and development opportunities for indigenous families. To promote this line of action it is necessary to design guides of good practices that promote the recruitment of indigenous peoples and implement periodic audits for the detection of bad practices that depart from respect for the rights of indigenous peoples, such as exploitation, payment below the salary stipulated by law and child exploitation, among others.

6.5.2. *Objectives.*

Monitor compliance with good practices of indigenous inclusion in PARACEL's value chain.

6.5.3. *Implementation phase.*

Stages of installation and operation of the Forestry Component, and stages of construction and operation of the Industrial Component.

6.5.4. *Social factors.*

- Quality of life, uses and customs.
- Work and working conditions.
- Gender equality.

6.5.5. *Type of measure.*

Prevention.

6.5.6. *PARACEL's programs, plans and actions to which this program is linked.*

The Good Practices and Supplier Audit Program can be articulated with the following programs, plans and actions that PARACEL is already implementing or plans to implement:

- Sensitization and Follow-up Program for Contractors and Workers.
- Local Workforce Development and Linkage Program.
- Local Supplier Promotion and Development Program.
- Community Relationship Programme and Stakeholders.
- Social Monitoring Program.
- Indigenous Peoples Relationship Program.

6.5.7. *Legal component.*

- Law No. 69/90 ratifying the International Convention against Torture and Other Inhuman or Degrading Cruel Treatment.
- Decree No. 14390/92. General Technical Regulation on Occupational Safety, Hygiene and Medicine.
- Law No. 213/93 Labor Code.
- Law No. 234/93 approving Convention No. 169 on Indigenous and Tribal Peoples in Countries Independent of the National Labor Organization.
- Decree No. 2794/14 approving the Paraguay National Development Plan 2030, which specifies that "Indigenous peoples, as a historically deferred vulnerable group, should receive priority attention in poverty reduction".

6.5.8. *Scope.*

All companies that provide services to PARACEL.

6.5.9. *Measures and action guidelines.*

For the realization of Good Practices and Audit to Suppliers, the following measures are proposed:

Guide to Good Practices for Relationship with Indigenous Communities for Suppliers. It is recommended to prepare a guide to clarify the regulations that must be complied with and the good practices that must be carried out when dealing with indigenous communities within the AID.

Supplier audit. Within the program, it is recommended to implement supplier audits on working conditions, health and safety conditions, and the behavior of the company and its stakeholders, within the framework of respect for the rights of indigenous peoples and adherence to the standards and recommendations of ISO 26,000.

PARACEL will be responsible for carrying out the following actions:

- Develop a Guide to Good Practices of Relationship with Indigenous Communities for Suppliers.
- Monitor the correct compliance with the contractual conditions of indigenous peoples and respect for the rights of indigenous peoples in supplier companies.

6.5.10. Participation and monitoring strategies.

To implement this program, PARACEL must establish a provider monitoring system, hold meetings with its counterparts, and conduct random interviews with indigenous collaborators working dependently or sporadically in supplier companies, with the prior authorization of the formal employer.

6.5.11. Monitoring indicators.

- Number of companies that were socialized with the guide.
- Number of audits carried out.
- Audit score/classification of audited companies.

6.5.12. Documentation and means of verification.

Formal contracts of indigenous collaborators with supplier companies.
Indigenous Communities Relationship Policy for Suppliers.
Control documents.

6.6. Community Health and Safety Program.

6.6.1. Justification.

As seen in the impact assessment chapter, the project will have impacts that could put the health and safety of indigenous families at risk. For this reason, actions must be taken to mitigate any type of impact that could be negative for the quality of life in the indigenous communities.

In relation to health, the increase in the transient and permanent population could be related to an increase in the spread of diseases, including sexually transmitted diseases; the increase in vehicular traffic could lead to an increase in air pollution causing the development of respiratory diseases; and inadequate management of waste, effluents and emissions could generate harmful effects on the health of people who come into contact with contaminated substances or materials.

In terms of health, alcoholism is a predominant issue at the country level. According to data provided by MSPBS (2016), 50.9% of the population consumes alcoholic beverages and 24% consume it excessively. Harmful alcohol consumption affects both consumer and family health, becoming a social problem that triggers economic damage to society and the state. Although the impact assessment did not identify the existence of alcoholism among indigenous families, it cannot be assumed that it does not exist; therefore, it is a factor that should be added to any health and wellness program directed to these communities, since alcoholism can cause physical and social damage and is a risk factor for other conditions such as violence against women and traffic accidents.

In the field was observed that rural indigenous communities have serious difficulties in accessing health centers to receive quality medical and dental care for reasons such as distance, quality of roads, and lack of vehicles.

Adolescent pregnancy is a common denominator in indigenous communities, especially in rural areas, where pregnant girls and adolescents must give birth to their children in the same communities, putting mothers and their children at risk. According to data collected on the baseline of this birth study, 11% of babies were stillborn or died before their first month of life. 89% of babies are born in their indigenous community and do not have adequate hygiene and health conditions, nor the necessary professional staff to reduce the risk of accidents during childbirth to ensure the well-being of the mother and baby.

Young women reported using natural contraceptive methods based on "yuyos" or native herbs because they have to travel long distances to reach health centers and because of the lack of quality sexual education. However, the rate of children per woman is 3.97 children in the communities within the DIA. In addition, some women report having 9 to 10 or even 12 children, indicating that the contraceptive methods they use have a low level of efficacy. Likewise, the non-use of contraceptive methods such as condoms increases the risk of contracting sexually transmitted diseases (STDs). According to the MSPBS (2016) only 3.76% of indigenous people usually use condoms in their sexual relations.

The high number of children per family and the limited capacity to provide adequate food for all of them has a direct impact on the nutrition of the children and the overcrowding in which many families live, perpetuating the cycle of poverty in which the vast majority of indigenous families find themselves.

In terms of security, illegal acts could become more frequent due to the increased flow of people and the economic growth of the department of Concepción, leading to an increase in crime, drug addiction, alcoholism, prostitution, child exploitation, and human trafficking.

The improvement of the roads and the increase in vehicular traffic could increase the risk of accidents, especially for those indigenous communities located on the side of the road.

Finally, it is important to note that the increase in population density in the city of Concepción, the economic growth of the department and the conditions of vulnerability in which many indigenous children and adolescents live, suggest that some of them could be at risk of child sexual exploitation. Britos (2002) found some characteristics related to the profile of children and adolescents at risk of child sexual exploitation, which is: be underage, having at least 4 younger siblings, dropping out of school, difficulty in finding employment, alcohol consumption, tobacco use, and drug use, among others. According to the information gathered in the fieldwork, specifically in the rural sector, the need for security and the high school dropout rate of children and adolescents indicate that many of the underage children are working on the farm from a very early age, which could be accentuated if there is no proper control and monitoring of the hiring practices of PARACEL's suppliers in its value chain.

The care of children and adolescents is a priority for any public or private project, so it is recommended that PARACEL allocate specific efforts to prevent the development of exploitation and abuse of children in all its forms, with emphasis on the prevention, and mitigation of sexual exploitation, human trafficking and labor exploitation.

6.6.2. Objectives.

Prevent and mitigate negative impacts on health and safety issues that indigenous people could face as a result of PARACEL's activities.

6.6.3. Implementation phase.

Phases of installation and operation of the forestry Component, and phases of construction and operation of the Industrial Component.

6.6.4. Social factors.

- Quality of life, uses and customs.
- Work and working conditions.
- Social organization and own political institutions.
- Community health and safety.

6.6.5. *Type of measure.*

Prevention and mitigation.

6.6.6. *PARACEL's programs, plans and actions to which this program is linked.*

The Community Health and Safety Program can be articulated with the following programs, plans and actions that PARACEL is already implementing or plans to implement:

- Community Health and Safety Program.
- Road Safety Program.
- Indigenous Peoples Relationship Program.
- Social Monitoring Program.
- Social Program for the Prevention and Management of Social Contingencies.
- Contractor and Worker sensitization and Monitoring Program.
- Internal Management Program for Land Affectation and Risks from External Agents.

6.6.7. *Legal component.*

- Law No. 836/80. Health Code.
- Decree No. 14390/92. General Technical Regulation on Occupational Safety, Hygiene and Medicine.
- Law No. 5469/15 on the Health of Indigenous Peoples.
- Law No. 5016/14 National Traffic and Road Safety.
- Law No. 6509/20 amends Article 7 of Law No. 5016/14 "National Transit and Road Safety".
- Law No. 1215/86 ratifying the United Nations Convention on the Elimination of All Forms of Discrimination against Women.
- Law No. 1600/00 ratifying the Inter-American Convention to prevent and Eradicate Violence against Women.
- Law No. 1680/01 approving the Code of Children and Adolescents.
- Decree No. 2794/14 approving the Paraguay National Development Plan 2030, which specifies that "Indigenous peoples, as a historically deferred vulnerable group, should receive priority attention in poverty reduction".

6.6.8. *Scope.*

All indigenous communities within the AID.

6.6.9. *Measures and action guidelines.*

For the implementation of the Community Health and Safety Programme, the following measures are proposed:

Health and safety monitoring plan in indigenous communities. Collaborative and participatory planning in which the company or a third entity participates in meetings or assemblies to learn first-hand about the health and safety impacts that could affect the communities as a result of the project. Also to be aware of health and safety issues that may be related to poor waste management and chemical application. The company can add this indigenous community monitoring component to its "Social Monitoring Program".

Access to health centers that will be built on PARACEL farms. The indigenous communities have serious difficulties in accessing health centers because of the distance issue, the poor quality of the roads, or the lack of motorized vehicles. It is recommended to PARACEL allow free access for the indigenous people to the health centers that will be built during project implementation.

Preventive health plan. A set of actions, including training, medical and dental visits and remote counseling, aimed at preventing diseases of various kinds and informing about the health consequences of illicit practices, such as drug addiction and alcoholism.

Sex education and family planning plan. It is recommended to develop a sex education and family planning plan for adolescents and adults. This plan should take into account the cultures of indigenous peoples and raise awareness about the importance of preventing sexually transmitted diseases and the consequences of poor family planning, and its relation to poverty. In addition, it is important to emphasize that family planning is an action that fosters women's participation and empowerment and allows them to lay the groundwork for gender equality. This plan can be incorporated as a component of the Community Health and Safety Program, which contemplates future alliances with the schools of the Ministry of Education and Science and the health centers of the Ministry of Public Health and Social Welfare, expanding coverage to girls and boys.

Legal advice. The increased flow of outsiders around some indigenous communities, especially in those areas closest to forestry operations and temporary accommodations, could increase their risk of becoming victims of crime. It is recommended that PARACEL consider providing legal advice to those indigenous people who have been victims of crimes and who have expressed this through PARACEL's Complaints, Consultations and Suggestions Management Program or in the activities of the Social Monitoring Program.

Prevention of child exploitation and abuse. It is recommended that PARACEL incorporate a specific component on the prevention and mitigation of child exploitation and abuse in all its forms within the Community Health and Safety Program, and add it as part of the controls and suggestions made to its suppliers within the Contractor and Worker Sensitization and Follow-up Program.

Incorporating indigenous people into the Road Safety Program. It is recommended to design and implement specific activities within PARACEL's Road Safety Program focused on the indigenous population.

PARACEL will be responsible for carrying out the following actions:

- Monitor the health and safety problems of indigenous communities within the AID.

- Facilitate indigenous families' access to the health centers they build.
- Implement a preventive health care plan that includes training, medical and dental visits, and remote counseling.
- Implementation of a sex education and family planning plan..
- Incorporate a child exploitation and abuse prevention and mitigation component into the Community Health and Safety Program.
- Provide legal assistance to those indigenous communities within the AID that have been victims of crimes, especially in those cases where the crimes have resulted as a direct or indirect consequence of PARACEL's activities.
- Incorporate specific actions in the Road Safety Program aimed at the indigenous population.

6.6.10. Participation and monitoring strategies.

To implement this program, PARACEL should establish mechanisms that guarantee the confidentiality of its participants, especially if they are minors. It is recommended that PARACEL define in an assembly with each community or in a general assembly of representatives and leaders of the indigenous communities, everything relevant to the implementation of this program, from the definition and prioritization of content, frequency of meetings and participation mechanisms.

6.6.11. Monitoring indicators.

- Number of people who participated in the training activities of the program.
- Number of people assisted at PARACEL's health centers.
- Number of medical visits and remote assistance to indigenous communities.
- Number of remote assistance to indigenous communities.
- Number of legal advisory services requested/provided.

6.6.12. Documentation and means of verification.

Attendance sheets for training programs and support groups.
 Registration sheet for medical visits and remote assistance.
 Attendance lists of training activities.

6.7. Family Production Strengthening and Value Added Generation Program.

6.7.1. Justification.

Most of the family groups in the rural indigenous communities of the AID declare that they are engaged in family agriculture for self-consumption and barter, therefore, for many families, agriculture has become their main source of food and nutrition. However, the precariousness of the production mechanisms, the limited availability of food throughout the year, the limited human capacity to work, the lack of resources to acquire better tools and machinery, the need to work in nearby fields to generate income, among other problems, have an impact on the low level of production per hectare of family crops and are insufficient to ensure food and nutrition for its members, causing some families to feed themselves only once a day.

Hunger and lack of adequate food are transversal to indigenous issues and the maintenance of vulnerability and poverty. In this sense, improving agricultural strategies and methods is an opportunity to improve productive capacity, food variety and nutritional quality.

The construction and/or adaptation of internal and access/exit roads and drainage works can become a great ally for the development of indigenous communities, allowing them to move more easily from one destination to another, helping them to access new markets for the commercialization of their products, favoring the increase of income, the reduction of poverty levels, and the contact with other organizations and external institutions for the achievement of common objectives.

The production of higher value-added products and access to new customer segments will lead the community to become less dependent on the commodity prices set by the market, which affect cassava and beans. It is expected that they will begin to receive new income from the production of products that satisfy more premium segments, increasing their level of competence and strengthening their role in the market.

There are two environmental elements that, although they are not directly impacted by PARACEL's project, it is recommended to keep them in mind because the company can make a great contribution in social and environmental terms if they are considered. The first element is water, a necessary resource for the life of people as well as flora and fauna. From the Baseline work, it is clear that some rural indigenous communities do not have access to drinking water, which directly affects their quality of life and the quality of their production. The second element is related to tree felling, an activity carried out by the vast majority of rural indigenous communities without adequate management plans to ensure their sustainability. In this sense, PARACEL can take advantage of its experience and knowledge to provide support to indigenous peoples for the preservation of forests and communities.

6.7.2. Objectives.

Improve production and innovation capacity to add value to activities that generate income for indigenous families.

6.7.3. Implementation phase.

Phases of installation and operation of the forestry component, and phases of pre- construction and operation of the industrial component.

6.7.4. Social factors.

- Quality of life, uses and customs.
- Use of ecosystem services related to livelihoods.
- Work and working conditions.

6.7.5. Type of measure.

Empowerment.

6.7.6. PARACEL's programs, plans and actions to which this program is linked.

The Program for Strengthening Family Production and Value Added Generation can be articulated with the following programs, plans, and actions that PARACEL is already implementing or plans to implement:

- Local Supplier Promotion and Development Program.
- Indigenous Peoples Relationship Program.
- Biodiversity Management Program in the Forestry Area.

6.7.7. Legal component.

- Law No. 904/81. Statute of Indigenous Communities.
- Law No. 4/92 ratifying the International Covenant on Social and Cultural Economic Rights.
- Law No. 234/93 approving Convention No. 169 on Indigenous and Tribal Peoples in Countries Independent of the National Labor Organization.
- Decree No. 2794/14 approving the Paraguay National Development Plan 2030, which specifies that "Indigenous peoples, as a historically deferred vulnerable group, should receive priority attention in poverty reduction".

6.7.8. Scope.

All indigenous communities within the AID wishing to participate in a social development process through the relationship with the firm PARACEL.

6.7.9. Measures and action guidelines.

For the implementation of the Family Production Strengthening and Value Added Generation Programme, the following measures are proposed:

Technical assistance. Provide agricultural technical assistance with competent professionals who provide methodologies and tools that allow families to increase their production capacity.

Training. Training plan to innovate, improve and add value to the products produced by those indigenous families that have the potential and wish to become suppliers in PARACEL's value chain.

Value chain inclusion. It is recommended that PARACEL incorporate within its Local Supplier Promotion and Development Program mechanisms that prioritize the inclusion of indigenous suppliers within its value chain.

Social investment in water and sanitation. PARACEL can contribute to the development of indigenous communities and improve their quality of life by making social investments for the construction of drinking water wells in those indigenous communities.

Sustainable indigenous forestry management plans. It is recommended that PARACEL take advantage of its experience and knowledge to assist indigenous communities to develop and implement forest management plans that allow them to take advantage of this ecosystem service in a sustainable manner.

PARACEL will be responsible for carrying out the following actions:

- Proactively study the needs and reactively study requests for technical assistance from indigenous communities and plan their implementation.
- Implement a training plan on innovation and value addition.
- Prioritizing the contracting of indigenous suppliers.
- Study the cases of each indigenous community and take actions that contribute to achieve greater access to drinking water.
- Assist in the development and implementation of forest management plans in indigenous communities.

6.7.10. *Participation and monitoring strategies.*

To implement this program, PARACEL will need to hold regular group meetings with participating indigenous people.

6.7.11. *Monitoring indicators.*

- Number of technical assistance.
- Number of training hours.
- Number of trained people.
- Number of higher value-added products generated as a result of training activities.
- Cost and actions of social investment in water and sanitation.

6.7.12. *Documentation and means of verification.*

Training and meeting program attendance forms.
Photographic records.

6.8. **Women's Empowerment Program.**

6.8.1. *Justification.*

Women's empowerment, education and job inclusion contribute to the development of indigenous families and their communities in general, as well as having a multiplier power that benefits the whole of society.

But empowerment is not a simple process; it implies women become aware of the importance of their autonomy to participate in decision-making processes in the public and private spheres in which they live. In the case of indigenous communities, the closest instances are the assembly and at home without leaving aside the important work those indigenous women can carry out in structures and organizations outside their community. To fully achieve this, it is necessary for women to be autonomous over their economy, to be able to generate income and manage it; to have power over their physical integrity, including sexual and reproductive life; their right to exercise their citizenship, to participate in the discussion, and occupy representative roles (Echauri et al, 2018).

In rural contexts, it seems that women face greater difficulties in achieving a state of empowerment, since in rural contexts the roles of men and women tend to be more stereotyped and women's capacity to participate in the economy and development is often made invisible, even by government programs.

As an example of this, agricultural development assistance for rural families provided by the Directorate of Agricultural Extension (DEAg) in Paraguay between 2006 and 2007 shows that the beneficiaries of its programs were 37,854 people, of whom 923 were women, which corresponds to only 2.4% of the people benefited by DEAg assistance programs during these years. (FAO, 2008)

The situation of vulnerability and discrimination that many indigenous women experience hinders them on the road to empowerment and autonomy. As reported by the participants in the rural appraisal activities, women have intentions and expectations of being inserted into the labor market, but this is hindered by the role they play in their homes since, as explained in the Impact Evaluation chapter, women of the indigenous communities within the AID are the ones who are mostly in charge of domestic tasks, such as washing, cooking, and cleaning. For this reason, it should be kept in mind that the education and inclusion of indigenous women in the labor market will generate changes in the dynamics of families and communities, which is why periodic monitoring of these changes should be considered.

This should not be taken lightly, because naturalizing the subordination of women to domestic tasks makes invisible the need to treat this situation as a subject of analysis and women may be at risk of receiving both physical and psychological violence.

In addition to the above, some women who participated in the participatory rural appraisals mentioned having been victims of domestic violence. According to data provided by UN Women, a survey was conducted among a total of 3,950 people, 70.9% of whom were women. This survey was conducted in Paraguay in 2014 and published in 2016. The results showed that 1 in 5 people suffered domestic violence and that most of these people were attacked by their partners. Forty percent of the people stated that their aggressor was under the influence of alcohol or another substance.

The same report mentioned in the previous paragraph states that 90% of the people did not report the acts of violence they had suffered, of which 28.1% did not do so because they believed they could resolve them without help, while 23.4% did not consider it to be violence; In relation to statistical differences between men and women who participated in the survey, 82.4% of women reported having been victims of physical domestic violence "only once" compared to 17.6% of men, and 82.4% of women reported having been victims of physical domestic violence "more than once" compared to 11.1% of men.

The context of vulnerability in which many indigenous women live within the AID could be related to an even greater reality of violence, such as the violation of women's rights and sexual exploitation.

The empowerment of women promotes gender equality and the achievement of the Sustainable Development Goals, so the management programs developed by PARACEL must consider gender and empowerment issues in a cross-cutting manner.

6.8.2. Objectives.

Empowering indigenous women to reduce the ethnic and gender inequality gaps.

6.8.3. Implementation phase.

Installation and operation phases of the Forestry Component and construction and operation phases of the Industrial Component.

6.8.4. Social factors.

- Quality of life, uses and customs.
- Work and working conditions.
- Gender equality.

6.8.5. Type of measure.

Prevention and Empowerment.

6.8.6. PARACEL's programs, plans and actions to which this program is linked.

The Women's Empowerment Program can be coordinated with the following programs, plans and actions that PARACEL is already implementing or plans to implement:

- Community Health and Safety Program.
- P Relationship with Indigenous Peoples.
- Social Monitoring Program.
- Local Workforce Development and Linking Program.
- Community Relationship Programme and Stakeholders.

6.8.7. Legal component.

- Law No. 1215/86 ratifying the United Nations Convention on the Elimination of All Forms of Discrimination against Women.
- Law No. 4/92 ratifying the International Covenant on Social and Cultural Economic Rights.
- Decree No. 14390/92. General Technical Regulation on Occupational Safety, Hygiene and Medicine.
- Law No. 213/93 Labor Code.
- Law No. 234/93 approving Convention No. 169 on Indigenous and Tribal Peoples in Countries Independent of the National Labor Organization.
- Law No. 1600/00 ratifying the Inter-American Convention to prevent and Eradicate Violence against Women.
- Law No. 1680/01 approving the Code of Children and Adolescents.
- Decree No. 2794/14 approving the Paraguay National Development Plan 2030, which specifies that "Indigenous peoples, as a historically deferred vulnerable group, should receive priority attention in poverty reduction".
- Law No. 5777/16 on Integral Protection of Women, against all forms of violence.

6.8.8. Scope.

All women in indigenous communities within the AID who wish to participate in this program.

6.8.9. Measures and action guidelines.

For the implementation of the Women's Empowerment Programme, the following measures are proposed:

Awareness workshops. It is recommended to hold workshops and communication activities to raise awareness of women's human rights, the importance of gender equality and women's empowerment, and the prevention of violence and exploitation of women, especially girls and adolescents.

Disseminate public programs focused on women. It is recommended that PARACEL promote public programs focused on the full development of women and the creation of conditions that guarantee respect for their rights in indigenous communities within the IDA. Both this activity and the previous one can be additional components of PARACEL's Community and Stakeholder Outreach Program.

Women's Empowerment Plan. Both the bibliography and the information gathered in the field show that indigenous women are more vulnerable and require greater efforts to escape poverty. In addition to the actions proposed by PARACEL to generate networks of women entrepreneurs, specific training programs for indigenous women are recommended.

Prioritizing the hiring of women. Given the international context of vulnerability in which young indigenous women find themselves (a context to which the communities of the departments of Concepción and Amambay are no strangers), it is recommended that PARACEL prioritize hiring indigenous women, emphasizing their inclusion in training programs and making this commitment explicit in its "Local Labor Development and Linkage Program".

Family support groups. Even based on the information gathered in the baseline and impact evaluation, it cannot be assured that domestic violence exists in the indigenous communities within the AID.

The literature shows that poverty and domestic violence tend to be problems that coexist with each other, where women tend to bear the brunt, sustaining over time their relationship of economic and psychological dependence on their partners and hindering their inclusion in the labor market.

It is recommended to establish family support groups facilitated by a psychologist, where both women and men can share their concerns and find support to manage their conflicts, especially those that may develop as a result of the hiring of men and women from indigenous communities within the AID, affecting the position of women within the social structure.

Indigenous Women's Committee. Given the special situation of vulnerability in which indigenous women live, it is recommended to create an Indigenous Women's Committee composed of members of the company and indigenous women within the AID, to analyze everything relevant to the implementation of this program, from the definition and prioritization of content, frequency of meetings and participation mechanisms.

PARACEL will be responsible for carrying out the following actions:

- To hold awareness workshops on the situation of indigenous women, women's rights and conventions and laws that promote gender equality.
- Disseminate public programmes aimed at gender equality, the prevention of violence in all its forms and the containment of victims.
- Implement specific training programs for indigenous women.
- Promote the inclusion and recruitment of indigenous women in the value chain.
- Promote the purchase of products and services developed by indigenous entrepreneurs.
- Establish support and dialogue groups for indigenous families.
- Establishing a committee of indigenous women.
- Finance the transfer, food and accommodation – if necessary – of women attending planning meetings related to the implementation of this programme.

6.8.10. Participation and monitoring strategies.

To implement this program, it is recommended that PARACEL hold bimonthly meetings with the Indigenous Women's Committee to jointly define priorities and analyze program results.

6.8.11. Monitoring indicators.

- Number of participants in awareness-raising activities.
- Number of public program dissemination activities.
- Number of training hours focused on women's empowerment.
- Number of participants in specific training programmes for indigenous women.
- Number of indigenous women's entrepreneurship contracts.
- Number of families participating in support groups.
- Number of meetings held by the Indigenous Women's Committee.

6.8.12. Documentation and means of verification.

Training and meeting program attendance forms.
Photographic records.

6.9. Expectation management.

Finally, it should be noted that, as with any project with a social impact, the discourse surrounding the project generates expectations among the indigenous and non-indigenous

population, which must be taken into account for proper implementation. During the participatory rural appraisal activities, it was observed that the indigenous families of the communities belonging to the AID expressed expectations related to the project, some of which are directly related to the stages of the Forestry and Industrial components and others that are more related to basic family needs, such as access to drinking water and food security, as well as literacy and security needs related to the preservation of nature and the availability of natural resources.

To conclude this report and as a recommendation, it is suggested that PARACEL make every possible effort to meet the expectations of the indigenous families, not only to satisfy their needs, but rather to seek the permanent and honest development of synergies with the indigenous communities that promote the construction of solid, collaborative and lasting relationships based on commitment and mutual trust.

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Annexes

ANNEX 1: Permission Acts to the C.C.L.P.I.

Before being consulted, indigenous communities must approve in writing that they are agree to begin a relationship process and that they agree to be consulted. This Act Permit is the first step to start a relationship within the framework of compliance with the Decree 1039/18. Indigenous people have the free right to accept or reject any conversation starter with people who are foreign to their community.

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1. Redención Indigenous community

ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Concepción a los 22 días del mes de noviembre del año 2020 a las 16:00 horas, en el Distrito de Concepción se reúnen representantes de Fundación Natán, líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Redención representado por el Señor/ra Jacinta Pereira N. Greif con Reconocimiento de Líder N° / perteneciente al Pueblo Jaraena con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de " Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto, Planes - Proyecto Fabrica de celulos PARACEL - "

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 16:00 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Fundación Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros

C.I

Firma del Líder/esa

Jacinta Pereira N. Greif 25202



CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Concepción**, on **on the 22nd of the month of November of the year 2020 at 2:00 p.m.**, in the District of Concepción, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families called **Redención**, Represented by the man / woman: **Jacinta Pereira N.** with recognition of Leader N °:- _____, _____ Belonging to the **Sanapana community**, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **4:00 p.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

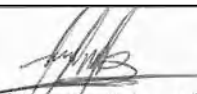
For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
<i>Jacinta Pereira N.</i>	<i>1.885.202</i>	<i>[Signature]</i>

[STAMP

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.



María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.


2. Jeguahaty Indigenous community


ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Concepción a los 09 días del mes de diciembre del año 2020 a las 12:00 horas, en el Distrito de Paso Prieto se reúnen representantes de Jeguahaty líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Jeguahaty representado por el Señor/ra Lpio. Benitez Valente con Reconocimiento de Líder N° 1 perteneciente al Pueblo Pir. Tomajera con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto, Planes - Proyecto Fabrica de celulosa - PARACEL -

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 13:00 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Fundación Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Lpio Benitez Valente</u>		



CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Concepción**, on **on the 9th day of the month of December of the year 2020, at 12:00 p.m** in the District of Paso Barreto, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families called **Jeguahaty**, Represented by the man / woman: **Lino Benítez Valiente**. with recognition of Leader N°: _____, _____ Belonging to the **Pai Tvytera community**, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **1:00 p.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
------------------------------	-----	---------------------


Lino Benítez Valiente.

[Signature]

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.



María Cecilia Luján Galeano Duarte
Traductora Profesional de Inglés
Matricula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

3. Vy'a Renda Boquerón Indigenous community


ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Concepción a los 08 días del mes de diciembre del año 2020 a las 10:00 horas, en el Distrito de Pais Barroto se reúnen representantes de Vy'a Renda, Fundación Natán líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Vy'a Renda representado por el Señor/ra Rufino Aguero con Reconocimiento de Líder N° / perteneciente al Pueblo con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto, Planes - Proyecto fabrica de celbsa - PARACEL "

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 11:00 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Fundación Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Rufino Aguero</u>	<u>6.729.992</u>	<u>RUFINO AGUERO</u>



CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Concepción**, on **on the 8th day of the month of December of the year 2020**, at **10:00 a.m** in the District of Paso Barreto, representatives of the **Vy'a Renda Community, Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families called **Vy'a Renda**, Represented by the man / woman: **Rufino Aquino**, with recognition of Leader N°: _____, _____ Belonging to the community _____, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **11:00 a.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
Rufino Aquino,	6.729.212	[Signature]

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.



María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

4. Takuarendyju Indigenous community


ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Concepción a los 08 días del mes de diciembre del año 2020 a las 10:00 horas, en el Distrito de Itaso Barreto se reúnen representantes de Fundación Natán, líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Takuarendyju representado por el Señor/ra Mamerto Garçete con Reconocimiento de Líder N° / perteneciente al Pueblo Pai Tavytera con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto, Planes - Proyecto fábrica de calzado - PARACEL "

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 11:00 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Fundación Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Mamerto Garçete</u>		<u>MAMERTO GARÇETE</u>



CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Concepción**, on **on the 8th day of the month of December of the year 2020**, at **10:00 a.m** in the District of Paso Barreto, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families called **Takuarendyju**, Represented by the man / woman: **Mamerto Garcete**, with recognition of Leader N°: _____, _____ Belonging to the community Pai Tavytera, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **11:00 a.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
<i>Mamerto Garcete</i>		<i>[Signature]</i>

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.



María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

5. Takuarita Indigenous community


ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Concepción a los 12 días del mes de noviembre del año 2020 a las 15.30 horas, en el Distrito de San José Félix López se reúnen representantes de Fundación Natán, líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Takuarita, representado por el Señor/ra Florencio Garate Merdoza con Reconocimiento de Líder N° / perteneciente al Pueblo Mbya Guaraní, con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto, Planes " Proyecto fabrica de celulosa -PARACEL "

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 16.00 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Fundación Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Florencio Garate</u>	<u>7063669</u>	<u>Florencio Garate</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____



CARLOS CASTRO
 Jefe de Fiscalización de C.C.L.P.I
 Instituto Paraguayo del Indígena

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Concepción**, on **on the 12th day of the month of November of the year 2020**, at **03:30 p.m** in the District of Paso Barreto, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families called **Takuarita**, Represented by the man / woman: **Florencio Garcete Mendoza**, with recognition of Leader N°: _____, _____ Belonging to the community Mbya Guaraní, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **04:00 p.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
<i>Florencio Garcete</i>	7063669	<i>[Signature]</i>

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

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María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matricula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

6. Sati - Pai renda chiru poty


ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Amambay a los 13 días del mes de diciembre del año 2020 a las 10 horas, en el Distrito de Bella Vista se reúnen representantes de Fundación Natán, líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Pai Renda Chiru Poty, representado por el Señor/ra Ada María González con Reconocimiento de Líder N° / perteneciente al Pueblo Pai Tavytera con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto. Planes - Proyecto de desarrollo de la zona PARACEL.

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 10:30 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Fundación Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Ada María González</u>	<u>6144687</u>	<u>Ada María González</u>



CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Amambay**, on **on the 13th day of the month of December of the year 2020**, at **10:00 a.m** in the District of Bella Vista, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families called **Sati - Pai renda chiru poty**, Represented by the man / woman: **Ada María González**, with recognition of Leader N°: _____, _____ Belonging to the community Pai Tavytera, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **10:30 a.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
<i>Ada María González</i>	<i>6.144.687</i>	<i>[Signature]</i>

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

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María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

7. Guyra Ñeengatu Amba Indigenous community


ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Aranburu a los 13 días del mes de diciembre del año 2020 a las 11:00 horas, en el Distrito de Bella Vista se reúnen representantes de Familiares Naten líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Guyra Ñeengatu Amba, representado por el Señor/ra Andrés Ramírez con Reconocimiento de Líder N° / perteneciente al Pueblo Po. Emyterci, con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto, Planes - Proyecto Fabrica de Celulosos PADA CEL -

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 11:30 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Andrés Ramírez Ramírez</u>	<u>7260010</u>	<u>Andrés Ramírez</u>



CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Amambay**, on **on the 13th day of the month of December of the year 2020**, at **03:00 p.m** in the District of Bella Vista, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families called **Guyra Ñeengatu Amba**, Represented by the man / woman: **Andrés Ramírez**, with recognition of Leader N°: _____, _____ Belonging to the community Pai Tavytera, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **11:30 a.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
<i>Andrés Ramírez Ramírez</i>	7260010	<i>[Signature]</i>

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

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María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

8. Mberyo Jaguarmi Indigenous community


ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Concepción a los 12 días del mes de diciembre del año 2020 a las 08.00 horas, en el Distrito de Yby Yau se reúnen representantes de Fundación Natán, líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Mberyo Jaguarmi, representado por el Señor/ra Celia Benítez con Reconocimiento de Líder N° / perteneciente al Pueblo Pu. Tavaytero con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto. Planes - Proyecto fábrica de celulosas - PARACEL

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 08.00 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Fundación Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Celia Benítez</u>	<u>2768797</u>	<u>Celia Benítez</u>



CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Concepción**, on **on the 12th day of the month of December of the year 2020**, at **08:00 a.m** in the District of Yvy Yau, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families called Mberyvo Jaguarymi, Represented by the man / woman: **Celia Benítez**, with recognition of Leader N°: _____, _____ Belonging to the community Pai Tavytera, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **09:00 a.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
<i>Celia Benítez</i>	7168192	<i>[Signature]</i>

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

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María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matricula N° 1.416

9. Yvyty Rovi Cerro Po'í Indigenous community

ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Amaribay a los 14 días del mes de diciembre del año 2020 a las 19:00 horas, en el Distrito de Bella Vista se reúnen representantes de Fundación Natán, líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Yvyty Rovi (Cerro Po'í) representado por al Señor/ra Trochero Gonzalez con Reconocimiento de Líder N° / perteneciente al Pueblo Po'í Tapyra con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto. Planes - Proyecto Fomento Celibio - AMACEI -

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 19:00 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Fundación Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Roberto Gonzalez</u>	<u>2.113.766</u>	<u>[Firma]</u>

CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Amambay**, on **on the 14th day of the month of December of the year 2020, at 07:00 p.m** in the District of Bella Vista, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families **called Yvyty Rovi Cerro Po'í**, Represented by the man / woman: **Inocencio González**, with recognition of Leader N°: _____, _____ Belonging to the community Pai Tavytera, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **07:40 p.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).


For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
<i>Inocencio González</i>	<i>2113766</i>	<i>[Signature]</i>

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

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María Cecilia Luján Galeano Duarte
Traductora Profesional de Inglés
Matricula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

10. Apyka Jegua Indigenous community


ACTA DE PERMISO A LA C.C.L.P.I

En el Departamento de Amambay a los 10 días del mes de diciembre del año 2020 a las 15:30 horas, en el Distrito de Bella Vista se reúnen representantes de Comunidad Natán, líderes y miembros de la Comunidad/Aldea/ Barrios o Núcleos de familias indígenas denominada Apyka Jegua, representado por el Señor/ra Basilio Fernández con Reconocimiento de Líder N° / perteneciente al Pueblo Pa. Tavytatú con el objeto de tratar la "Solicitud de Permiso para consultar y dar el consentimiento" a fin de iniciar el Proceso de "Consulta y Consentimiento", Libre, Previo e Informado (C.C.L.P.I)", conforme al Decreto N° 1039/18. En referencia al Programa/Proyecto, Planes Proyecto fábrica de celulosa Paracel

En prueba de conformidad de todo lo actuado y del contenido de la presente siendo las 15:30 horas manifiestan que conceden permiso y consentimiento para realizar el proceso de consulta a Comunidad Natán iniciando los trámites ante el Instituto Paraguayo del Indígena. (INDI)

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos /miembros	C.I	Firma del Líder/esa
<u>Basilio fernandez</u>		<u>BIF</u>



CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

ACT OF PERMISSION TO THE C.C.L.P.I

In the department of **Amambay**, on **on the 13th day of the month of December of the year 2020**, at **03:00 p.m** in the District of Bella Vista, representatives of the **Natán Foundation**, leaders and members of the community / village / neighborhoods or nuclei of Indigenous families **called Apyka Jegua**, Represented by the man / woman: **Basilia Fernández**, with recognition of Leader N°:- _____, _____ Belonging to the community Pai Tavytera, with the purpose of dealing with the "Request for Permission to Consult and Give Consent" in order to initiate the process of "Consultation and Free, Prior and Informed Consent" (C.C.L.P.I). According to Decree No. 1039/18. In reference to the Program/Project Plans: PARACEL CELLULOSE FACTORY.

In proof of conformity with everything that has been done and the contents of this document, at **03:30 p.m.**, they declare that they grant permission and consent to carry out the consultation process with Fundación Natán, initiating the procedures in front of the Instituto Paraguayo del Indígena (INDI).

For the indigenous community/village/neighborhood or Nucleus of families - Leader/ess/Representatives/Members

Names and Surnames (Members)	I.D	Signature (Leaders)
<i>Basilio Fernández</i>		<i>[Signature]</i>

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

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María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

ANNEX 2: Consultation Records

As mentioned earlier in this report, the Protocol for Consultation and Free, Prior and Informed Consent is mandatory for any project that may affect the lands, territories, natural resources and rights of indigenous peoples.

The Act of Consultation, with INDI as the minister of faith of the correct compliance with Decree 1039/18, shows that the indigenous community has gone through a consultative, informative and participatory process in which they give their written permission that they are willing to continue a process of relationship with the proponents during the execution of the project to identify, design and implement strategies to remedy the effects that could affect them.

Annex 2.1 Redención Indigenous Community

Annex 2.2 Jeguahaty Indigenous community

Annex 2.3 Vy'a Renda Indigenous community

Annex 2.4 Takuarendyju Indigenous community

Annex 2.5 Takuarita Indigenous community

Annex 2.6 Sati - Pai Renda Chirupoty Indigenous Community


Annex 2.7 Guyra Ñeengatu Amba Indigenous Community

Annex 2.8 Mberyvo Jaguarymi Indigenous Community

Annex 2.9 Yvyty Rovi Cerro Po'i Indigenous Community

Annex 2.10 Apyka Jegua Indigenous Community

Annex 2.1 Redención Indigenous Community


MINISTERIO DEL INDIGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuera
 Nangarekoha

GOBIERNO NACIONAL
 Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Celulosa

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Redención, representado por el Señor/a Maria Jovita Pareño con Reconocimiento de Líder N° perteneciente al Pueblo 7 Pueblos, asentada en el Distrito de Benavente del Departamento de Benavente a los 18 días del mes de diciembre del año 2020 a las 17:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° por la que la organización/institución/entidad/empresa/comunidad Paracel solicita la verificación del consentimiento no para la implementación del Programa / Proyecto / Planes: Planta Industrial de Celulosa

La reunión comunitaria, se realiza en cumplimiento del **Convenio 169 de la Organización Internacional del Trabajo (OIT)** sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. **234/94** del Congreso Nacional, **Artículo 6 (a)** consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° **1039/18** "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".


En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel S.A Sr/s Fundación Totem; Solicita/n el permiso correspondiente para realizar la **CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO**, a los líderes/as y miembros presentes, quienes, por unanimidad, Si conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al **Artículo 7 del Convenio 169 de la OIT**.

Expresan cuanto sigue:

Reducciones
Exoneración en el pago de electricidad
Asistencia Alimentaria 200 kits

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuera
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:

Sí la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: el Proyecto
Planta Industrial de Beldosos

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, Planta Industrial de Beldosos objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue:

Que, Si, conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto Planta Industrial de Beldosos en la que, la organización/institución/entidad/empresa Paracel S.A. Realizará el Proyecto de Planta Industrial de Beldosos

Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
<u>Maria Jacinto Pereira</u>	<u>1.885.202</u>	<u>[Firma]</u>
<u>Maria del Carmen</u>	<u>5.272.357</u>	<u>[Firma]</u>



MINISTERIO DEL INDÍGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuera
 Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente


Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

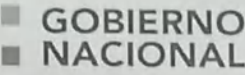
**ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
 DECRETO 1039/2018**

Proyecto/Programa _____

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
Andrea Maciel	2.304.658	
Crisomilda Silva Maciel	6.912.24	-Crisomilda Silva
Leonora Quintana	6.919.353	-Leonora Quintana
Celedonia Zotta Soto	6.745.136	-Celedonia Zotta Soto
Monta Cecilia Soto	3.933.242	-Monta Cecilia Soto
Basilio David Hiter	6.757.970	-Basilio David
Aurelia Quintana	4.164.396	-Aurelia Quintana

Junta Local
 0972
 220-321

 INSTITUTO PARAGUAYO DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuera
Nangarekoha

 GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Por el INSTITUTO PARAGUAYO DEL INDIGENA - INDI

Nombres y Apellidos	C.I	Firma
<u>Ariel Vallejos</u>	<u>2018218</u>	<u>[Signature]</u>
_____	_____	_____

POR EL PROGRAMA /PROYECTO/PLAN/ INSTITUCION

Nombres y Apellidos	C.I	Firma
<u>Rodney Ruiz Diaz</u>	<u>4272772</u>	<u>[Signature]</u>
<u>Alexandra Cáceres</u>	<u>5143549</u>	<u>[Signature]</u>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decrete 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Redención**. Represented by the man / woman: **María Jacinta Pereira**, with recognition of Leader N°: _____, _____, Belonging to the community: **7 pueblos**. Located in the District of **Concepción**, Department of **Concepción**. On the 18th day of the month of December 2020 at 5:00 p.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: PARACEL S.A. Mr. Mrs; Fundación Natán

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Names and surnames:	I.D	Signature
<i>Maria Jacinta Pereira</i>	<i>1885202</i>	<i>Signature</i>
<i>Maria del Carmen</i>	<i>5272357</i>	<i>Signature</i>
<i>Andresa Maciel</i>	<i>2304658</i>	<i>Signature</i>
<i>Brismilda Silva Maciel</i>	<i>6912224</i>	<i>Signature</i>
<i>Leandra Quintana</i>	<i>6919353</i>	<i>Signature</i>
<i>Celedonia Zollas Soto</i>	<i>6745136</i>	<i>Signature</i>
<i>Marta Cecilia Soto</i>	<i>3933242</i>	<i>Signature</i>
<i>Cesar David Hiter</i>	<i>6757570</i>	<i>Signature</i>
<i>Aurelia Quintana</i>	<i>4164386</i>	<i>Signature</i>

By the Paraguayan Indigenous Institute:

Names and surnames:	I.D	Signature
<i>Ariel Vallejos</i>	<i>1018218</i>	<i>Signature</i>


For the program, project, institution, plan:

Names and surnames:	I.D	Signature
<i>Rodney Ruiz Díaz</i>	<i>4272772</i>	<i>Signature</i>
<i>Alexandra Cáceres</i>	<i>5143549</i>	<i>Signature</i>

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.


María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Annex 2.2 Jeguahaty indigenous community


MINISTERIO DE ASUNTOS DEL INDÍGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuéra
 Nangarekoha

GOBIERNO NACIONAL Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Poliduros

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Jeguahaty representado por el Señor/a Edilio Benítez Valiente con Reconocimiento de Líder N° _____ perteneciente al Pueblo _____ asentada en el Distrito de Pozo Grande del Departamento de Desejación a los 17 días del mes de diciembre del año 2020 a las 13:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° _____ por la que la organización/institución/entidad/empresa/ comunidad Paracel - Fundación Natán solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes: Planta Industrial de Poliduros

La reunión comunitaria, se realiza en cumplimiento del **Convenio 169 de la Organización Internacional del Trabajo (OIT)** sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. 234/94 del Congreso Nacional, **Artículo 6 (a)** consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° 1039/18 "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".


En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel Sr/s Fundación Natán; Solicita/n el permiso correspondiente para realizar la **CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO**, a los líderes/as y miembros presentes, quienes, por unanimidad, Si conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al **Artículo 7 del Convenio 169 de la OIT**.

Expresan lo siguiente:

- Documentación.
- Requisitos para mejorar el acceso
- Trasos.
- Extensión de la energía eléctrica - en 1º lugar
- Pagos arrendamientos.
- Requisitos para las viviendas (2 casas (Familias))
- Requisitos para la escuela
- Centro de Salud comunitario

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.


DEL INDIGENA
 Presidente de la República del Paraguay
 Paraguay Ypykuéra
 Nangarekoha

GOBIERNO NACIONAL
 Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Suonami traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:

Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: el Proyecto
Planta Industrial de Celulosa

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, Planta Industrial de Celulosa, objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue: 0

Que, Si, conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto Planta Industrial de Celulosa en la que, la organización/institución/entidad/empresa _____ Realizará el Proyecto Planta Industrial de Celulosa

Justificación de la decisión comunitaria: _____

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
<u>LUCILA Benitez</u>	<u>4.613.888</u>	<u>Lucila Benitez</u>
<u>Berthelina Benitez</u>	<u>6688444</u>	<u>-Cinthia Benitez</u>
<u>Soldis Benitez Volante</u>		

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



CONSEJO DE GOBIERNO
DEL INDÍGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Ñangarekoha

GOBIERNO NACIONAL

Paraguay
de la gente


Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa Planta Industrial de Bebidas

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
<u>Amoroso Benítez Gonzalo</u>	<u>5.833.425</u>	<u>Amoroso Benítez Gonzalo</u>
<u>Nicolás Benítez</u>	<u>7.472.048</u>	<u>Nicolás Benítez G.</u>
<u>Nicolás Benítez G.</u>		
<u>Arnold Diana</u>	<u>6.701.860</u>	<u>- Arnold Diana</u>
<u>Marciano Valenzuela</u>	<u>2.897.8076</u>	<u>- Marciano Benal Valenzuela</u>
<u>Juan Ramón Inda</u>	<u>3.587.930</u>	<u>- Juan R. Inda</u>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.


DEL INDIGENA
 Ministerio de la Registración del Paraguay
 Paraguay Ypykueba
 Yngarekoha

GOBIERNO NACIONAL Paraguay de la gente

Nuestra Misión: "Garantizar, promover y velar por el full cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa Planta Industrial de Belderos

Por el INSTITUTO PARAGUAYO DEL INDIGENA - INDI

Nombres y Apellidos	C.I	Firma
<u>Paulo Colares</u>	<u>1018218</u>	<u>[Signature]</u>

POR EL PROGRAMA /PROYECTO/PLAN/ INSTITUCION

Nombres y Apellidos	C.I	Firma
<u>Alexandra Cáceres</u>	<u>5143541</u>	<u>[Signature]</u>
<u>Wilson Romírez</u>	<u>4795328</u>	<u>[Signature]</u>

LUCILA
 BENTON
 CEL?
 0873 143254

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decree 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Jeguahaty**. Represented by the man / woman: **Elidio Benitez Valiente**, with recognition of Leader N°:- _____, _____, Belonging to the community: _____. Located in the District of **Paso Barreto**, Department of **Concepción**. On the 17th day of the month of December 2020 at 1:00 p.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Names and surnames:	I.D	Signature
<i>Lucila Benítez</i>	4613898	<i>Signature</i>
<i>Cinthia Carolina Britez</i>	6688444	<i>Signature</i>
<i>Anastacio Benitez Gonzalez</i>	5833425	<i>Signature</i>
<i>Nicolas Benitez</i>	7472048	<i>Signature</i>
<i>Nicolás Benítez G.</i>		<i>Signature</i>
<i>Anibal Diana</i>	6701840	<i>Signature</i>
<i>Marciano Valenzuela</i>		<i>Signature</i>
<i>Juan Roman Irala</i>	3597930	<i>Signature</i>

By the Paraguayan Indigenous Institute:

Names and surnames:	I.D	Signature
<i>Ariel Vallejos</i>	1018218	<i>Signature</i>

For the program, project, institution, plan:

Names and surnames:	I.D	Signature
<i>Wilson Ramirez</i>	4795328	<i>Signature</i>
<i>Alexandra Cáceres</i>	5143549	<i>Signature</i>

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.



María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Annex 2.3 Indigenous Community Vy'a Renda

GOBIERNO NACIONAL Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Celulosa

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Vy'a Renda Bagueron representado por el Señor/a Rufino Aquino con Reconocimiento de Líder N° perteneciente al Pueblo Mbya Guaraní asentada en el Distrito de Rosa Borato del Departamento de Concepción a los 17 días del mes de Diciembre del año 2020 a las 16:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° por la que la organización/institución/entidad/empresa/ comunidad Paracel - Fundación Natán solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes: Planta Industrial de Celulosa

La reunión comunitaria, se realiza en cumplimiento del **Convenio 169 de la Organización Internacional del Trabajo (OIT)** sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. 234/94 del Congreso Nacional, **Artículo 6 (a)** consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° 1039/18 "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".


En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel Sr/s Fundación Natán; Solicita/n el permiso correspondiente para realizar la **CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO**, a los líderes/as y miembros presentes, quienes, por unanimidad, Si conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al **Artículo 7 del Convenio 169 de la OIT**.

Expresaron lo siguiente:

Pide la división de su comunidad-Formalizar los Planes
Documentación
Mejoramiento de caminos
Extensión de caminos para comillas, para los buses
Mejoramiento en la parte eléctrica.

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDÍGENA
Presidencia de la República del Paraguay
Paraguay Ypykuera
Nangarekoha

GOBIERNO NACIONAL

Paraguay
de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:

Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: el Proyecto Planta Industrial de Celulosa

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, _____ objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue: 0

Que, Si conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto Planta Industrial de Celulosa en la que, la organización/institución/entidad/empresa Paracel - Fundación Natán Realizará el Proyecto Planta Industrial de Celulosa

Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
<u>Rufino Aquino</u>	<u>6.729.912</u>	<u>Rufino Aquino</u>
<u>Digna Benítez Montaña</u>	<u>7.618.081</u>	<u>Digna Benítez Montaña</u>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuera
Nangarekoha

GOBIERNO NACIONAL


Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Nombres y Apellidos	C.I	Firma del Líder/esa/miembros
Timoteo Ramirez	6.692.517	- Timoteo Ramirez
Martin Martinez	6.332.533	- Martin Martinez
Sabatino Martinez	6.367.738	- Sabatino Martinez
Julio Cesar Fernandez	4.828.655	- Julio Cesar Fernandez
Berofin Fernandez	6.678.877	- Berofin Fernandez
Lidia Gueros Sidra	6.754.202	- Lidia Gueros Sidra
Sebastiana Torres	6.626.015	- Sebastiana Torres

 **DEL INDIGENA**
Provincia de la República del Paraguay
Paraguay Ypykuera
Nangarekoha

GOBIERNO NACIONAL

Paraguay
de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Por el INSTITUTO PARAGUAYO DEL INDIGENA - INDI

Nombres y Apellidos	C.I	Firma
<i>Paul Collegen</i>	<i>1018218</i>	<i>[Signature]</i>
_____	_____	_____

POR EL PROGRAMA /PROYECTO/PLAN/ INSTITUCION

Nombres y Apellidos	C.I	Firma
<i>Rodney Ruiz Otaz</i>	<i>4272777</i>	<i>[Signature]</i>
<i>Alexandra Cáceres</i>	<i>5143549</i>	<i>[Signature]</i>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decrete 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Vy'a Renda Boquerón**. Represented by the man / woman: **Rufino Aquino**, with recognition of Leader N°: _____, _____, Belonging to the community: **Mbya Guarani**, Located in the District of **Paso Barreto**, Department of **Concepción**. On the 17th day of the month of December 2020 at 4:00 p.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel-Fundación Natán**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Names and surnames:	I.D	Signature
<i>Rufino Aquino</i>	6729912	<i>Signature</i>
<i>Digno Benítez</i>	7619081	<i>Signature</i>
<i>Timoteo Ramirez</i>	6692517	<i>Signature</i>
<i>Martin Martinez</i>	6332533	<i>Signature</i>
<i>Salvador Martinez</i>	6367738	<i>Signature</i>
<i>Julio Cesar Fernandez</i>	4828655	<i>Signature</i>
<i>Cerafin Fernandez</i>	6679877	<i>Signature</i>
<i>Lidia Cuevas Silva</i>	6754202	<i>Signature</i>
<i>Sebastiana Torres</i>	6616015	<i>Signature</i>

By the Paraguayan Indigenous Institute:

Names and surnames:	I.D	Signature
<i>Ariel Vallejos</i>	1018218	<i>Signature</i>


For the program, project, institution, plan:

Names and surnames:	I.D	Signature
Rodney Ruiz Díaz	4272772	<i>Signature</i>
Alexandra Cáceres	5143549	<i>Signature</i>

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.


 María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matricula N° 1.416

Annex 2.4. Takuarendyju Indigenous Community


MINISTERIO Y ALTERNATIVAS DEL INDIGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuéra
 Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Soluleros

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Takuarendyju, representado por el Señor/a Mamerto Monete con Reconocimiento de Líder N° / perteneciente al Pueblo Pi Takytara asentada en el Distrito de Pro. Bonetto del Departamento de Boquerón a los 18 días del mes de Diciembre del año 2018 a las 14:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° por la que la organización/institución/entidad/empresa/ comunidad Paracel S.A solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes: Planta Industrial de Soluleros

La reunión comunitaria, se realiza en cumplimiento del **Convenio 169 de la Organización Internacional del Trabajo (OIT)** sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. 234/94 del Congreso Nacional, **Artículo 6 (a)** consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° 1039/18 "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".


En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel SA Sr/s ; Solicita/n el permiso correspondiente para realizar la **CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO**, a los líderes/as y miembros presentes, quienes, por unanimidad, Si conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al **Artículo 7 del Convenio 169 de la OIT**.

Expresan cuanto sigue: Sus pedidos

Escuelas
dominios
Electricidad
Pagos Interés
Seguros

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



MINISTERIO DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuera
Ñangarekoha

GOBIERNO NACIONAL

Paraguay
de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:

Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: El Proyecto Planta Industrial de Celulosa

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, Planta Industrial de Celulosa objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue:

Que, Si conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto _____ en la que, la organización/institución/entidad/empresa Paracel SA Realizará la IP.

Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

<p>Nombres y Apellidos</p> <p><u>Momento Sorrete</u></p> <p><u>Ignacio Diana</u></p>	<p>C.I</p> <p><u>7334579</u></p> <p><u>8584710</u></p>	<p>Firma del Líder/esa /miembros</p> <p><u>MAMUTOGARCTY</u></p> <p><u>Ignacio Diana</u></p>
--	--	---

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decree 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Takuarendyju.**

Represented by the man / woman: **Mamerto Garcete**, with recognition of Leader N°: _____,

_____, Belonging to the community: **Mbya Guarani**, Located in the District of **Paso**

Barreto, Department of **Concepción**. On the 18th day of the month of December 2020 at 2:00 p.m.,

a community meeting is held among the members of the aforementioned community, pursuant to

note N° _____. For which the organization, entity, institution, **company**, community: **Paracel S.A.**

Requests verification of consent or not for the implementation of the Program/Project/Plans:

Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI.**

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

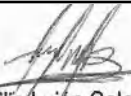
The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project


Participants sign for whatever is necessary:

Names and surnames:	I.D	Signature
<i>Mamerto Garcete</i>	7334579	<i>Signature</i>
<i>Ignacio Diana</i>	8584710	<i>Signature</i>

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.


María Cecilia Luján Galeano Duarte
Traductora Profesional de Inglés
Matricula N° 1.416

Annex 2.5. Takuarita Indigenous Community


DEL INDIGENA
 Presidencia de la República del Paraguay
 Paraguá y pykuera
 Nangarekoha

GOBIERNO NACIONAL
 Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Belderos

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Totuarita representado por el Señor/a Florencia Yaneta Mendoza con Reconocimiento de Líder N° perteneciente al Pueblo Mbya Guononi asentada en el Distrito de San Felipe del Departamento de Concepción a los 18 días del mes de diciembre del año 2020 a las 09:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° por la que la organización/institución/entidad/empresa/ comunidad Paracel solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes: Planta Industrial de Belderos


La reunión comunitaria, se realiza en cumplimiento del **Convenio 169 de la Organización Internacional del Trabajo (OIT)** sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. 234/94 del Congreso Nacional, **Artículo 6** (a) consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° 1039/18 "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".

En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel Sr/s solicita/n el permiso correspondiente para realizar la **CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO**, a los líderes/as y miembros presentes, quienes, por unanimidad, Si conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al **Artículo 7** del Convenio 169 de la OIT.

Expresan cuanto sigue:
Barra 2000 Metros de 40 - Mejoramiento de distribución de agua
Gras
banillos para planton
documentación

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Nangarekoha

GOBIERNO NACIONAL

Paraguay
de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:

Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: el Proyecto

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, Planta Industrial de celulosa objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue:

Que, SI, conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto _____

en la que, la organización/institución/entidad/empresa _____


Realizará el Proyecto Industrial de _____

Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Lider/esa /Representantes /Miembros

Nombres y Apellidos	C.I	Firma del Lider/esa /miembros
<u>Florencio Barute M</u>	<u>7.063.669</u>	<u>Florencio Barute</u>
<u>Andrés Bohara</u>	_____	<u>Andrés Bohara</u>




DEL INDIGENA
 Ministerio de la República del Paraguay
 Paraguáry "Pykuañra"
 Paraguarekoha

GOBIERNO NACIONAL
 Paraguay de la gente


Nuestra Misión: "Concepto, garantizar y velar por el total cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas en forma articulada y coordinada (con otros instituciones)".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDIGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
Mateo Portillo	6.773.970	- Mateo Portillo
Mario Romero	6.773.970	- Mario Romero
Inocencia Bonet Romero	7.047.671	- Inocencia Bonet
Sabino Franco		- Sabino FRANCO
Marcelina Bonet Bonet	7.082.596	- Marcelina
Fabíola Bonet Bonet	8.663.720	- FABÍOLA
Mario Bonet		- 
Mario Bonet	7.047.678	-
Antonio Montoya		-
Isabelina Portillo	7.047.224	- Isabelina
Juan Alberto Gomez	8.061.426	- 

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

 **DEL INDIGENA**
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Por el INSTITUTO PARAGUAYO DEL INDIGENA - INDI

Nombres y Apellidos	C.I	Firma
<i>Diego Vallejos</i>	<i>1.018.218</i>	<i>[Signature]</i>

POR EL PROGRAMA /PROYECTO/PLAN/ INSTITUCION

Nombres y Apellidos	C.I	Firma
<i>Alexandra Cáceres</i>	<i>5143549</i>	<i>[Signature]</i>
<i>Wilson Ramírez</i>	<i>4.795.328</i>	<i>[Signature]</i>
<i>Rodney Ruiz Díaz</i>	<i>4272772</i>	<i>[Signature]</i>

Financiado por el Estado - L. 1026
0983
948-540

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decrete 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Takuarita**. Represented by the man / woman: **Florencio Garcete Mendoza**, with recognition of Leader N°:- _____, _____, Belonging to the community: **Mbya Guarani**, Located in the District of **José Félix S.** Department of **Concepción**. On the 18th day of the month of December 2020 at 9:00 a.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel-Fundación Natán**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Names and surnames:	I.D	Signature
<i>Florencio Garcete López</i>	7063669	<i>Signature</i>
<i>Andrés Cabrera</i>		<i>Signature</i>
<i>Mateo Portillo</i>	6773970	<i>Signature</i>
<i>Mario Ramirez</i>	6773977	<i>Signature</i>
<i>Inocencio Benitez Ramirez</i>	7047671	<i>Signature</i>
<i>Gabino Franco</i>		<i>Signature</i>
<i>Marcelina Benitez Garcete</i>	7082596	<i>Signature</i>
<i>Fabiola Benitez Cabrera</i>	8663720	<i>Signature</i>
<i>María Garcete</i>	6616015	<i>Signature</i>
<i>Marcial Garcete</i>	7047678	<i>Signature</i>
<i>Antonio Martínez</i>		<i>Signature</i>
<i>Isabelino Portillo</i>	7047224	<i>Signature</i>
<i>Juan Alberto Gomez</i>	8061426	<i>Signature</i>

By the Paraguayan Indigenous Institute:

Names and surnames:	I.D	Signature
Ariel Vallejos	1018218	<i>Signature</i>


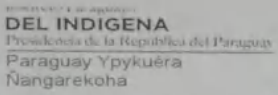
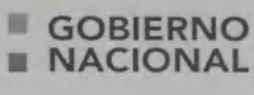
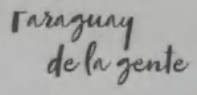
For the program, project, institution, plan:

Names and surnames:	I.D	Signature
Rodney Ruiz Díaz	4272772	<i>Signature</i>
Wilson Ramírez	4795328	<i>Signature</i>
Alexandra Cáceres	5143549	<i>Signature</i>

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.


María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Annex 2.6 Sati - Pai Renda Chirupoty Indigenous community

DEL INDIGENA
 Presidente de la República del Paraguay
 Paraguay Ypykuéra
 Nangarekoha

GOBIERNO NACIONAL
 Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Bobaloras

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Pai Renda Chirupoty (Sati) representado por el Señor/a Doña María Merydy con Reconocimiento de Líder N° / perteneciente al Pueblo Pi Taytara asentada en el Distrito de Solista Nat del Departamento de Itapúa a los 14 días del mes de Diciembre del año 2020 a las 11:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° / por la que la organización/institución/entidad/empresa/ comunidad Paracel - Fundación Natán solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes: Planta Industrial de Bobaloras

La reunión comunitaria, se realiza en cumplimiento del **Convenio 169 de la Organización Internacional del Trabajo (OIT)** sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. **234/94** del Congreso Nacional, **Artículo 6 (a)** consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° **1039/18** "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".


En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel Sr/s /; Solicita/n el permiso correspondiente para realizar la **CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO**, a los líderes/as y miembros presentes, quienes, por unanimidad, Si conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al **Artículo 7 del Convenio 169 de la OIT**.

Expresan lo siguiente:

Documentación
Asistencia para el edo de la 3ra edad
Asistencia para extensión de canchales para cada cosa
Asistencia alimentaria para 50 familias
Mejoramiento de extensión eléctrica para los cosas

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDÍGENA
Presidencia de la República del Paraguay
Paraguay Ypykuera
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a _____ formulando la siguiente pregunta:

Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: el Proyecto Planta Industrial de Celulosa

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, Planta Industrial objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue:


Que, Si conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto Planta de Industrial de Celulosa en la que, la organización/institución/entidad/empresa Paracel Realizará el Proyecto de Planta Industrial de Celulosa

Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
<u>Ada Maria Gonzalez</u>	<u>6.144.687</u>	<u>Ada Maria Gonzalez</u>
<u>Dominga Inola Sanchez</u>	<u>3.000.978</u>	<u>Domingo Salas</u>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.


DEL INDIGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuera
 Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente


Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".


ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
 DECRETO 1039/2018

Proyecto/Programa _____

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
Ademir Batista		- Ademir Batista
Liz Mabel Piris Melgarejo	8.002.708	- Liz Mabel Piris
Rumilda Longobardi Ramirez	6.808.446	Rumilda Longobardi Ramirez
Adriela Frata	7.881.514	Adriela Frata
Damecia Longobardi	6.906.472	- Damecia Longobardi
Antonia Longobardi Villagra	8.131.476	- Antonia

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.


DEL INDIGENA
 Presidente de la República del Paraguay
 Paraguay Ypykuera
 Nangarekoha


GOBIERNO NACIONAL

Paraguay
de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Por el INSTITUTO PARAGUAYO DEL INDIGENA - INDI

Nombres y Apellidos	C.I	Firma
<u>Ariel Vallejos</u>	<u>1.018.218</u>	<u>[Signature]</u>
_____	_____	_____

POR EL PROGRAMA /PROYECTO/PLAN/ INSTITUCION

Nombres y Apellidos	C.I	Firma
<u>Wilson Ramirez</u>	<u>4.795.328</u>	<u>[Signature]</u>
<u>Rochey Ruiz Diaz</u>	<u>4272772</u>	<u>[Signature]</u>
<u>Alexandra Cáceres</u>	<u>5143549</u>	<u>[Signature]</u>

CEL-
LIDEROSA

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decree 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Pai Renda Chirupoty (Sati)**. Represented by the man / woman: **Ada María González**, with recognition of Leader N°: _____, _____, Belonging to the community: **Pai Tavytera**, Located in the District of **Bella Vista Norte**. Department of **Amambay**. On the 16th day of the month of December 2020 at 11:00 a.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel-Fundación Natán**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Names and surnames:	I.D	Signature
Ada María González	6144687	Signature
Dominga Irala Sanchez	3000979	Signature
Ademir Batista		Signature
Liz Mabel Piris Melgarejo	8062788	Signature
Rumilda Gonzalez Ramirez	6808446	Signature
Adriele Irala	7881514	Signature
Demecio Gonzalez	6906472	Signature
Antonia Gonzalez Villagra	8131476	Signature

By the Paraguayan Indigenous Institute:

Names and surnames:	I.D	Signature
Ariel Vallejos	1018218	Signature

For the program, project, institution, plan:

Names and surnames:	I.D	Signature
Rodney Ruiz Díaz	4272772	Signature
Wilson Ramírez	4795328	Signature
Alexandra Cáceres	5143549	Signature

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.


María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matricula N° 1.416

Annex 2.7 Indigenous Community Guyra Ñeengatu Amba

GOBIERNO NACIONAL Paraguay de la gente
DEL INDIGENA Presidencia de la República del Paraguay Paraguay Ypykuera Ñangarekoha

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Belisario

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Guyra Ñeengatu Amba representado por el Señor/a Andrés Romina Romina con Reconocimiento de Líder N° perteneciente al Pueblo Paitoytano asentada en el Distrito de San Vicente del Departamento de Amambay a los 04 días del mes de diciembre del año 2020 a las 08:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° por la que la organización/institución/entidad/empresa/ comunidad Paracel-Fundación Natán solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes: Planta Industrial de Belisario


La reunión comunitaria, se realiza en cumplimiento del Convenio 169 de la Organización Internacional del Trabajo (OIT) sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley Nº. 234/94 del Congreso Nacional, Artículo 6 (a) consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° 1039/18 "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".

En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel - Sr/s Fundación Natán; Solicita/n el permiso correspondiente para realizar la CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO, a los líderes/as y miembros presentes, quienes, por unanimidad, conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al Artículo 7 del Convenio 169 de la OIT. Los miembros de la comunidad y representantes de Paracel, funcionarios del Indi, Fundación Natán en el marco del proceso de consulta en el decreto 1039/18. Se expone cuanto sigue

Agua para la comunidad potable, electricidad con 100 lugares
Permisos y tensiones.
Documentaciones.
Líderes promotores - Vínculos
Seguimiento de su Título
Para el Mejoramiento de sus comunas para acceder a sus
comunidades, porque en tiempo de lluvias imposible
transitar.

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuera
Ñangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:


Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: El Proyecto Planta Industrial de Celulosa

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, Planta Industrial de Celulosa, objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue: Si conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto Planta Industrial de Celulosa en la que, la organización/institución/entidad/empresa Paracel - Fundación Volcan Realizará El Proyecto de Planta Industrial de Celulosa

Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
<u>Andrés Román Román</u>	<u>7.260.010</u>	<u>Andrés Román Román</u>
<u>Juan José González</u>	<u>7.206.082</u>	<u>Juan José González</u>

 **DEL INDIGENA**
Presidencia de la República del Paraguay
Paraguay Ypykuera
Ñangarekoña

GOBIERNO NACIONAL *Paraguay de la gente*


Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa Planta Industrial de bidulosa

Nombres y Apellidos	C.I	Firma del Líder/esa/miembros
<u>Jose Luis Benitez</u>	<u>5.932.298</u>	<u>Jose Luis Benitez</u>
<u>Nihsa Gonzalez</u>	<u>1.368.061</u>	<u>Nihsa Gonzalez</u>
<u>Selva Soledad Benitez</u>	<u>7.905.518</u>	<u>Selva Soledad B</u>
<u>Mario Rosalba Lopez</u>	<u>7.220.632</u>	<u>Mario Lopez</u>
<u>Basilio Gomez</u>	<u>7.885.455</u>	<u>Basilio Gomez</u>
<u>Amela Medina</u>	<u>8.371.452</u>	<u>Amela Medina</u>
<u>Francis David Benitez</u>	<u>7.860.186</u>	<u>Francis David Benitez</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____
_____	_____	_____
_____	_____	_____

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

 **DEL INDIGENA**
 Ministerio de la República del Paraguay
 Paraguay Ypykuéra
 Ñangarekoha

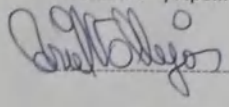
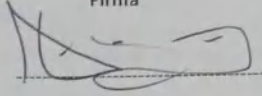
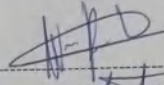
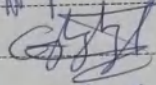
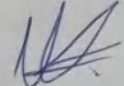
GOBIERNO NACIONAL *Paraguay de la gente*

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
 DECRETO 1039/2018

Proyecto/Programa _____

Por el INSTITUTO PARAGUAYO DEL INDIGENA - INDI

Nombres y Apellidos	C.I	Firma
	20189218	
POR EL PROGRAMA /PROYECTO/PLAN/ INSTITUCION		
Nombres y Apellidos	C.I	Firma
wilson Ramirez	4795328	
Rodney Ruiz Diaz	4272772	
Alexandra Cáceres	5143549	

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decree 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Guyra Ñeengatu Amba**. Represented by the man / woman: **Andrés Ramírez Ramírez**, with recognition of Leader N°: _____, _____, Belonging to the community: **Pai Tavytera**, Located in the District of **Bella Vista Norte**. Department of **Amambay**. On the 16th day of the month of December 2020 at 08:00 a.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel-Fundación Natán**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Names and surnames:	I.D	Signature
<i>Andres Ramirez Ramirez</i>	7260010	<i>Signature</i>
<i>Juan Ariel Benitez</i>	7206082	<i>Signature</i>
<i>Jose Luis Benitez</i>	5932298	<i>Signature</i>
<i>Nilsa Gonzalez</i>	1368061	<i>Signature</i>
<i>Selva Soledad Benitez</i>	7905518	<i>Signature</i>
<i>Maria Rosalba Lopez</i>	7220632	<i>Signature</i>
<i>Basilía Gomez</i>	7895455	<i>Signature</i>
<i>Anita Medina</i>	8371452	<i>Signature</i>
<i>Francis David Benitez</i>	7860186	<i>Signature</i>

By the Paraguayan Indigenous Institute:

Names and surnames:	I.D	Signature
<i>Ariel Vallejos</i>	1018218	<i>Signature</i>


For the program, project, institution, plan:

Names and surnames	:	I.D	Signature
Rodney Ruiz Díaz	:	4272772	<i>Signature</i>
Wilson Ramírez	:	4795328	<i>Signature</i>
Alexandra Cáceres	:	5143549	<i>Signature</i>

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.


María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Annex 2.8 Mberyyvo Jaguarymi Indigenous Community


DEL INDIGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuéra
 Nangarekoha

GOBIERNO NACIONAL
 Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Bebidas

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Mberyyvo Jaguarymi representado por el Señor/a Edia Benitez Agomo con Reconocimiento de Líder N° / perteneciente al Pueblo Pa'itavytã, asentada en el Distrito de Yvy Yau del Departamento de Concepcion a los días del mes de diciembre del año 2020 a las 08:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° por la que la organización/institución/entidad/empresa/ comunidad Breal - Fundación Valor solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes: Planta Industrial de Bebidas

La reunión comunitaria, se realiza en cumplimiento del **Convenio 169 de la Organización Internacional del Trabajo (OIT)** sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. 234/94 del Congreso Nacional, **Artículo 6 (a)** consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° 1039/18 "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".


En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Breal Sr/s ; Solicita/n el permiso correspondiente para realizar la **CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO**, a los líderes/as y miembros presentes, quienes, por unanimidad, Si conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al **Artículo 7 del Convenio 169 de la OIT**.

Expresaron lo siguiente:

Puentes
Energía Eléctrica (Mejoramiento)
Documentos para 26 familias
Documentación. (Indi tiene algunas bebidas)

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Ñangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:

Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: A Proyecto
Planta Industrial de celulosa

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, Planta Industrial de celulosa objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue:


Que, SI conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto Planta Industrial de celulosa en la que, la organización/institución/entidad/empresa Paracel - Fundación Rotom Realizará el Proyecto de Planta Industrial de celulosa

Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Nombres y Apellidos	C.I	Firma del Lider/esa /miembros
<u>Roberto Benítez</u>	<u>7.468.191</u>	<u>[Firma]</u>
<u>Frederico Sintes</u>	<u>3.635.774</u>	<u>[Firma]</u>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
Arminda Valenzuela		ARMINDA VALENZUELA
Estelina Benítez	848643	Estelina Benítez
Maderez Benítez	8.033.562	Maderez Benítez
Gladys Valenzuela	8.084721	Gladys Valenzuela
Elidora Medina		-Elidora Medina
Elizabeth Volante	5.832.291	-Elizabeth V.R.
Faviana Valenzuela		-Faviana Valenzuela M
Martina Medina		Martina Medina Benítez
Graciela Medina	7.297.148	-Graciela Valenzuela Medina
Tridora Valenzuela	8.086106	-Tridora Valenzuela M
Rumilba Cubilla	0	-Rumilba Cubilla
Marco Valenzuela	8473.142	-Marco

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



INSTITUTO PARAGUAYO DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Por el INSTITUTO PARAGUAYO DEL INDIGENA - INDI

Nombres y Apellidos	C.I	Firma
<u>Diego Vollejos</u>	<u>1.018.818</u>	<u>[Signature]</u>
_____	_____	_____

POR EL PROGRAMA /PROYECTO/PLAN/ INSTITUCION

Nombres y Apellidos	C.I	Firma
<u>Wilson Pambrea</u>	<u>4.795.328</u>	<u>[Signature]</u>
<u>Rodney Proiz Diaz</u>	<u>4.272.772</u>	<u>[Signature]</u>

Celia Luder
CEL
0871-510-696
Prog: 0976-816-704
Problemas de salud

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decree 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Mberyvo Jaguarmi**. Represented by the man / woman: **Celia Benitez Alfonso**, with recognition of Leader N°: _____, _____, Belonging to the community: **Pai Tavytera**, Located in the District of **Yvy Yau**. Department of **Concepción**. On the _th day of the month of December 2020 at 08:00 a.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel-Fundación Natán**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Names and surnames:	I.D	Signature
<i>Celia Benítez</i>	7168191	<i>Signature</i>
<i>Isabelino Britez</i>	3635774	<i>Signature</i>
<i>Arminda Valenzuela</i>		<i>Signature</i>
<i>Estelvina Benitez</i>	8148643	<i>Signature</i>
<i>Marlene Gonzalez</i>	8033562	<i>Signature</i>
<i>Gladys Valenzuela</i>	8084721	<i>Signature</i>
<i>Eliodoro Medina</i>		<i>Signature</i>
<i>Elizabeth Valiente</i>	5832291	<i>Signature</i>
<i>Faviana Valenzuela M.</i>		<i>Signature</i>
<i>Martina Medina Benítez.</i>		<i>Signature</i>
<i>Graciela Medina</i>	7297148	<i>Signature</i>
<i>Isidora Valenzuela</i>	8086106	<i>Signature</i>
<i>Rumilda Cubilla</i>		<i>Signature</i>
<i>Marcio Valenzuela</i>	8473142	<i>Signature</i>

By the Paraguayan Indigenous Institute:

Names and surnames:	I.D	Signature
<i>Ariel Vallejos</i>	1018218	<i>Signature</i>


For the program, project, institution, plan:


Names and surnames:	I.D	Signature
Rodney Ruiz Díaz	4272772	<i>Signature</i>
Wilson Ramírez	4795328	<i>Signature</i>

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.


María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Annex 2.9 Yvyty Rovi Cerro Po'i Indigenous Community


MINISTERIO DE ASUNTOS DEL INDÍGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuéra
 Ñangarekoha


GOBIERNO NACIONAL
 Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Belderos

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Yvyty Rovi representado por el Señor/a Inocencio Yampien Baspades con Reconocimiento de Líder N° perteneciente al Pueblo Poitoytéra asentada en el Distrito de Bella Vista Norte del Departamento de Amambay a los 15 días del mes de diciembre del año 2020 a las 17:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° por la que la organización/institución/entidad/empresa/ comunidad Paracel - Fundación Motal solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes: Planta Industrial de Belderos

La reunión comunitaria, se realiza en cumplimiento del **Convenio 169 de la Organización Internacional del Trabajo (OIT)** sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. 234/94 del Congreso Nacional, **Artículo 6 (a)** consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° 1039/18 "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".

En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel Fundación Motal Sr/s; Solicita/n el permiso correspondiente para realizar la **CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO**, a los líderes/as y miembros presentes, quienes, por unanimidad, SI conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al **Artículo 7 del Convenio 169 de la OIT**.

Expresan lo siguiente

Solicita Ruido para nombrados de Salud - Maria Bismarck
Caminos - para poder llegar a la comunidad (Mejoramiento)
Escuelas para la comunidad.
Seguir peticiones para que puedan tomar agua
Hablar con los dueños de las estancias para hacer conocer sus propuestas para que los caminos se arreglen
Legal comunitario
Piegos para recibir visitas
Muchos de Zin para 18 Casas - Familias
Belderos - Documentos para la comunidad
Mantenedor - Para energía eléctrica.

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



MINISTERIO DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:

Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: el Proyecto Planta Industrial de Belderos

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, de Planta Industrial de Belderos objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue:

Que, Si, conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto Industrial de Belderos

en la que, la organización/institución/entidad/empresa Paracel - Fundación Natán Realizará el Proyecto de Planta Industrial de Belderos

Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
<u>Marcelino Esteban Sandoz</u>	<u>2.113.766</u>	<u>[Firma]</u>
<u>Maria Domono</u>	<u>3765632</u>	<u>[Firma]</u>



GOBIERNO Y PARAGUAY
DEL INDIGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuéra
 Nangarekoha

GOBIERNO NACIONAL

Paraguay
de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

**ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
 DECRETO 1039/2018**

Proyecto/Programa _____

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
Lidia Corvalán Valente		- Lidia Corvalán
Rodrigo Amorilla		- Alberto Esteve
Lidia Corvalán Valente	73614933	Lista a Vana
S. Dorio Valente		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



MINISTERIO DE AGROPECUARIO
DEL INDÍGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Ñangarekoha

GOBIERNO NACIONAL

Paraguay
de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y
COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa Planta Industrial de Celulosa

Nombres y Apellidos	C.I	Firma del Lider/esa /miembros
<u>Amatorio Benitez Borgez</u>	<u>5.833.425</u>	<u>Amatorio Benitez Borgez</u>
<u>Nicolas Benitez</u>	<u>7.472.048</u>	<u>Nicolas Benitez G.</u>
<u>Nicolas Benitez G.</u>		
<u>Arnold Diana</u>	<u>6.701.860</u>	<u>-Arnold Diana</u>
<u>Marciano Valenzuela</u>	<u>8.078.076</u>	<u>-Marciano Benal Valenzuela</u>
<u>Juan Ramon Inda</u>	<u>3.587.930</u>	<u>-Juan R Inda</u>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decree 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Yvyty Rovi** Represented by the man / woman: **Inocencio González Céspedes**, with recognition of Leader N°:- _____, _____, Belonging to the community: **Pai Tavytera**, Located in the District of **Bella Vista Norte**. Department of **Amambay**. On the 15th day of the month of December 2020 at 05:00 p.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel-Fundación Natán**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

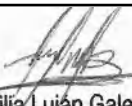
The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Names and surnames:	I.D	Signature
<i>Inocencio Esteban Gonzalez</i>	2113766	<i>Signature</i>
<i>Maria Chamorro</i>	3765632	<i>Signature</i>
<i>Lidio Corvalán</i>		<i>Signature</i>
<i>Elodia Amarilla</i>		<i>Signature</i>
<i>Elisea Corbalan Valiente</i>	7361493	<i>Signature</i>
<i>Silveria Valiente</i>		<i>Signature</i>
<i>Anastacio Benitez Gonzalez</i>	5833425	<i>Signature</i>
<i>Nicolas Benitez</i>	7472048	<i>Signature</i>
<i>Nicolás Benítez G.</i>		<i>Signature</i>
<i>Anibal Diana</i>	6701840	<i>Signature</i>
<i>Marciano Valenzuela</i>		<i>Signature</i>
<i>Juan Roman Irala</i>	3597930	<i>Signature</i>

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.


María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

Annex 2.10 Apyka Jegua

DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykitéra
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Frases Mágicas: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa: Planta Industrial de Beldoran

En la Comunidad/Aldea/ Barrios o Núcleo/s de familias indígena/s denominada Apyka Jegua, representado por el Señor/a Bonifacio Fernandez con Reconocimiento de Líder N° / perteneciente al Pueblo Bitaitera, asentada en el Distrito de Bella Vista del Departamento de Amambay a los 15 días del mes de Diciembre del año 2018 a las 16:00 horas, se realiza una Reunión comunitaria entre los miembros de la mencionada comunidad, atento a la nota N° por la que la organización/institución/entidad/empresa/ comunidad Paracel solicita la verificación del consentimiento o no para la implementación del Programa /Proyecto /Planes:

Planta Industrial de Beldoran

La reunión comunitaria, se realiza en cumplimiento del Convenio 169 de la Organización Internacional del Trabajo (OIT) sobre Pueblos Indígenas y Tribales en países independientes, ratificado por Ley N°. 234/94 del Congreso Nacional, Artículo 6 (a) consultar a los pueblos interesados, mediante procedimientos apropiados y en particular a través de sus instituciones representativas, cada vez que se prevean medidas legislativas o administrativas susceptibles de afectarles directamente; y el Decreto N° 1039/18 "Del Proceso de Protocolo de Consulta y Consentimiento Libre previo e informado, con los Pueblos Indígenas que habitan en el Paraguay".

En tal sentido, el/os representante/s de la organización/institución/entidad/empresa Paracel - F. N. S. S. S. Sr/s ;

Solicita/n el permiso correspondiente para realizar la CONSULTA Y CONSENTIMIENTO LIBRE PREVIO E INFORMADO, a los líderes/as y miembros presentes, quienes, por unanimidad, SI conceden el permiso y la autorización para la correspondiente consulta.

Acto seguido, los miembros de manera participativa, definen sus propias prioridades conforme al Artículo 7 del Convenio 169 de la OIT Se reúnen en dicha comunidad Apyka Jegua miembros de la comunidad, representantes de la Fundación Motom, Paracel, Fundación del Indio

Falta de agua, enseres, amenaja de salud, por las atenciones

para la comunidad de 32 personas.

Falta de documentación


Escuelas para la comunidad y grupos para cada cosa

Promotor de Salud

Baja de agua de 1000 litros

Pedidos de terrenos.

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.


DEL INDIGENA
 Presidencia de la República del Paraguay
 Paraguay Ypykuëra
 Nangarekoha

GOBIERNO NACIONAL
 Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Seguidamente se procede a la CCLPI propiamente dicha, en virtud de la cual, el/los representantes/s de la mencionada, organización/institución/entidad/empresa, quien/es se expresa/n, en el idioma Guaraní traducida en la lengua nativa, por el/a intérprete de la comunidad Sr/a. _____ formulando la siguiente pregunta:

Si la comunidad, ¿está de acuerdo en conceder o no?, el consentimiento para: el proyecto
Planta Industrial de Beludoro

La comunidad reunida libre y voluntariamente, sin presión ni coerción alguna, e informada suficientemente acerca del Programa/Proyecto /Planes, Proyecto Planta Industrial de Beludoro objetivos, estrategias de implementación y participación, duración, mecanismos de control y evaluación, efectos sociales-ambientales, canales de comunicación y coordinación con la Comunidad y sus miembros, expresa/n cuanto sigue:

Que, Si conceden el consentimiento para la inclusión de la comunidad al Plan/Programa/Proyecto Planta Industrial de Beludoro en la que, la organización/institución/entidad/empresa Paracel - Fundación Natán Realizará el Proyecto Planta Industrial de Beludoro


Justificación de la decisión comunitaria:

Y se adjunta Copia del Proyecto/Programa /Planes, para los fines de seguimiento y monitoreo del mismo. No habiendo otro tema que tratar y en prueba de conformidad de todo lo actuado y del contenido de la presente, firman los participantes para lo que hubiere lugar.

Por la Comunidad Indígena /Aldea/Barrio o Núcleo de Familias – Líder/esa /Representantes /Miembros

Nombres y Apellidos	C.I	Firma del Líder/esa /miembros
<u>BIBI</u>	_____	<u>BIBI</u>
<u>Liz Fabiola</u>	_____	<u>Liz Fabiola</u>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



COMANDO EN JEFE
DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente


Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Nombres y Apellidos	C.I	Firma del Lider/esa /miembros
Rufina		Rufina
Bonifacia Suarez	6833.837	[Signature]
Botolimo Volante	7.257.966	[Signature]
Elvina Fernandez	8379.229	[Signature]
Lidion Raquel Volante	6603857	[Signature]
Eugenio Buenedo Volante	7231069	[Signature]
Bonifacia Fernandez Volante	7523958	[Signature]
Volante Reyes Fontana	7478651	[Signature]
Flores Volante Volante	8107266	[Signature]
Hilda Volante Sorcio	6828812	[Signature]
Andresa Sorcio	6623464	[Signature]
Figuina Volante	8055735	[Signature]

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.



DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Nangarekoha

GOBIERNO NACIONAL

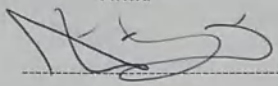
Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

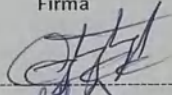
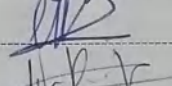
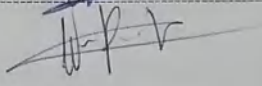
ACTA DE CONSULTA Y CONSENTIMIENTO, LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS Y COMUNIDADES/ALDEAS O NÚCLEOS DE FAMILIAS INDÍGENAS
DECRETO 1039/2018

Proyecto/Programa _____

Por el INSTITUTO PARAGUAYO DEL INDIGENA - INDI

Nombres y Apellidos	C.I	Firma
<u>Rosel Ortega</u>	<u>2018218</u>	<u></u>
_____	_____	_____

POR EL PROGRAMA /PROYECTO/PLAN/ INSTITUCION

Nombres y Apellidos	C.I	Firma
<u>Rodney Ruiz Diaz</u>	<u>2272772</u>	<u></u>
<u>Alexandra Cáceres Delgado</u>	<u>5143549</u>	<u></u>
<u>Wilson Ramirez</u>	<u>4.795328</u>	<u></u>

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Act of consultation and consent, free, prior and informed with the indigenous peoples / communities / villages or nuclei of families.

Decree 1039/18

Project / Program: Industrial Plant Of Cellulose

In the community / Village / Neighborhoods or nuclei of indigenous families called: **Apyka Jegua**. Represented by the man / woman: **Basilio Fernández**, with recognition of Leader N°: _____, _____, Belonging to the community: **Pai Tavytera**, Located in the District of **Bella Vista**. Department of **Amambay**. On the 15th day of the month of December 2020 at 10:00 a.m., a community meeting is held among the members of the aforementioned community, pursuant to note N° _____. For which the organization, entity, institution, **company**, community: **Paracel-Fundación Natán**. Requests verification of consent or not for the implementation of the Program/Project/Plans: Industrial Cellulose Plant.

The community meeting is held in compliance with Convention 169 of the International Labor Organization (ILO) on indigenous and tribal peoples in independent countries, ratified by Law 239/94, Of the National Congress, Article 6 (to) consult the peoples interested parties, through appropriate procedures and in particular through their representative institutions, whenever legislative or administrative measures are envisaged that may affect them directly; and Decree No. 1039/18 "On the process of the Free, Prior and Informed Consultation and Consent protocol with the Indigenous peoples living in Paraguay"

In this sense, the Representative of the organization, entity, company, institution: **PARACEL S.A.** Mr. Mrs; **Fundación Natán**

Request the corresponding permission to carry out the **CONSULTATION AND FREE AND PRIOR CONSENT**, to the leaders and members present, who, unanimously: **YES**, grant the permission and authorization for the corresponding consultation.

The members then, in a participatory manner, define their own priorities in accordance with **Article 7 of Convention 169 of the OTI**.

[Community members express their needs]

Next, the CCLPI itself is proceeded, by virtue of which, the representatives of the aforementioned organization, entity, institution, company, in the Language: **Guarani**, translated into the native language. By asking the following question:

Does the community agree to grant or not? Consent for the Pulp Industrial Plant Project

The community gathered, freely and voluntarily, without any pressure or coercion, and sufficiently informed about the Project: Pulp Industrial Plant, objective, implementation and participation strategies, duration, control and evaluation mechanisms, social-environmental effects, communication channels and coordination with the community and its members, expresses the following:

That: Yes, they grant the consent for the inclusion of the Community to the Pulp Industrial Plant Project, in which the company: Paracel S.A. Will carry out the Pulp Industrial Plant project

Participants sign for whatever is necessary:

Names and surnames:	I.D	Signature
<i>Signature</i>		<i>Signature</i>
<i>Liz Fabiola</i>		<i>Signature</i>
<i>Rufina</i>		<i>Signature</i>
<i>Bornelia Suarez</i>	6833837	<i>Signature</i>
<i>Catalino Valiente</i>	7257966	<i>Signature</i>
<i>Pablino Fernandez</i>	8379229	<i>Signature</i>
<i>Lilian Raquel Valiente</i>	6603857	<i>Signature</i>
<i>Eugenio Quevedo Valiente</i>	7231069	<i>Signature</i>
<i>Carlos Fernandez Valiente</i>	7523958	<i>Signature</i>
<i>Nelida Reyes Contreras</i>	7475651	<i>Signature</i>
<i>Filemon Valiente Valiente</i>	8107266	<i>Signature</i>
<i>Hilda Valiente Garcia</i>	6828811	<i>Signature</i>
<i>Andresa Garcia</i>	6623464	<i>Signature</i>
<i>Rufina Valiente</i>	8055735	<i>Signature</i>

By the Paraguayan Indigenous Institute:

Names and surnames:	I.D	Signature
<i>Ariel Vallejos</i>	1018218	<i>Signature</i>

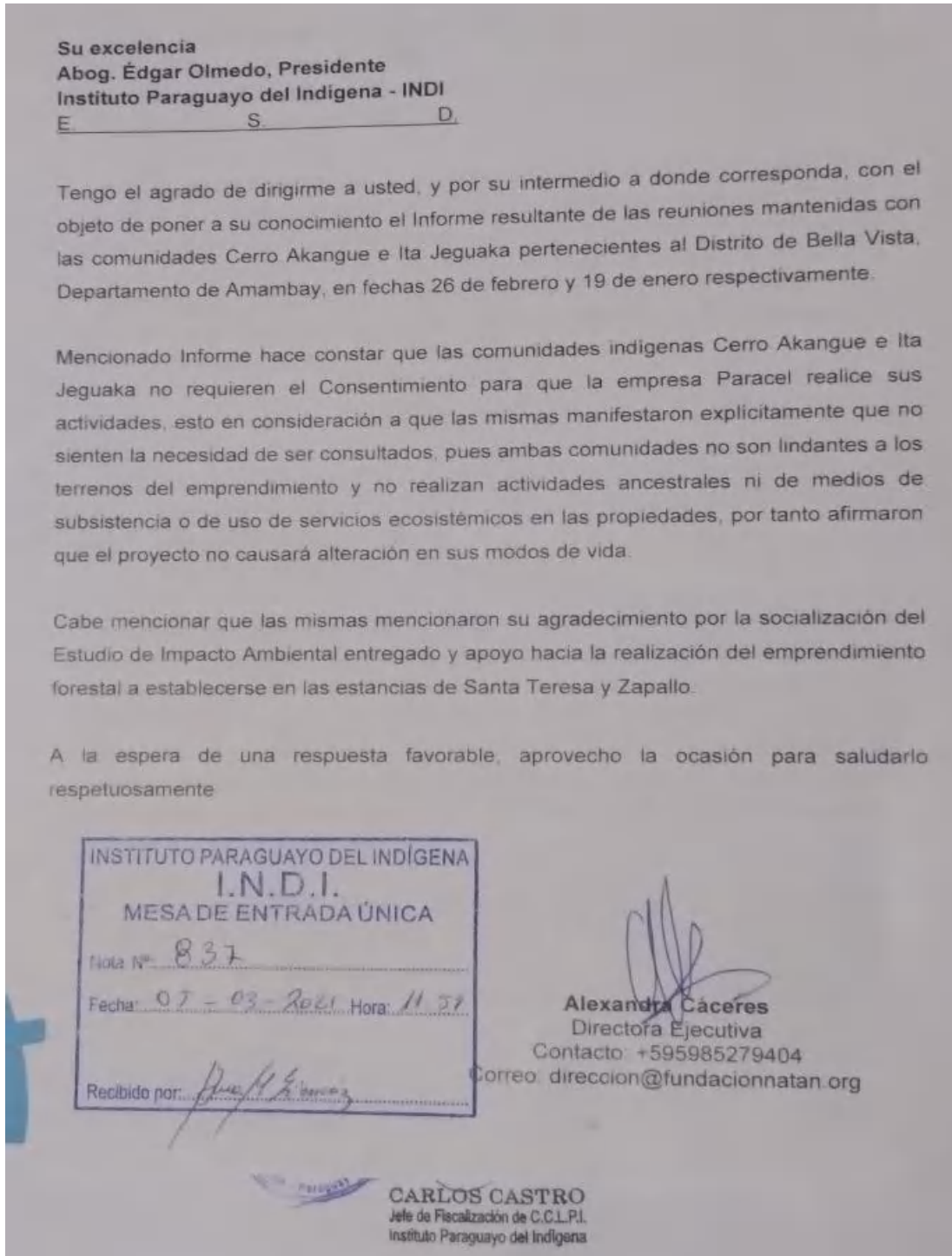
For the program, project, institution, plan:

Names and surnames:	I.D	Signature
Rodney Ruiz Díaz	4272772	<i>Signature</i>
Alexandra Cáceres	5143549	<i>Signature</i>
Wilson Ramírez	4795328	<i>Signature</i>

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María Cecilia Luján Galeano Duarte
 Traductora Profesional de Inglés
 Matrícula N° 1.416

ANNEX 3: Report resulting from the meetings held with the Cerro Akangue and Ita Jeguaka communities



En fecha 26 de febrero del año 2021, en el Distrito de Bella Vista, Departamento de Amambay siendo las 10:00 am, se encuentran reunidos los miembros de la comunidad Indígena Cerro Akangue representados por el Señor Roque Valiente, con los representantes de la Fundación Natán el Ing. E.H. Rodney Ruiz Diaz, Ing. Amb. Alexandra Cáceres, y en carácter de Fiscalizador CCLPI, y quien suscribe Ariel Vallejos, perteneciente a la Dependencia de la Dirección de Enlace Interinstitucional, del Instituto Paraguayo del Indígena – INDI.

En la mencionada reunión se trató como tema principal la socialización del Proyecto Fábrica de Celulosa por parte de la Empresa PARACEL S.A., y en el marco del mismo la realización de las actividades del Proceso de Consulta, Libre, Previa e Informada, y la identificación del modelo de autodeterminación de la comunidades en su área de influencia, en el marco del cumplimiento del DECRETO 1039/18 POR EL CUAL SE APRUEBA EL PROTOCOLO PARA EL PROCESO DE CONSULTA Y CONSENTIMIENTO LIBRE, PREVIO E INFORMADO CON LOS PUEBLOS INDÍGENAS QUE HABITAN EN EL PARAGUAY.

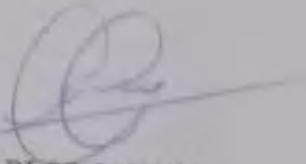
Se da apertura a la reunión teniendo como orden del día los siguientes puntos

- Presentación y conversación sobre el Proyecto Fábrica de Celulosa con énfasis en las actividades de Reforestación Forestal en las Estancias Santa Teresa y Zapallo, por parte de la Empresa PARACEL S.A.
- Plenaria de plenaria de preguntas y respuesta sobre la exposición presentada.

El desarrollo de la reunión se presentó acorde a la agenda planteada. Los miembros de la Comunidad Cerro Akangue manifestaron su agradecimiento por la socialización del Estudio de Impacto Ambiental entregado y apoyo hacia la realización del emprendimiento forestal a establecerse en las estancias de Santa Teresa y Zapallo y explicitaron que no sienten la necesidad de ser consultados, pues la comunidad indígena no es lindante a los terrenos del emprendimiento y además no realizan actividades ancestrales ni de medios de subsistencia o de uso de servicios ecosistémicos en las propiedades, por tanto afirman que el proyecto no causará alteración en sus modos de vida.

De la misma forma, la comunidad Ita Jeguaka, ubicada en el Departamento de Amambay, Distrito de Bella Vista, visitada en fecha 19 de enero del corriente año 2021 y representada por la Señora Virginia Benitez, en reunión y con amplio apoyo de la comunidad, manifiestan su apoyo al emprendimiento PARACEL y explicitan que no sienten la necesidad de ser





CARLOS CASTRO
Jefe de Fiscalización de C.C.L.P.I.
Instituto Paraguayo del Indígena

ess.

consultados debido a que las actividades del proyecto en las propiedades de Santa Teresa y Zapallo no interferirán con sus modos de vida, debido a que no son lindantes a su comunidad ni son lugares en que practiquen actividades ancestrales ni actividades de medios de subsistencia o de uso de servicios ecosistémicos.

Por lo manifestado por ambas comunidades, y en carácter de Fiscalizador, se puede confirmar que las comunidades Cerro Akangue e Ita Jeguaka no requieren el Consentimiento para que la empresa Paracel realice sus actividades.




CARLOS CASTRO
 Jefe de Fiscalización de C.C.L.P.I.
 Instituto Paraguayo del Indígena

Report from the Minister of Faith of the Instituto Paraguayo del Indígena that states that the Cerro Akangue and Ita Jeguaka communities of the department of Amambay voluntarily decide not to participate in the consultation process because they state that they do not share territories or ecosystem services with the locations of the enterprise, Therefore, they decide not to participate in the process without prejudice to the continuity of PARACEL and that they express their support.

Your excellence

Abog. Édgar Olmedo, President of the Instituto Paraguayo del Indígena - INDI

I have the pleasure of writing to you and through you where appropriate, in order to make known to you the Report resulting from the meetings held with the Cerro Akangue and Ita Jeguaka communities belonging to the Bella Vista District, Amambay Department, on dates February 26 and January 19 respectively.

The aforementioned Report states that the indigenous communities Cerro Akangue and Ita Jeguaka do not require Consent for the Paracel company to carry out its activities, this in consideration of the fact that they explicitly stated that they do not feel the need to be consulted, since both communities are not adjacent to the land of the enterprise and do not carry out ancestral activities or livelihoods or use of ecosystem services on the properties, therefore they affirmed that the project will not cause alteration in their ways of life.

It is worth mentioning that they mentioned their appreciation for the socialization of the Environmental Impact Study delivered and support towards the realization of the forestry undertaking to be established in the Santa Teresa and Zapallo farms

Waiting for a favorable response, I take this opportunity to respectfully greet you

STAMP

[Signature]


Alexandra Cáceres
Executive Director

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.

Indigenous component: Ph


María Cecilia Luján Galeano Duarte
Traductora Profesional de Inglés
Matricula N° 1.416

ultation and Consent Process.

On February 26th, 2021, in the District of Bella Vista, Department of Amambay at 10:00 am, members of the indigenous community Cerro Akangue represented by Mr. Roque Valiente, with representatives of the Natan Foundation Ing EH. Rodney Ruiz Diaz, Ing. Amb Alexandra Caceres, and the undersigned Ariel Vallejos, who belongs to the Unit of the Interinstitutional Liaison Directorate of the Paraguayan Institute of the Indigenous - INDI.

The main topic of the meeting was the socialization of the pulp mill project by the company PARACEL SA, and within the framework of the activities of the Free, Prior and Informed Consultation Process, and the identification of the model of self-determination of the communities in its area of influence, in the framework of compliance with DECREE 1039/18 BY WHICH THE PROTOCOL FOR THE PROCESS OF FREE, PRIOR AND INFORMED CONSULTATION AND CONSENT WITH THE INDIGENOUS PEOPLES IN PARAGUAY IS APPROVED.

The meeting was opened with the following items on the agenda

- Presentation and discussion of the Pulp Mill Project with emphasis on the Reforestation activities in the Santa Teresa and Zapallo Farms, by the company PARACEL SA.
- Plenary session for questions and answers on the presentation presented.

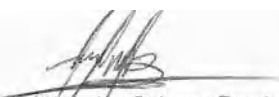
The development of the meeting was presented according to the planned schedule. The members of the Cerro Akangue Community expressed their appreciation for the socialization of the Environmental Impact Study delivered and support for the implementation of the forestry project to be established in the Santa Teresa and Zapallo ranches and explained that they do not feel the need to be consulted, because the indigenous community is not adjacent to the lands of the project and also do not perform ancestral activities or livelihoods or use of ecosystem services on the properties, therefore they claim that the project will not cause alterations in their way of life.

Similarly, the Ita Jeguaka community, located in the Department of Amambay. District of Bella Vista, visited on January 19 of this year 2021 and represented by Mrs. Virginia Benitez, at a meeting and with broad support of the community, expressed their support for the PARACEL project and explained that they do not feel the need to be

[STAMP]

Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

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Traductora Profesional de Inglés
Matricula N° 1.416


consulted because the project activities in the properties of Santa Teresa and Zapallo will not interfere with their way of life, since they are not adjacent to their community nor are they places where they practice ancestral activities or livelihood activities or use of ecosystem services.

Based on what has been stated by both communities, and in its capacity as overseer, it can be confirmed that the Cerro Akangue and Ita Jeguaka communities do not require consent for Paracel to carry out its activities.


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Carlos Castro
C.C.L.P.I. Audit Manager
Paraguayan Institute of the Indigenous

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Traductora Profesional de Inglés
Matrícula N° 1.416

Copies of Memorandum No. 20 and No. 21 that certify that Mr. Ariel Vallejos attended the trips together with Fundación Natán in the role of Minister of Faith for all the activities mentioned in this report.



**Instituto Paraguayo
DEL INDIGENA**
Presidencia de la República del Paraguay
Paraguay Ypykuéra
Nangarekoha

**GOBIERNO
NACIONAL**

*Paraguay
de la gente*

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

MEMORANDUM N° /20

A : *Abg. Diego Flores*, Director
Dirección de Gestión y Desarrollo de las Personas

DE : *Ing. José Luis Rodas*, Director General
Dirección General de Protección a los Pueblos Indígenas

Ref. : *Autorización de Viaje*

Fecha : *10 de diciembre de 2020.*


Me dirijo a usted, a fin de solicitar la autorización del comisionamiento de un funcionario para realizar la fiscalización de CCLPI – con referencia al proyecto "Planta de Celulosas" realizada por la Empresa PARACEL S.A en coordinación con la Consultoría(Fundación) Natán, en las comunidades pertenecientes del departamento de Concepción y Amambay, detalladas en la Nota. El comisionamiento es ABG desde el 14/12/2020 hasta el 18/12/2020.

Detalle de funcionarios y conductores designados:

Nº	Nombre y Apellido	C.I.Nº	Dependencia	Salida	Regreso
1.	Ariel Vallejos	1.018.218	D. Enlace Interinstitucional	14/12/2020	18/12/2020

Obs: Cabe mencionar que el proyecto se hará cargo de la cobertura de movilidad, viáticos de la persona asignada para mencionada actividad.

Atentamente,



Abg. Diego R. Flores L.
Director - DGDP
INDI

14.12.20

Nuestra Visión: "Una institución líder, fuerte, eficiente, ágil y transparente, gobernada por los indígenas, que promueva la participación indígena en todos los ámbitos del Estado Paraguayo y la sociedad."

Don Bosco 745 c/ Humaita

Tel: +59521 452 280

Sitio web: indi.gov.py

MEMORANDUM N° ____ / 20

To: Abg. Diego Flores, Director

People Management and Development Department

From: Ing. José Luis Rodas, Managing Director

Directorate General for the Protection of Indigenous Peoples

Ref .: Travel Authorization

Date: December 10, 2020.

I am writing to you, in order to request the authorization of the commissioning of an official to carry out the inspection of CCLPI- with reference to the Pulp Plant project carried out by the PARACEL SA Company in coordination with the Natan Foundation Consulting, in the communities belonging to the department de Concepción and Amambay, detailed in the Note. Commissioning is ABG from 12/14/2020 to 12/18/2020.

No.	Name and surname	I.D	Dependence	Departure	Return
1	Ariel Vallejos	1.018.218	Inter-institutional Liaison	14/12/2020	18/12/2020

Note: It is worth mentioning that the project will take care of the mobility coverage, per diem of the person assigned for said activity.

Sincerely.

Signature and Stamp
Abg. Diego R. Flores L Director-DGDP INDI

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.



María Cecilia Luján Galeano Duarte
Traductora Profesional de Inglés
Matricula N° 1.416



Instituto Paraguayo
DEL INDIGENA
Presidencia de la República del Paraguay
Paraguay Ynykuéra
Nangarekoha

GOBIERNO NACIONAL

Paraguay de la gente

Nuestra Misión: "Cumplir, garantizar y velar por el fiel cumplimiento de los derechos indígenas, armonizando el mandato legal con la participación de los pueblos indígenas, en forma articulada y coordinada con otras instituciones".

MEMORANDUM N° 04/21

A : ABG. Diego Flores, Director
Dirección de Gestión y Desarrollo de las Personas.

DE : ING. Fernando Román, Director
Dirección de Enlace Interinstitucional

Ref. : Autorización de viaje

Fecha : 24 de febrero de 2021.



Me dirijo a usted, a fin de solicitar la autorización del comisionamiento de un funcionario para realizar la fiscalización de CCLPI – con referencia al proyecto Planta de Celulosas, realizada por la Empresa PARACEL S.A en coordinación con la Consultoría (Fundación) Natán, en las comunidades pertenecientes del departamento de Amambay detalladas en la nota. El comisionamiento es desde 25/02/21 hasta el 26/02/21.

Detalle de funcionarios designados:

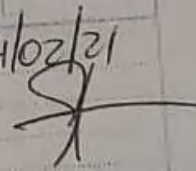
N°	Nombre y Apellido	C.I.N°	Dependencia	Salida	Regreso
1.	Ariel Vallejos	1.018.218	Dirección Enlace Interinstitucional	25/02/2021	26/02/2021

OBS: Cabe mencionar que el proyecto se hará cargo de la cobertura de movilidad, viáticos de la persona asignada para la mencionada actividad.

Atentamente.

Dirección de Gestión y Desarrollo del Talento Humano
I.N.D.I.

Recibido en Fecha: 24/02/21

Firma: 

Aclaración de Firma:

MEMORANDUM No. 1 / 21

To: ABG. Diego Flores, Director

People Management and Development Directorate.

From: ING. Fernando Román, Director

Interinstitutional Liaison Directorate

Ref: Travel authorization

Date: February 24, 2021

I am writing to you, in order to request the authorization of the commissioning of an official to carry out the inspection of CCLPI-with reference to the Pulp Plant project, carried out by the PARACEL SA Company in coordination with the Natán Consultancy (Foundation), in the communities belonging to the department of Amambay detailed in the note. Commissioning is from 02/25/21 to 02/26/21.

Detail of appointed officials:

No.	Name and surname	I.D	Dependence	Departure	Return
1	Ariel Vallejos	1.018.218	Inter-institutional Liaison	25/02/2021	26/02/2021

Note: It is worth mentioning that the project will take care of the mobility coverage, per diem of the person assigned for said activity.

Stamp

Human talent management-INDI

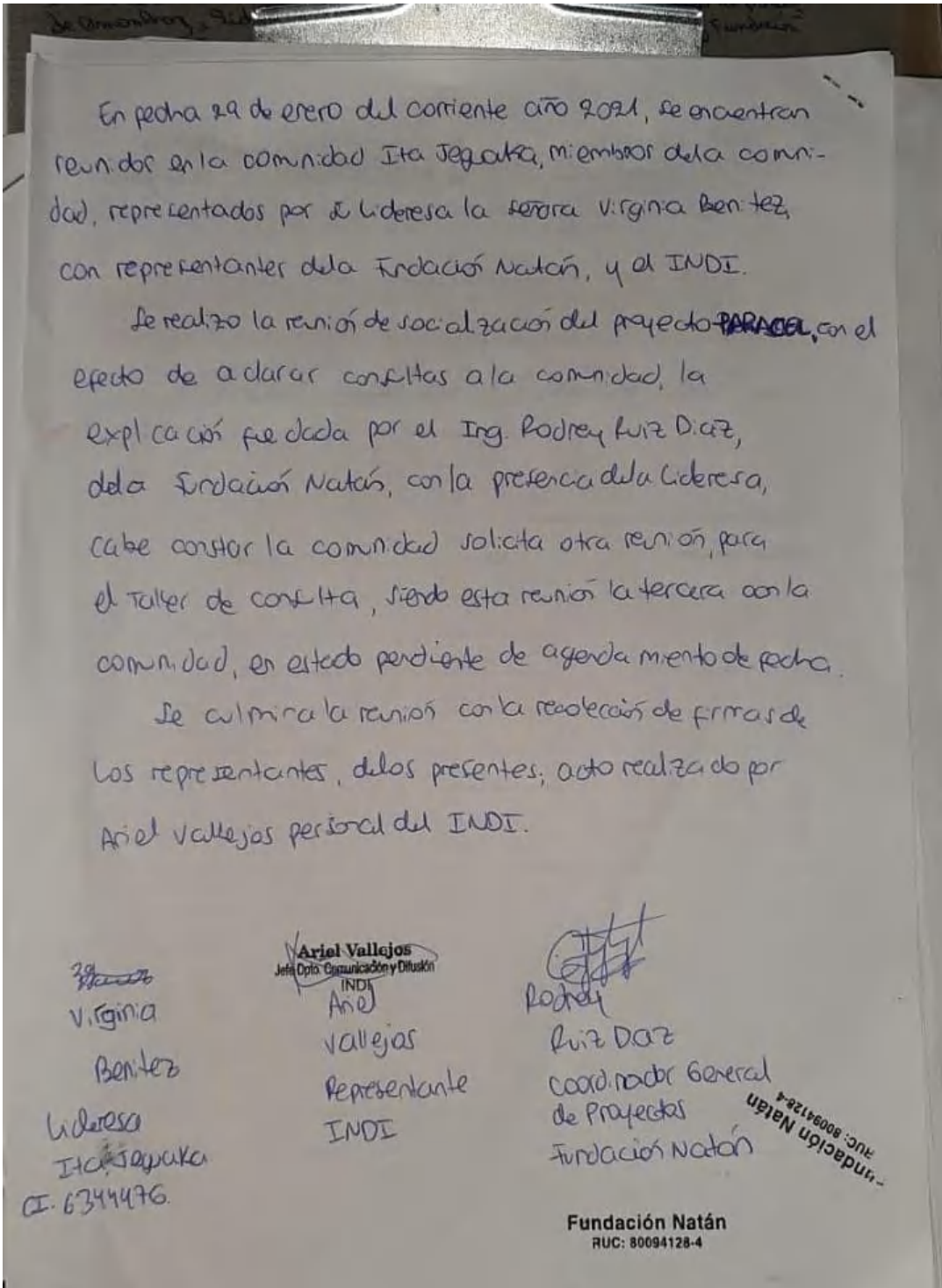
I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.



María Cecilia Luján Galeano Duarte
Traductora Profesional de Inglés
Matricula N° 1.416

Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

Meeting minutes that support Memorandum No. 20 and No. 21 and the Report resulting from the meetings held with the Cerro Akangue and Ita Jeguaka communities.



Indigenous component: Phase 1: Free, Prior and Informed Consultation and Consent Process.

On January 29 of the current year 2021, members of the community represented by their Leader, Mrs. Virginia Benítez with representatives of the Natán Foundation and the INDI, are gathered in the Ita Jaguaka community.

The PARACEL Project socialization meeting was held, with the effect of clarifying queries to the community. The explanation was given by Engineer Rodney Ruiz Díaz, from the Natán Foundation, with the presence of the leader. It should be noted that the community requests another meeting, for the consultation workshop, this being the third meeting with the community, pending scheduling date.

The meeting will end with the collection of signatures of the representatives and those present; act carried out by Ariel Vallejos, INDI staff.

SIGNATURE

Virigina Vallejos
Leader

SIGNATURE

Ariel Vallejos
INDI Staff

SIGNATURE

Rodney Ruiz Díaz
Natán Foundation

STAMP**STAMP**

I, María Cecilia Luján Galeano Duarte, official translator of the English language with a license issued by the Supreme Court of Justice of the Republic of Paraguay. I certify that this is a true and complete translation into English of a document written in the Spanish language.



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ANNEX 4: Result of the assessment of social impacts by community.

The quantifications of the impacts for each indigenous community within AID are presented below. It can be seen that in the vast majority there are no variations. The same structure of the impact evaluation carried out in chapter 5, in those social factors and indicators where the indigenous community is not impacted, it has been decided to leave the label “not applicable”, to state that this impact does not affect that community indigenous.

1. *Redención Indigenous Community*
2. *Jeguahaty Indigenous Community*
3. *Vy'a Renda Indigenous Community*
4. *Takuarendyju Indigenous Community*
5. *Takuarita Indigenous Community*
6. *Sati Indigenous Community*
7. *Guyra Ñe'engatu Amba Indigenous Community*
8. *Mberyvo Indigenous Community*
9. *Yvyty Rovi Indigenous Community*
10. *Apyka Jegua Indigenous Community*

1. Redención Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0,00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	0	0	0	0	0	0,00	Does not apply
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,8	6,40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,8	5,6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0,9	7,20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0,2	-1,13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0,9	7,80	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0,8	6,93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0,5	3,33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0,8	-6,13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0,7	-5,13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0,00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0,5	2,67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	-1	5	8	6	0,8	-5,07	Half
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0,00	Does not apply

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0,7	-4,43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	0	0	0	0	0	0,00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0,5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0,00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0,7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0,5	4,17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0,2	-1,13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0,00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0,00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.		0	0	0	0	0,00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.		9	4	3	0,2	-1,07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0,00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	0	0	0	0	0	0,00	Does not apply
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,8	6,4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,8	5,6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0,9	7,2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0,2	-1,13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0,9	7,8	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0,8	6,93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0,5	3,33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0,8	-6,13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0,7	-5,13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0,00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0,4	2,53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	-1	5	8	6	0,8	-5,07	Half
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0,00	Does not apply

2. Jeguahaty Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

			Social variables					Social index	Significance
Social factor	Indicator	Impact	Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0,00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0,9	6,60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,8	6,40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,8	5,6	Half
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Social Factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
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Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0,5	3,00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0,00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0,5	2,67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0,00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0,00	Does not apply

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Social Factor	Indicator	Impact	Social Variables					Social Index	Significance
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Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0,00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0,7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0,5	4,17	Half
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Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0,00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0,1	-0,80	Short
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Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
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Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0,9	7,2	High
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Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0,5	3,00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0,00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0,00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0,4	2,53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0,00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0,00	Does not apply

3. Vy'a Renda Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0,7	-4,43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	1	4	9	1	0,9	4,20	Half
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0,5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	1	3	8	6	0,6	3,4	Half
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0,7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0,5	4,17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0,2	-1,13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	-1	4	1	2	0,4	-0,93	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	1	4	8	3	0,9	4,50	Half
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0,1	-0,80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0,2	-1,07	Short

Social factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	1	4	2	2	0,3	0,80	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0,9	6,60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,8	6,40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,8	5,6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0,9	7,20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0,2	-1,13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0,9	7,80	High

Social Factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0,8	6,93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0,5	3,33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0,8	-6,13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0,7	-5,13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0,5	3,00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	-1	5	7	4	0,6	-3,2	Half
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	-1	4	8	9	0,8	-5,60	Half
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0,5	2,67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	-1	5	8	6	0,8	-5,07	Half
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	-1	4	1	4	0,3	-0,90	Short

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0,7	-4,43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	1	4	9	1	0,9	4,20	Half
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0,5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	1	3	8	6	0,6	3,4	Half
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0,7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0,5	4,17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0,2	-1,13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	-1	4	1	2	0,4	-0,93	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	1	4	8	3	0,9	4,50	Half
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0,1	-0,80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0,2	-1,07	Short

Social factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	1	4	2	2	0,3	0,80	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0,9	6,60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,8	6,4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,8	5,6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0,9	7,2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0,2	-1,13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0,9	7,8	High

Social Factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0,8	6,93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0,5	3,33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0,8	-6,13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0,7	-5,13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0,5	3,00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	-1	5	7	4	0,6	-3,2	Half
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	-1	4	8	9	0,8	-5,60	Half
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0,4	2,53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	-1	5	8	6	0,8	-5,07	Half
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	-1	4	1	4	0,3	-0,90	Short

4. Takuarendyju Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0,7	-4,43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	1	4	9	1	0,9	4,20	Half
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0,5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	1	3	8	6	0,6	3,4	Half
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0,7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0,5	4,17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0,2	-1,13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	-1	4	1	2	0,4	-0,93	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	1	4	8	3	0,9	4,50	Half
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0,1	-0,80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0,2	-1,07	Short

Social factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	1	4	2	2	0,3	0,80	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0,9	6,60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,8	6,40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,8	5,6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0,9	7,20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0,2	-1,13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0,9	7,80	High

Social Factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0,8	6,93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0,5	3,33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0,8	-6,13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0,7	-5,13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0,5	3,00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	-1	5	7	4	0,6	-3,2	Half
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	-1	4	8	9	0,8	-5,60	Half
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0,5	2,67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	-1	5	8	6	0,8	-5,07	Half
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	-1	4	1	4	0,3	-0,90	Short

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0,7	-4,43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	1	4	9	1	0,9	4,20	Half
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0,5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	1	3	8	6	0,6	3,4	Half
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0,7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0,5	4,17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0,2	-1,13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	-1	4	1	2	0,4	-0,93	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	1	4	8	3	0,9	4,50	Half
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0,1	-0,80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0,2	-1,07	Short

Social factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	1	4	2	2	0,3	0,80	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0,4	-2,00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0,9	6,60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0,8	4,00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0,3	-1,60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0,4	2,80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0,8	6,4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0,8	5,6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0,9	7,2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0,2	-1,13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0,9	7,8	High

Social Factor	Indicator	Impact	Social Variables					Social Index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0,8	6,93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0,5	3,33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0,5	3,33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0,8	4,8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0,8	-6,13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0,7	-5,13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0,5	3,00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	-1	5	7	4	0,6	-3,2	Half
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	-1	4	8	9	0,8	-5,60	Half
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0,4	2,53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0,6	4,2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	-1	5	8	6	0,8	-5,07	Half
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0,9	-6,90	High
Land use	Right of way	Difficulty navigating access roads to the community.	-1	4	1	4	0,3	-0,90	Short

5. Takuarita Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4,43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	1	4	9	1	0.9	4,20	Half
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	1	3	8	6	0.6	3,4	Half
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6,07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4,17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1,13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	-1	4	1	two	0.4	-0,93	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	1	4	8	3	0.9	4,50	Half
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0,80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1,07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	1	4	two	two	0.3	0.80	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	two	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.80	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0.8	-6.13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0.7	-5.13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	-1	5	7	4	0.6	-3.2	Half
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	-1	4	8	9	0.5	-3.50	Half
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0.5	2.67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	-1	5	8	6	0.8	-5.07	Half
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0.9	-6.90	High
Land use	Right of way	Difficulty navigating access roads to the community.	-1	4	1	4	0.3	-0.90	Short

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of the ways for the realization of customs, such as, for example, leisure walks.	1	4	9	1	0.9	4.20	Half
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	1	3	8	6	0.6	3.4	Half
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	-1	4	1	2	0.4	-0.93	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	1	4	8	3	0.9	4.50	Half
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	1	4	2	2	0.3	0.80	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.8	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	-1	5	9	9	0.8	-6.13	High
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	-1	5	9	8	0.7	-5.13	Half
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	-1	5	7	4	0.6	-3.2	Half
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	-1	4	8	9	0.5	-3.50	Half
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0.4	2.53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	-1	5	8	6	0.8	-5.07	Half
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0.9	-6.90	High
Land use	Right of way	Difficulty navigating access roads to the community.	-1	4	1	4	0.3	-0.90	Short

6. Sati Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.80	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0.5	2.67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0.9	-6.90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of the ways for the realization of customs, such as, for example, leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.8	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0.4	2.53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0.9	-6.90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

7. Guyra Ñe'engatu Amba Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	two	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.80	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0.5	2.67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0.9	-6.90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of the ways for the realization of customs, such as, for example, leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	two	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.8	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0.4	2.53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0.9	-6.90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

8. Mberyvo Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	two	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.80	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0.5	2.67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0.9	-6.90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of the ways for the realization of customs, such as, for example, leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	two	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.8	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0.4	2.53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	-1	7	9	7	0.9	-6.90	High
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

9. Yvyty Rovi Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	two	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.80	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0.5	2.67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	0	0	0	0	0	0.00	Does not apply
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of the ways for the realization of customs, such as, for example, leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	two	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.8	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0.4	2.53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	0	0	0	0	0	0.00	Does not apply
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

10. Apyka Jegua Indigenous Community

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of pathways for performance of customs, such as leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	two	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.40	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.20	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.80	High

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.80	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	4	7	5	0.5	2.67	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	0	0	0	0	0	0.00	Does not apply
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

Figure. Assessment of the social significance of the social impacts identified in the stage of

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Quality of life, uses and customs	Traditions	Modification in customs and schedules of the indigenous people hired by the project and their family groups, to comply responsibly with the jobs assigned to them in a dependent manner for PARACEL or its suppliers.	-1	9	7	3	0.7	-4.43	Half
Quality of life, uses and customs	Traditions	Improvement of the ways for the realization of customs, such as, for example, leisure walks.	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	living place	Increase in purchasing power to improve homes in accordance with their welfare standards.	1	8	8	8	0.5	4	Half
Quality of life, uses and customs	Access to public services	Greater access to public services	0	0	0	0	0	0.00	Does not apply
Quality of life, uses and customs	Standard of living	Increase in the degree of well-being or wealth.	1	9	8	9	0.7	6.07	High
Quality of life, uses and customs	Feeding	Improvement of food security conditions.	1	9	8	8	0.5	4.17	Half
Use of ecosystem services related to livelihoods	Hunting and fishing	Decrease in hunting and fishing practices.	-1	9	5	3	0.2	-1.13	Short
Use of ecosystem services related to livelihoods	Hunting and fishing	Migrations and / or temporary removal of species that are the object of traditional hunting and fishing practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Hunting and fishing	Improvement of access roads for access to territories and rivers where traditional hunting and / or fishing practices are carried out.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Loss of natural plant resources due to poor management of controlled burns.	-1	8	7	9	0.1	-0.80	Short
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Decrease in collection practices.	-1	9	4	3	0.2	-1.07	Short

Social factor	Indicator	Impact	Social variables					Social index	Significance
			Sign	C	D	I	O		
Use of ecosystem services related to livelihoods	Collection of food, plant tissues, medicinal plants, timber and non-timber	Improvement of access roads to carry out traditional collection practices.	0	0	0	0	0	0.00	Does not apply
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Decrease in family farming and livestock production practices.	-1	8	4	3	0.4	-2.00	Short
Use of ecosystem services related to livelihoods	Agricultural and livestock production	Improvement of conditions for access to agricultural production inputs and commercial inclusion in value chains.	1	8	8	6	0.9	6.60	High
Social organization and own political institutions	Leadership	Strengthening the role of the leader within the community.	1	9	4	2	0.8	4.00	Half
Social organization and own political institutions	Leadership	Increased internal conflict to take leadership positions.	-1	9	3	4	0.3	-1.60	Short
Social organization and own political institutions	Links with other organizations and representativeness	Increase and strengthen ties with local organizations.	1	9	5	7	0.4	2.80	Short
Work and working conditions	Permanent or long-term jobs (> 1 year)	Increase in indigenous people hired with permanent or long-term jobs (> 1 year).	1	9	6	9	0.8	6.4	High
Work and working conditions	Temporary or short-term jobs (<1 year)	Increase in indigenous people hired with temporary or short-term jobs (<1 year).	1	9	4	8	0.8	5.6	Half
Work and conditions labor	Generation sources income	Expansion of sources of income generation in the department.	1	9	7	8	0.9	7.2	High
Work and conditions labor	Occupational health and safety	Risk of contracting occupational diseases related to work-related activities.	-1	9	4	4	0.2	-1.13	Short
Work and conditions labor	Occupational health and safety	Improvement of the occupational health and safety conditions of indigenous people hired.	1	9	8	9	0.9	7.8	High

			Social variables					Social index	Significance
Social factor	Indicator	Impact	Sign	C	D	I	O		
Work and conditions labor	Discrimination, forced labor, etc.	Reduction of work in exploitative conditions.	1	9	8	9	0.8	6.93	High
Work and working conditions	Freedom of association and / or collective bargaining	Opportunity to participate in labor associations and unions.	1	9	8	3	0.5	3.33	Half
Work and conditions labor	Financial services	Access to financial services and banking.	1	8	9	3	0.5	3.33	Half
Work and terms labor	Vocational training	Increased opportunities for professional training.	1	9	3	6	0.8	4.8	Half
Community health and safety	Diseases	Increased risk of disease, including STDs.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Crimes	Increase in the flow of people and the probability of suffering crimes.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Health services and sanitary facilities	Improvement of coverage and access to health services and health facilities.	1	4	7	7	0.5	3.00	Short
Community health and safety	Propensity to man-made / natural disasters	Increased risk of man-made disasters due to waste management.	0	0	0	0	0	0.00	Does not apply
Community health and safety	Road safety	Increase in the traffic of light and heavy vehicles around the communities and the risk of suffering traffic accidents.	0	0	0	0	0	0.00	Does not apply
Gender equality	Gender equality	Greater equal opportunities for personal and professional development.	1	9	5	5	0.4	2.53	Short
Gender equality	Changes in the position of women in the social structure	Strengthening the role of women in the social structure thanks to education and work.	1	9	7	5	0.6	4.2	Half
Demography	Migration	Immigration of relatives to the indigenous community from other communities of the same ethnicity.	0	0	0	0	0	0.00	Does not apply
Demography	Flow of people	Increased flow of people from outside communities	0	0	0	0	0	0.00	Does not apply
Land use	Right of way	Difficulty navigating access roads to the community.	0	0	0	0	0	0.00	Does not apply

ANNEX II
SOCIAL STUDIES – FORESTRY COMPONENT

Social Studies

Forestry Component

Project:
Build a pulp mill in the Concepción region of Paraguay



PARACEL

January, 2021

Acronyms and abbreviations

AF	Family Agriculture
AID	Direct Influence Area
AII	Indirect Influence Area
ANDE	National Electricity Administration
BAT	Best Available Techniques
BM	World Bank
BPEM	Best Practices of Environmental Management
CAN	National Agricultural Census
DEAg	Directorate of Agricultural and Livestock Extension
DGEEC	General Directorate of Statistics, Surveys and Censuses
DIA	Environmental Impact Declaration or Environmental License
EIAp	Preliminary Environmental Impact Study
EPH	Permanent Household Survey
ESSAP	Paraguay Sanitary Services Company
EIA	Environmental Impact Evaluation
FSC	Forest Administration Council
IFC	International Finance Corporation
INDERT	National Institute of Rural and Land Development
INFONA	National Forest Institute
IPS	Social Security Institute
LBS	Social Baseline
LPT	Total Poverty Line
MADES	Ministry of Environment and Sustainable Development
MAG	Ministry of Agriculture and Livestock
MEC	Ministry of Education and Sciences
MI	Ministry of Interior
MOPC	Ministry of Public Works and Communications
MP	Public Ministry
MSPyBS	Ministry of Public Health and Social Welfare
MUVH	Ministry of Urbanism, Housing and Habitat
NBI	Unmet Basic Needs
ND	Performance Standard
OPS/OMS	World Health Organization

ONG	Non Governmental Organization
PDM	Municipal Development Plan
PE	Equator Principles
PEA	Economically Active Population
PET	Working Age Population
PGS	Plan de Gestión Social
PLS	Plan Local de Salud
RENAF	National Registry of Family Farming
SENACSA	National Service for Animal Health and Quality
SENAVE	National Service for Plant and Seed Quality and Health
SENEPA	National Service for Paludism Eradication
SINAFOCAL	National System for Job Training and Qualification
SNPP	National Service for Professional Promotion
STP	Technical Secretary of Planning
TIC	Information and Communication Technologies
USF	Family Health Unit
VECs	Valued Socio-environmental Components

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1. Presentation

This document presents the results of the social studies corresponding to the forestry component of the project of the PARACEL firm, for the installation of a pulp manufacturing mill in the department of Concepción, Paraguay.

These studies contain the baseline and socioeconomic characterization of the Area of Direct Influence (AID) of said component, in addition to the social studies carried out on the industrial component (April 2020), taking the project as a whole, in order to contribute to the evaluation of possible impacts on the environment and the establishment of social management measures and programs that respond effectively to said impacts.

Taking into account the first stage of information gathering (industrial component), and the field work developed, it was again considered a priority to know the perception of the population regarding the project; and in the absence of data from secondary sources at the local level, valuable information could be collected for the elaboration of the characterization of the territories that make up the AID in this second stage, in addition to the programs identification, implemented projects and a range of actors considered relevant in the area. Although this information is summarized in this report, it is advisable to review the attached documents, since they contain a detailed description of each of the districts and communities involved.

Regarding the characterization of the indigenous population of the area, although basic information is included, considering the requirements of this population, a specific independent study was developed by specialists hired by Paracel S.A. Said study, carried out by the Natán Foundation, is presented in the annexes section of the "Social Researches of the Industrial Component", within the framework of the Preliminary Environmental Impact Study (EIAp, 2020).

This report is divided into descriptive sections, including the process carried out for its elaboration and the objectives set in each of them. It should be noted that both, national and international regulations, have constituted the guiding base for its development.

Among them we can consider the following:

- **Brief description of the project** in its forestry component and the implications of its implementation, its relationship with the industrial component, the planned stages, and the results to be achieved, among others. It also includes the presentation of the national and international regulatory framework involved in the process and the selection criteria of the project's Areas of influence (forestry component): Area of Direct Influence (AID) and Area of Indirect Influence (All).
- **Methodology for the preparation of social studies**, both in relation to the office work and the search for information in secondary sources as well as everything concerning field work, the techniques used, the coordination with local referents among other aspects.

- **Social characterization of the project's areas of influence** in its forestry component, including initially a brief summary of the economic, social and cultural characteristics, etc. of the departments that make up the AID; subsequently, the description of demographic, economic, employment, access to basic services, etc. in the districts and localities involved in AID, including variables such as land tenure, income, gender, among others. This section has been compiled with information from both secondary and primary sources. The baseline information on heritage is also supplemented, according to the attached document.
- **Survey of social perception**, a section in which the results of part of the field work are presented through which the perception of the people involved in the survey of information regarding the initiative was accessed, including in the analysis of the results to the information obtained during the first stage of field work (industrial component).
- **Evaluation and analysis of social impacts linked to the forestry component**, as a result of the interaction between its different phases, activities and factors of the social environment and its areas of influence. Likewise, it contains the analysis of the possible risks that have served as input for the subsequent delimitation of the lines of action included in the project PGS.
- **PGS measures and programs: Through the process carried out for the forestry component**, the analysis of the social baseline (LBS) and the evaluation of impacts, it was possible to update the same with the objectives, scope and lines of action of each program and/or measure focused on both components of the project. Through this PGS it is intended to mitigate and manage the social impacts that were identified.

It is important to mention that the work was developed in a different context from the first stage, taking the corresponding precautions given the complexity existing in the area covered, due to sanitary restrictions applied in the framework of the COVID-19 pandemic and socio-political events¹ in the area.

Finally, as previously mentioned, in the annexes section, complementary and detailed information on the AID is presented, as well as the information collection tools, the count of the activities carried out within the framework of social studies, an inventory of programs and projects implemented in the area, a list of reference institutions and community organizations, complementary document to the heritage baseline document in forest field zone districts, among others.

1 Available at: <http://www.trece.com.py/actualidad/decreto-extension-cuarentena-social>
<https://www.mspbs.gov.py/cuarentena-inteligente.html>
<https://www.dw.com/es/paraguay-confirman-desaparici%C3%B3n-de-exvicepresidente-denis/a-54874126> y
<https://www.dw.com/es/argentina-exige-a-paraguay-aclarar-muerte-de-ni%C3%B1as-en-supuesto-combate/a-54823169>

2. Project description and influence areas

2.1. Project synthesis and related regulatory framework

PARACEL S.A., represented by national and international investment partners, is a Paraguayan company dedicated to the task of developing a project for the construction and operation of a pulp manufacturing mill, to be installed on the left bank of the Paraguay River; approximately 15 km (straight line) north of the city of Concepción, in the homonymous department.

The undertaking will use the best resources available in terms of technologies (BAT- *Best Available Techniques*) and environmental management (BPEM-*Best Practices of Environmental Management*).

The construction phase of the pulp mill is expected to begin in the first half of 2021, and that its operation will take place in the first half of 2023. During its operational phase, it will be supplied with eucalyptus wood from sustainable forest plantations with certification of the Forest Stewardship Council (FSC) and other global sustainability standards.

According to data referenced on the official Paracel website², the company currently owns more than 180,000 hectares of land, mostly located in the department of Concepción; approximately 130 km from the prospected industrial site. Likewise, it is mentioned that the extensions of land will be used almost on 100% for the plantation of eucalyptus (60% plantation and 40% protected areas) in order to satisfy 80% of the demand required for the operation of the mill; and the other 20% will be provided by external producers to the company (small local producers).

During the first 6 years, a supply of wood from Brazil, Argentina and from forestations located in the country is foreseen, which will be transported by land and river to "Puerto Paracel". It is worth mentioning that the mobilization of trucks with rolls from our own plantations is estimated as of the fourth year of the project.

It is estimated that both components (industrial and forestry), in the different stages of the project, can generate around 40,000 jobs (4,000 direct, 16,000 indirect and 20,000 indirect-direct). Of these, it is expected that 30% of the workforce will correspond to a more qualified profile than the remaining 70%. Likewise, considering the specific hiring profiles, it is expected that 90% of the people who work in the nurseries³ will be women.

International and National Regulatory Framework

In the framework of the social researches for the forestry component of the project, the principles and legal instruments existing at the national and international level are taken into account that provide key elements for a sustainable socio-environmental management.

² Available at: <https://paracel.com.py/produccion/?lang=esp>

³ In the framework of the pulp production process, the nurseries are places for the production of seedlings that will later become part of the forest plantations.

Next, the main existing laws, regulations and standards are presented with emphasis on the social aspects considered in the different stages of this study; from the definition of the areas of influence to the impact evaluation criteria and the development of programs.

Chart 1. National Normative

Topic	Legal Instrument
National Constitution	<ul style="list-style-type: none"> Main regulation of the Paraguayan State. It establishes the principles of the organization and administration of the country, guaranteeing the protection of fundamental rights. It establishes the principles that define the right to quality of life (Article 6), the right to a healthy environment (Article 7), among others.
Environmental Impact Evaluation	<ul style="list-style-type: none"> Law N° 294/1993. Environmental Impact Assessment and its Regulatory Decrees N° 453/13 and 954/13, which establish the Environmental Management Plan (PGA) or the Environmental and Social Management Plans (ESMP). Law N° 345/1993. That modifies article 5 of Law N° 294/93 on Environmental Impact Assessment.
Main International Treaties and Conventions	<ul style="list-style-type: none"> Law N° 1231/1986. That approves and ratifies the Convention on the Protection of the World Cultural and Natural Heritage. Law N° 2885/2006. Approving the convention on defense of the archaeological, historical and artistic heritage of the American Nations (San Salvador Convention). Law N° 234/93. That approves the agreement N° 169⁴ on indigenous and tribal people in independent countries, adopted during the 76th International Labor Conference, held in Geneva on June 7, 1989.
Institutional Framework with emphasis in environmental, social and territorial	<ul style="list-style-type: none"> Law N° 1561/2000. Creates the National Environment System, the National Environment Council and the Environment Secretariat. Law N° 6123/2018. That raises the Ministry of the Environment to the rank of Ministry and is renamed as Ministry of the Environment and Sustainable Development. Law N° 436/1994. Departmental Organic Charter. Law N° 3001/06 "On valuation and compensation of environmental services". Law N° 3966/2010. Municipal Organic. The National Environmental Policy - PAN. Law N° 1183/1985 Civil Code. Ordinances of the Municipalities of the area of influence. Resolutions issued by MADES
Forestry Management	<ul style="list-style-type: none"> Law N° 3464/2008 that creates the National Forestry Institute (INFONA). Law N° 422/73 "Forestry". Law N° 4241/2010 on the Reestablishment of protective forests of water courses in the national territory. Law N° 4014/2010 "On fire prevention and control". Defines prescribed or controlled burning. Law N° 3742/2009 "On the control of phytosanitary products for agricultural use". Regulates issues related to aerial spraying, whose enforcement authority is SENAVE. Decree N° 98/2012 that regulates Law N° 4241/2010.

4 Although OIT 169 and other regulations related to indigenous peoples are mentioned, these are evaluated in an independent document, developed by specialists hired by Paracel.

Health, hygiene and security	<ul style="list-style-type: none"> ▪ Law N° 836/80 Sanitary Code ▪ Law N° 213/93 Labor Code ▪ Decree N° 14,390/1992. General technical regulation of safety, hygiene and medicine at work.
Social and cultural and patrimonial	<ul style="list-style-type: none"> ▪ Law N° 3051/2005 "National of Culture". ▪ Law N° 5621/2016 for the Protection of Cultural Heritage. ▪ Law N° 904/1981 "Statute of Indigenous Communities". ▪ Decree N° 1039/2018 "By which the Protocol for the process of consultation and free, prior and informed consent with the indigenous peoples living in Paraguay is approved."
Other related regulations	<ul style="list-style-type: none"> ▪ Laws that govern the management of Solid Waste (Law N° 3956/2009), Water Resources (Law N° 3239/2007), air quality (Law N° 5211/2014), noise pollution (Law N° 1100/1997), others.

Chart 2. Internacional Regulation

Topic	Legal Instrument
Equator Principles ⁵	<ul style="list-style-type: none"> ▪ Principle 1: Review and categorization ▪ Principle 2: Environmental and social assessment ▪ Principle 3: Applicable environmental and social standards ▪ Principle 4: Environmental and social management system and Action Plan ▪ Principle 5: Participation of stakeholders ▪ Principle 6: Grievance Mechanisms ▪ Principle 7: Independent review ▪ Principle 8: Contractual commitments ▪ Principle 9: Independent monitoring and reporting ▪ Principle 10: Reporting and transparency
IFC Performance Standards on Environmental and Social Sustainability ⁶	<ul style="list-style-type: none"> ▪ Performance standard 1: Environmental and social evaluation and management system ▪ Performance standard 2: Work and working conditions ▪ Performance Standard 3: Pollution Prevention and Abatement ▪ Performance Standard 4: Community Health, Safety and Security ▪ Performance Standard 5: Land Acquisition and Involuntary Resettlement ▪ Performance Standard 6: Conservation of Biodiversity and Sustainable Management of Natural Resources ▪ Performance Standard 7: Indigenous People ▪ Performance Standard 8: Cultural Heritage
Principles of FSC ⁷	<ul style="list-style-type: none"> ▪ Principle 1: Compliance with FSC laws and principles ▪ Principle 2: Rights and responsibilities of possession and use ▪ Principle 3: Right of indigenous people

5 Available at https://equator-principles.com/wp-content/uploads/2018/01/equator_principles_spanish_2013.pdf

6 Available at https://www.ifc.org/wps/wcm/connect/30e31768-daf7-46b4-9dd8-52ed2e995a50/PS_Spanish_2012_Full-Documents.pdf?MOD=AJPERES&CVID=k5LIWsu

7 Available at: file:///C:/Users/Usuario/AppData/Local/Temp/FSC-STD-01-001%20V4-0%20ES_FSC%20Principios%20y%20Criterios.pdf

	<ul style="list-style-type: none"> ▪ Principle 4: Relations with communities and workers' rights ▪ Principle 5: Benefits of the forest ▪ Principle 6: Environmental values and impacts ▪ Principle 7: Management plan ▪ Principle 8: Monitoring and evaluation ▪ Principle 9: Maintenance of Forests with high conservation values ▪ Principle 10: Plantations
Other regulations or related guides	<ul style="list-style-type: none"> ▪ Sustainable Development Goals (SDG) ▪ World Bank Guidelines about environment, health and security ▪ Good practice manual. Assessment and Management of Cumulative Impacts: Guidance for the Private Sector in Emerging Markets (IFC, 2015)

2.2. Criteria for the definition of influence areas

For the delimitation of the areas of influence, within the framework of social researches, as well as taken into account for the studies of the industrial component, the following criteria were considered:

- IFC Performance Standard No. 1, on the delimitation of the project’s area of influence⁸,
- The phases of the project (design, construction and operation) and its components (industrial and forestry), possible impacts and,
- The social and cultural aspects studied.

These criteria for delimiting the areas of influence considered the project in its entirety, therefore, there is an Area of Indirect Influence (AII) shared for both components (industrial and forestry), and two Areas of Direct Influence (AID) taking into account counts the specific zones of each component. Map 1. Areas of influence for social studies shows the areas of influence corresponding to the forestry component, including the territories that comprise them.

In the case of the districts and localities that make up the AID, they were identified through the first field activity that included an observation outing of:

- The zones destined to the forest area and the neighboring or near localities.
- The roads and accesses identified as the main connection routes between the two zones (forest-industrial) and between districts/localities; and the main communities located in these.

8 The area that is likely to be affected by: (i) the project and by activities and facilities that are directly owned or operated or managed by the client (including through contractors) and that are components of the project; (ii) the impacts of unscheduled but foreseeable events caused by the project, which may occur subsequently or elsewhere, or (iii) the indirect impacts of the project on biodiversity or on the ecosystem services on which affected communities depend on to get their livelihood. Related facilities, which are facilities not funded as part of the project, which would not have been built or expanded had the project not existed, and without which the project would not be viable. The cumulative impacts (resulting from the incremental impact) on areas or resources used or directly affected by the project, produced by other existing, planned or reasonably defined constructions at the time of carrying out the risk and impact identification process. Performance standard 1 evaluation and management of environmental and social risks and impacts. IFC. 2012. Page 9.

With these criteria it was possible to identify/confirm:

- Localities and/or districts considered relevant; according to criteria such as number of population and location of the same with respect to the forest plantations of the project and/or main access roads.
- Smaller towns/communities that are located in the areas surrounding the forest plantations and/or settled on the main access roads.
- Confirm the districts included in the AID.

2.3. Description of Influence Areas of the Project

The scope of the areas of influence is described below:

Indirect Area of Influence (IIA): Includes the departments of Concepción, San Pedro and Amambay. As mentioned above, the IIA for both, the industrial component of the project; as for the forest component, corresponds to these three departments in the north of the country, thus integrating both components.

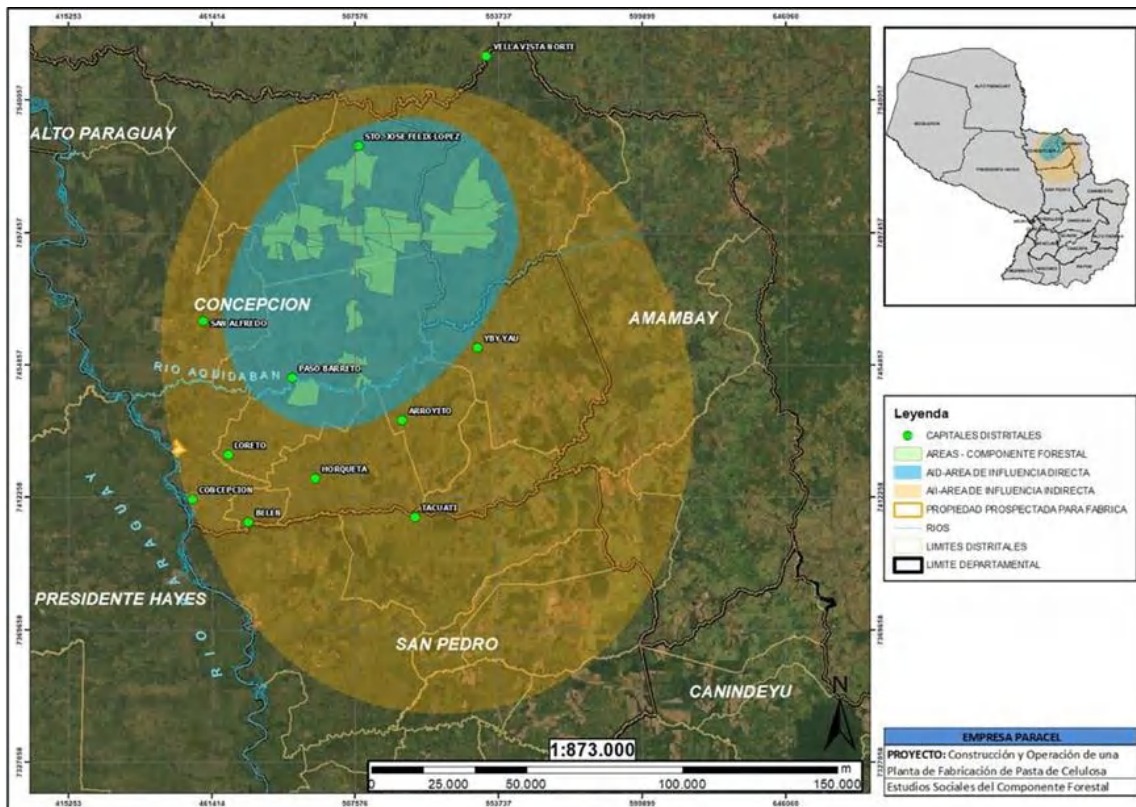
Area of Direct Influence (AID): Includes 7 districts in which the areas of the forest plantations of the project and the main access roads to them are located, including 16 neighboring communities. These territories are the following:

Districts: Sargento José Félix López, Paso Barreto, Loreto, San Alfredo, Horqueta and Arroyito from the department of Concepción; District of Bella Vista Norte from the department of Amambay and their;

Communities/localities: Isla Hermosa (Isla Tuyú), town of Paso Barreto, Colonia Jorge Sebastián Miranda (Jhugua Ñandu), Estribo del Plata, Puentesíño, Laguna Cristo Rey, Anderi, Islería, Virgen del Camino, Jhugua Guasu, Jhugua Po'i, Santísima Trinidad, Paso Mbutu, Calle 15, Dominguez Nigó, and Ayala Cué.

As can be seen in map 1, although localities/communities corresponding to 7 districts are included, only the district capitals of Sargento José Félix López and Paso Barreto are properly found in the AID. However, it was also considered important to characterize the territories as a whole, both those that contain the areas destined for forest plantations and those that have access roads to these.

Map 1. Areas of influence for social researches



Source: own elaboration

3. Methodology for the elaboration of social researches

The social researches of the project, in addition to being complementary (industrial and forestry component) were developed sequentially⁹, each stage began with the formation of an interdisciplinary team in charge of the survey and analysis of information obtained through secondary and primary sources. This process required the use of various data collection techniques; and, despite the complications arising from the sociopolitical context and sanitary restrictions, it was sought at all times to generate participatory spaces and direct contact with the population, especially, referents of the institutional and community environment of the areas involved in the project.

3.1. Methodological scheme

For the definition of the **methodological scheme**, particularities of the forestry component, its relationship with the industrial component and the context in general were considered, these particularities are described below:

- **Complementarity between the industrial component and the forestry component:** It is important to highlight that, although the social researches prepared within the framework of the preliminary Environmental Impact Study (EIAP) were focused on the industrial component of the enterprise, both for the relationship with the community

9 Social studies of the industrial component (November 2019 to April 2020) and social studies of the forestry component (July to November 2020)

and actors involved, as for the social characterization carried out, the project was considered as a whole, also taking into account the forestry component. This has allowed that the results obtained for the social researches of the forestry component to represent a complementarity with the social works already developed previously.

- **Little information from secondary sources at the local/community level and disparity in statistical data:** The elaboration of the characterization of AID districts, in relation to secondary sources, is based mainly and initially on information provided by official institutions such as the General Directorate of Statistics, Surveys and Censuses (DGEEC), the Ministry of Agriculture and Livestock (MAG) and the National Forest Institute (INFONA). This was complemented by a documentary search in databases of education, health, municipal development plans, local health plans and official web pages of each municipality. However, with regard to the localities, information resulting from the field work carried out was used¹⁰, for which it was important to develop data collection instruments according to the need for information, so that the actors included in said process participate directly, contributing with their perspective regarding the characteristics of their community and about the project.

On the other hand, variations in figures and data were observed because the department of Concepción from 2013 to the present has had new districts such as the districts of San Alfredo, Paso Barreto and Arroyito.

- **Safety aspects for field work:** The AID made up of the 7 districts mentioned above, for field work, was divided into two areas for better study and travel, considering the geographical location of each one, peculiarities of the territory; in addition to aspects related to the security of the team responsible for collecting information in the field. Taking this into account, a change was made in the methodology of arrival in the communities in relation to the first stage of the work (industrial component), with visits to reference institutions such as the First Departmental Health Region in the city of Concepción. Through this instance, we had access to a list of key informants with whom we contacted previously, by telephone, this especially for the work carried out in the districts and localities of the northern zone.
- **Health protocol in the context of COVID-19:** As the field work was carried out during the context of COVID-19, the infectious disease caused by the coronavirus (in a pandemic context), health protocols and measures were taken into account of biosafety according to the quarantine and confinement phases indicated by the Ministry of Public Health and Social Welfare (MSPyBS), the Ministry of the Interior (MI) and the Public Ministry (MP), for the prevention of its spread, and considering the number of known cases globally and nationally, which continues to increase today.

3.2. Information gathering in the field

As explained in item 3.1. Methodological scheme, the information resulting from the field work (primary source) was used as input; on the one hand, to complement the characterization of

10 The COVID-19 context made it difficult to collect information from secondary sources, requested from Central Government institutions due to delays generated by biosafety protocols (rotating shifts).

the AID (district and local level) in the absence of data from secondary sources, especially at the local level; and on the other, for aspects such as:

- Preparation of the evaluation of possible social impacts to be generated in the area.
- The identification of mitigation and/or compensation measures that could complement those already defined in the Social Management Plan (PGS) of the industrial component.
- Complement the analysis of the perception of key actors regarding entrepreneurship and its community carried out for the industrial component.
- Complement the stakeholder analysis, the inventory of programs and projects carried out for the industrial component, with those present in the area.

Once the approach strategy in the field had been developed, the schedule of tours by area was built, using information provided by community leaders; initially, in coordination with the First Health Region, which made it possible to have access to the Family Health Units (USF) located in the AID, whose managers were key informants to identify other important actors in the framework of the process.

Different data collection techniques (qualitative and quantitative) were used to collect information, aiming to generate spaces for participation adapted to the times and phases of the forestry component; and the epidemiological context, defining profiles in reference issues, individually and in groups (no more than 5 people) both in institutional and community settings.

The steps carried out during the data collection process are described below, including the used techniques:

Direct observation: Initially, the in-situ reconnaissance tour was carried out, between July 21 and 25 of the year 2020, through which it was possible to identify/confirm:

- Communities and/or districts considered relevant according to criteria such as the number of population and their location with respect to the project's forest plantations and/or main access roads.
- Smaller towns/communities that are located in the areas surrounding the forest plantations and/or settled on the main access roads.

Individual interviews to:

- Key informants from districts and/or communities considered relevant due to the number of population and their location with respect to access to the project's forest plantations. These are: Paso Barreto, Sargento José Félix López, Paso Mbutu and Higua Ñandu.
- People referent from smaller communities, located on the main access roads or adjacent to the plantation areas, for the collection of characterization data. As a result of this process, a characterization sheet was generated by visited location, as can be seen in Annex 4 of this document.
- Managers or referents of the fields acquired for the project's forest plantations.

Group interviews with:

- Community and institutional referents in points defined as strategic due to their location and quantity of population and services.

Perception surveys aimed at:

- All the people interviewed considering that they are part of interest groups and specific profiles such as: old settlers, representatives of community organizations, educational and health institutions, public officials, young residents and representatives of the private sector.

As already mentioned, due to events related to the COVID-19 context and socio-political conflicts in the areas involved in AID, planning was reprogrammed and changes in the approach strategies in the field were carried out, such as:

- Carrying out focus groups and group interviews with minimal presence of participants in the same space.
- Interviews with key informants referenced by participants surveyed during the first and second week of the process.
- Mode of face-to-face interviews to videoconferences in some cases.

4. Characterization of the project's areas of influence

4.1. Indirect Area of Influence (AII)

All the information regarding the characterization of the IIA can be found in chapter 4.1. of the social researches of the industrial component. This section presents; in principle, the sources of statistical data used in said characterization, a matrix of the sub-chapters and topics developed in said study, and finally a summary of content considered relevant due to its link with the forestry component.

Reference sources used to characterize the IIA

Regarding this item, the document mentions that the characterization of the IIA was prepared using a variety of information sources, but taking into account the differences in the periods in which such information was available, performing, where possible, a comparative analysis between the departments involved.

Likewise, regarding the statistical data used, the following observations should be mentioned:

- The use of the most recent publications and databases that were delivered by the General Directorate of Statistics, Surveys and Censuses (DGEEC) was privileged.
- Although certain types of information could only be obtained from the different Censuses carried out: National Census (2012), Agricultural Census (2008), Economic

Census (2011), a valuable amount of information could be collected from the Permanent Household Survey 2017 (and earlier).

- For uniformity of criteria, in population projections and related data those corresponding to the year 2017 were used.
- On December 2019, the DGEEC presented departmental results of the Continuous Permanent Household Survey (EPHC) 2017 and 2018, a publication that presents average annual estimates at the departmental level.

Subchapters and topics included in the characterization of the All

In Chart 3. Subchapters and topics included in the All characterization, the subchapters and topics developed in each of them are presented, in order to present a general and synthetic outline of the content developed in said study.

Chart 3. Subchapters and topics included in the characterization of the All

Subchapter	Topic
Demographic dimension	Population Indigenous population Main demographic indicators Households, housing Poverty, income distribution, Unsatisfied Basic Needs Migration - Pendulum migration
Employment	Summary of the main indicators of the labor market Formality in employment
Economy	Primary sector Secondary and tertiary sectors Evolution of the economic-productive activity and services in the department of Concepción
Services	Basic Services Education Health Security, Justice Infrastructure and Accessibility Means of Transportation Information and Communication Technologies (TIC) Means of Communication Tourist services and accommodation State presence
Land use	
Use of water resources	

Source: Elaboration based on the chapter of characterization of All-Social Researches- Research of preliminary Environmental Impact

Likewise, an attached document was presented with complementary information to the topics set out in Chart 4. It is worth noting from these documents the following items extracted, as mentioned, due to their link with the forestry component, considered of interest for the purposes of the characterization of the All.

Chart 4. Summary of topics developed of the All about Concepción – Industrial/forestry Components

Concepción Department	
Geographic Location	Located north of the Eastern Region of the country. To the north, it borders the Apa River, to the South with San Pedro, to the West with the Paraguay River and to the East with Amambay. The main river communication route is the Paraguay River.
Area	18,051 km² and ranks second in the region in terms of area.
Population	244,071 inhabitants of which 48.58% are women, with a population density of 13.51 people per km ² . In this department the population is young, with a large majority under 35 years of age (72%); and with an average of 7.61 years of studies.
Constitution	It is divided into twelve districts : Concepción, Belén, Horqueta, Loreto, San Carlos del Apa, San Lázaro, Yby Yaú, Azotey, Sargento José Félix López, San Alfredo, Paso Barreto and Arroyito ¹¹ ; and the city of Concepción is the capital of the department.

Source: Elaboration based on the chapter of characterization of All-Social Researches- Research of preliminary Environmental Impact

Although the main economic activity historically was agriculture and extensive livestock¹², in recent years, large companies such as refrigerators and cement plants have been installed, with cutting-edge technology. Likewise, important service provider companies have developed; and, in the district of Azotey there is a milk processing plant (Lácteos Norte) that has developed the milk basin in the districts of Azotey, Tacuati, Yby Yaú and Horqueta¹³. These companies generated new sources of work for qualified and unskilled people, and fueled economic growth in the department.

Chart 5. Summary of topics developed from the All about San Pedro – Industrial/forestry Components

San Pedro Department	
Geographic Location	Adjacent to the South with Concepción
Area	20,002 Km²
Population	419,629 inhabitants (2017 projection data) and has a population density of 21 inhabitants/km ² . A little more than half of the population is made up of men and they are predominantly young: 70% of the inhabitants are under 35 years old; with an average of 7.21 years of studies.
Constitution	21 districts : Antequera, Capiibary, Choré, General Aquino, General Resquín, Guayaibi, Itacurubí del Rosario, Liberación, Lima, Nueva Germania, San Estanislao, San Pablo, San Pedro, Santa Rosa del Aguaray, San Vicente, Tacuati, Unión, 25 de Diciembre, Yataity del Norte, Yrybycuá y Villa del Rosario. The department capital is the city of San Pedro del Ykuamandiyú.

Source: Elaboration based on the chapter of characterization of All-Social Researches- Research of preliminary Environmental Impact

11 The municipality of Arroyito was created by Law No. 5742/16 "Which creates the municipality of Arroyito in the department of Concepción and a municipality based in the town of Arroyito", disaffecting the district of Horqueta. For this report, although the most recent information was sought, it was relieved from the official reports that still do not include this disaffectation; that is, in all the mentions of Horqueta, Arroyito is included.

12 Departmental Diagnosis and Development Plan. I Concepción Department. STP. 2011.

13 Available at: <https://www.abc.com.py/edicion-impresia/economia/fomentan-produccion-lechera-en-distritos-del-dpto-de-concepcion-1594334.html>

Chart 6. Summary of topics developed from the All about Amambay – Industrial/forestry Components

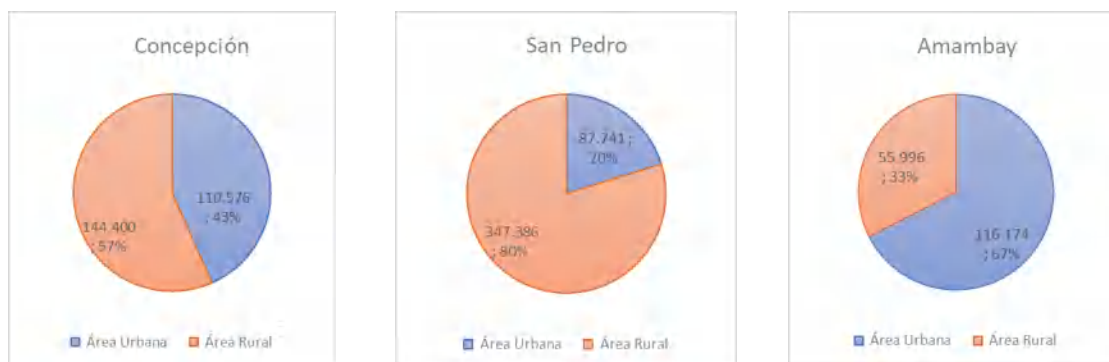
Amambay Department	
Geographic Location	Adjacent to the West with Concepción
Area	12,933 km²
Population	164,462 inhabitants (2017 data) and the population density is 12.7 inhabitants/km ² . In this department, there are almost equal numbers of men and women and most of the population is under 35 years old (68%); and with an average of 8.48 years of studies.
Constitution	5 districts: Pedro Juan Caballero, Bella Vista, Capitán Bado, Zanja Pyta y Karapai; the capital city is Pedro Juan Caballero.

Source: Elaboration based on the chapter of characterization of All-Social Researches- Research of preliminary Environmental Impact

Population

- The total population of the three All departments totals 828,162 inhabitants, which is estimated to represent 11.91% of the country's population, and of which 400,989 are women (48.41%).
- With respect to the population that lives in rural and urban areas, figure 1 presents estimates made for each department¹⁴.

Graphic 1. Rural urban population projected according to each department year 2020, considering 2012 projections¹⁵



Source: Own elaboration about data base provided by STP/DGEEC. February 2020

- 52% of the country's indigenous population lives in the Eastern Region, where the three departments of the All are located. In the department of Concepción, 91.3% (103,396), which means that the majority lives in rural areas and 8.7% (9,858) lives in urban areas.
- In the All, the population is eminently young: in Concepción 72% of the total population is under 35 years old, while in San Pedro and Amambay, the data is 70% and 68% respectively.

14 For the estimates, according to the methodology indicated by the DGEEC, the data from a report specifically prepared by said institution were used; for each department, the projected population for the year 2020 was used and the proportions were applied according to observations from the 2012 National Census.

15 Sources: STP/DGEEC. Paraguay. Projection of the population by sex and age, according to department, 2000-2025. Revision 2015 and STP/DGEEC. National Population and Housing Census 2012.

Poverty, Income Distribution and NBI

- According to data from the Permanent Household Survey¹⁶, 43.97% of the population of Concepción is in a situation of poverty, around 107,097 people have a per capita income lower than the cost of a basic consumption basket (LPT). Of these people, 15,911 (6.53%) have a per capita monthly income lower than a minimum food consumption basket. This percentage is similar in San Pedro; being higher in the case of people living in extreme poverty. Amambay is the department with the lowest poverty rates in the All
- According to available data, in 2017, the average per capita income in Concepción reached approximately Gs. 896,026¹⁷. The average income in this department is almost 40% lower than in Amambay and 7.45% higher than in the department of San Pedro.
- Regarding NBI, as mentioned in the report on the industrial component, in the three departments the highest percentage of these occurs in relation to access to health infrastructure. It is also indicated that both the departments and the districts are in worse conditions than the national average.

Employment

- In 2017, the open unemployment rate in Concepción was 6.66% and that of Amambay was 5.48%. In other words, some 7,247 people from Concepción and another 4,490 from Amambay were unemployed¹⁸. The country's unemployment rate was 5.20%, a figure lower than any of those mentioned.
- In the three departments, the highest proportion of the people who work do so in MiPymes/Establishments with 1 to 5 employees (Concepción: 70.54%; San Pedro: 81.34%; Amambay: 45.14%). On the other hand, analyzing the data provided by occupation category, it is possible to conclude that, both in Concepción and San Pedro, the population works mainly independently (Concepción: 57.02%; San Pedro: 72.46%) while that in Amambay most of the population works as employees of private companies (43.93%) compared to 39.12% of independent workers.

Economy

Next, information regarding All economic data is presented, specifically related to the different existing sectors.

- Regarding the primary sector, in the three departments, 68,047 farms are registered with a total area of 4,575,725¹⁹ hectares dedicated to the sector. The area dedicated to livestock reaches 2,935,287 hectares (65.2% of the total), while that used for agriculture is 527,512 hectares (11.5%), and the area with cultivated natural and forested forests is 734,741 hectares (16.1%).

16 DGEEC. Permanent Household Survey 2017.

17 DGEEC. Permanent Household Survey 2017.

18 DGEEC. EPH 2017. Without data for San Pedro.

19 DGEEC. Agricultural Census.

Approximately 25% of the country's cattle heads are concentrated in the All, with the highest production in San Pedro. Chart 7 provides data in this regard.

Chart 7. Existence of cattle per year, according to department. Term 2014-2017

Department	2014	2015	2016	2017
Total Country	14,465,600	14,216,200	13,858,600	13,821,500
Total All (estimated)	3,762,500	3,663,600	3,555,700	3,448,500
Concepción	1,239,800	1,226,100	1,209,900	1,158,600
San Pedro	1,491,400	1,419,300	1,354,800	1,319,800
Amambay	1,031,300	1,018,200	991,000	970,100

Source: DGEEC. Statistic Yearbook 2017. Own Elaboration

- The department of Concepción is the one that dedicates a notorious higher percentage of its surface to livestock activity in relation to agriculture, compared to the other departments of the All.
- The cultivated area reaches 464,267 ha, the composition of the labor force is dominated by the national with 16,512 national producers and the international labor is dominated by the Brazilian with 261, and only 36 from other nationalities.

Chart 8. Information about cultivated area distribution

Department	Total Area (Ha)	Area with permanent temporary crops and vegetables	Area with natural and cultivated pasture	Area with natural and forestall cultivated mounts	Fallow and resting area	Area under other uses
Concepción	1,619,416	71,431	1,218,911	233,300	50,394	4,538
San Pedro	1,739,232	321,156	909,500	276,656	81,091	150,828
Amambay	1,217,077	134,925	806,876	224,785	28,567	21,924
Total, All estimated	4,575,725	527,512	2,935,287	734,741	160,052	177,290

Source: National Agricultural Census 2008. Own elaboration (Page 44 of the report)

Regarding the existing forest plantations in the three departments, it is also possible to see a clear leadership of the department of San Pedro in number of trees. However, Amambay has fewer farms containing more trees per unit area. The department of Concepción presents a lower efficiency among the three, per unit area. This could be due to less efficient or less aggressive planting and management techniques. The corresponding information is included in Chart 9.

Chart 9. Forest Plantations (Eucalyptus and Pine crops), by department as of 2008

Department	Compact plantation of forestry		Eucalyptus crops			Pine crops		
	Number of farms	Total area	Number of farms	Cultivated area	Number of trees	Number of farms	Cultivated area	Number of trees
Concepción	1,451	4,209	573	1,269	2,254,095	19	60	113,387
San Pedro	2,994	11,022	740	4,431	6,315,778	29	332	556,676
Amambay	222	6,716	87	3,126	5,986,820	6	7	12,787

Source: National Agricultural Census 2008 (page 45 of the report)

Secondary and Tertiary Sector

According to the 2011 Economic Census, in Concepción, there are 5,242 economic units that occupy 13,682 people (44.55% are women) and generate income of Gs. 1,444,284,575,000. San Pedro presents data of high similarity with Concepción, while there is less coincidence with Amambay, where all the registered data are of greater magnitude; for example, income that reaches Gs. 5,112,545,870,000. This is due to the exposure situation of the Amambay department to Brazil, where trade with the neighboring country is one of the highest in the country after Alto Paraná.

In fact, the Commerce subsector is the most developed, of the three subsectors in the All, it is the one that occupies the largest number of Economic Units and people, and generates the most income.

The dominance of a single producer is verified in all the farm management strata, this gives indications of the degree of efficiency in the use of family labor and hired as day laborers.

Regarding its use, Chart 10 summarizes the distribution of land according to the type of use in number of farms in 2008.

Chart 10. Land according its use in number of farms. Department of Concepción on 2008

Number of farms with land	Farms with temporary and permanent harvests and crops	Farms with natural and cultivated pasture	Farms with natural mounts or forest plantation	Farms for Fallow and resting	Farms with lands intended for other uses
17,377	15,285	10,071	6,414	7,485	15,583

Source: National Agricultural Census 2008

Regarding its use, but in terms of surface, the distribution of the land is presented according to the last national agricultural census.

Chart 11. Land according to its number in terms of Surface. Department of Concepción on 2008

Total area (Ha).	Area with temporary and permanent harvests and crops	Area with natural and cultivated pasture	Area with natural and forest cultivated mounts	Fallow and resting areas	Area under other uses
1,619,416	71,431	1,218,911	233,300	50,394	45,380

Source: National Agricultural Census 2008

On the other hand, it is evident that there is little specialization in the use of land. Of the more than 17 thousand farms existing in 2008, the number of farms with technical inputs only reached about 12 thousand, of which only 1,034 applied agricultural lime. This provides an image of the degree of degradation of the soils and the level of acidification in which they could be found, judging by the type of extractive agriculture and with little application of conservation technology as can be seen in Chart 12.

Chart 12. Soil Management and Conservation, number of farms according to management

Number of farms with soil management	Soil management and conservation					
	Level curve	Crop rotation	Green manure	Parcels with organic production certification	Direct seeding	Others
10,390	232	9,176	178	273	596	1,196

Source: National Agricultural Census 2008

Regarding the level of production of leading items in production area, in Chart 13, the corresponding values can be observed.

Chart 13. Crops and other uses, Agricultural Campaign 2013-2014

Districts (1)	Crops and Other Uses									
	Soy	Sunflower	Rice	Soy (Z)	Corn (Z)	Chia	Wheat	Canola	Green manure (Oats)	Plowed Soil
Horqueta	4,583	-	-	-	783	-	-	-	543	-
Yby Yaú	341	-	-	-	-	-	-	-	-	-
Azotey	11,758	-	-	73	2,582	-	-	210	1,506	21
Total	16,682	-	-	73	3,365	-	-	210	2,049	21

Source: Statistic Synthesis 2013 – 2014. MAG/DEA

(1) Data for the districts of Belén, Concepción and Loreto are not presented because the determinations are the result of a sample analysis that does not necessarily include all existing districts, hence the lack of data.

In addition, studies carried out identify that in recent years the plantation of chia and sesame had an important take-off²⁰. The cultivation of spurge has decreased in the last decade, probably due to the fact that the yield has dropped considerably and this, in turn, caused by poor soil management, taking into account the high demand for nutrients that this crop has. Another important factor may be due to the informality of the markets for this product. Manioc

20 See the report prepared by Lesmo, et.al, 2018 based on data from MAG (2010).

had an important upswing in 2003, possibly this was the result of the possibility of commercialization generated from the installation of a processing plant in San Pedro and another in Brazil on the border with Amambay. This situation changed after the drop of prices in market.

Cotton was declining until it practically disappeared from agricultural farms. In recent years the government has launched timid campaigns to reactivate the crop, without much success among small-farm farmers.

Sesame began to be cultivated in the Yby Yaú district and later spread to various districts of the department. The peak of production was in the 2009/2010 harvest, after an unprecedented rise in the price. In the year of the massive cultivation of sesame (about 60,000 ha) this had a historically low price, which again decreased the cultivation the following year.

Synthesizing what has been said, the most relevant crops in the department of Concepción are corn, sesame and soybeans. Sesame and soybeans are income items for small producers and business agriculture, while corn is produced by both large producers and small producers with less than 20 hectares of land. Other historical crops of family farming are cotton, manioc and beans.

Regarding forest production, specifically eucalyptus and pine, as of 2008 the available information is presented below.

Chart 14. Forest Plantations (Eucalyptus and Pine Crops)

Compact plantation of forestry		Eucalyptus crops			Pine crops		
Number of farms	Total Area	Number of farms	Cultivated area	Number of trees	Number of farms	Cultivated area	Number of trees
1,451	4,209	573	1,269	2,254,095	19	60	113,387

Source: National Agricultural Census 2008

Regarding the distribution of land by district, the department of Concepción, according to data from the agricultural census, until 2008, was made up of 7 districts, indicated in Chart 15. For the characterization of the districts included in the AID of the forest component of the project, updated data were obtained, considering that in 2020, this territory is made up of 13 districts²¹.

Chart 15. Land Distribution by district. Department of Concepción

Districts Concepción Department	Number of farms	Total area	Farm management				
			Only one producer	Two or more de facto associate producers	A legally constituted company or society	The State	Others
Concepción	4,214	924,385	4,083	61	59	2	9
Belén	1,479	16,080	1,421	57	1	-	-

21 See table 42 of this document.

Horqueta	7,075	19,727	6,870	183	17	1	4
Loreto	2,062	41,560	2,032	28	2	-	-
San Carlos del Apa	86	62,146	77	9	-	-	-
San Lázaro	219	56,161	199	19	1	-	-
Yby Yaú	2,242	323,357	2,127	74	35	1	5

Source: National Agricultural Census 2008

Access to Basic Services

In general terms, a significant percentage of the All population has access to two basic services:

- Electric power (99.92%): Supplied by the National Electricity Administration (ANDE), reaching 97.79% of households in Concepción, 99.24% in San Pedro and 98.54 in Amambay (2017 data) 22.
- Improved water: According to the sector study carried out by the Pan American Health Organization²³, in 2010, the Regulatory Entity for Sanitary Services (ERSSAN) had registered the number of providers in the Project's All presented in Chart 16.

Chart 16. Number of water systems and connections according to supplier, by department

Department	ESSAP		Sanitation Boards		Neighborhood Commissions		Private Operating Organizations		Others	
	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections
Concepción	1	5,183	127	11,104	65	3,628	2	1,056	1	100
San Pedro	1	1,311	261	32,196	64	4,376	1	100	0	0
Amambay	1	6,630	13	3,034	35	8,876	3	457	0	0

Source: MOPC-OPS/OMS

Regarding improved sanitation, the access percentages are much lower, as in the entire national territory. With respect to waste collection, the service is registered in some municipalities and a small proportion of the population has access to it.

Education

The school-age population of the department of Concepción that attends an educational center represented 97.18% in 2017, with a gradual increase both in percentage terms and in average years of studies.

With reference to the department of San Pedro, a situation with similar characteristics is presented: 88,204 people of school age attended educational centers in 2017; which represents 97.33% of the school population.

22 Source: DGEEC. Permanent Household Survey period 2003-2004-2015-2016-2017

23 MOPC-OPS/OMS. Update of the Sectorial Analysis of Drinking Water and Sanitation of Paraguay. 2010.

In Amambay, although the absolute number of students attending an educational center is much lower (31,889 in 2017), the trend in percentage terms is maintained (97.48%) and the average number of years of studies increases to 8.48 (DGEEC, EPH 2017).

Health

In Concepción and San Pedro, in 2018, a little more than 50% of women showed up for a medical consultation, while the average drops to 46.5% in Amambay. With respect to men, the averages remain below 50% in the three All departments, with the lowest average being in Amambay and the highest in San Pedro.

According to data from the DGEEC, only a small proportion of the population of the department of Concepción has medical insurance, either private or from the IPS. Thus, although the records indicate a slight increase to 16.52% of coverage in 2015, in the last years for which data are available, the trend remains below 15% of the population.

Road network

Paraguay's road network is currently made up of 22 national routes. According to information published by the MOPC²⁴, the road network of the Concepción department totals 3,213 km of national, departmental and neighborhood roads and routes, of which 19% are paved. In San Pedro, the road network reaches 5,806 km, of which 18% are paved. In Amambay there are 2,666 km of road network, of which 12% are paved.

Several routes and neighborhood roads link the localities of the Project All, some of which are currently undergoing improvement processes within the framework of the National Program for Neighborhood Roads and Bridges, executed by the MOPC in most of the country's departments. In the All, this program proposes interventions to improve bridges and roads according to the summary provided in the following Chart²⁵

Chart 17. Bridges and roads under improvement in the All

Department	Bridges		Roads
	Bridges (Amount)	Length (M.L.)	Sections
Concepción	11	119	-
San Pedro	11	200	4
Amambay	8	86	-

Source: MOPC

Information and Communication Technologies (TIC)

According to data from the Permanent Household Survey, in Concepción, less than half of the population aged 10 years or more had access to the internet in 2017, the percentage is even

24 Available at: <https://www.mopc.gov.py/mopcweb/index.php?CID=769> consulted on 01.23.2020.

25 MOPC/DGSA-BID. Preliminary Environmental Impact Study. Neighborhood Roads Improvement Program - Eastern Region (PRL-1084). 2015.

lower in San Pedro (almost 38%). The Amambay population was the one with the highest access, with approximately 65%. However, it is clarified that almost all internet accesses were made from a cell phone.

On the other hand, topics such as land use and use of water resources were developed in the areas of influence of the project (industrial component). These have served as input for the characterization of the AID (forestry component) on these issues.

The studies of the industrial component of the project also included a "Cultural Heritage Report²⁶" that included the elaboration of an evaluation of the state of the cultural heritage of the area, in order to recognize cultural assets (archaeological, architectural, historical, ethnographic, etc.) present in that area.

As a result, possible impacts were identified and measures designed to suppress or mitigate them, seeking to reconcile the conservation of cultural heritage and the execution of the project involved in it.

4.2. Direct Influence Area (AID)

4.2.1. AID Characteristics

This section presents the main characteristics of the districts and localities that make up the AID as a whole. For its preparation, the need to link both the information obtained from the consultation to secondary sources, as well as the results of the field work (primary source) was taken into account. Annex 3 contains the detailed characterization district by district; since the information resulting from the integration of both sources stands out in breadth and specificity.

In order to understand the dynamics and interrelation of the territory, the use of a methodology that incorporates quantitative and qualitative techniques was considered essential, both for the process of bibliographic review of studies, research, statistical synthesis, reports, plans, programs, among others; as well as the field survey process, in order to establish with greater clarity and depth the current characteristics of the communities involved.

At the beginning, the field work process is presented, the description of the study areas, the techniques selected to carry out the survey, the type of tools used, the population involved in the consultations and the implications of the subsequent processing and analysis.

It is important to mention that the approach to the community sphere provided key elements for the analysis and interpretation of data related to the reality of the historical, economic, social and cultural conditions of the communities that are part of the study area.

Regarding secondary sources, it is necessary to clarify that data provided by the DGEEC were used for the present study, with the exception that there are variations in relation to previously published data; due, among other things, to districts subsequent to the official information gathering processes such as the 2012 census.

26 Bragayrac, 2020. Social researches of the industrial component. PARACEL.

Therefore, these pages contain the contributions resulting from the experiences shared with leaders and representatives of organizations and institutions that agreed to participate in the process. Subsequently, the set of issues that make up the characterization of AID is developed.

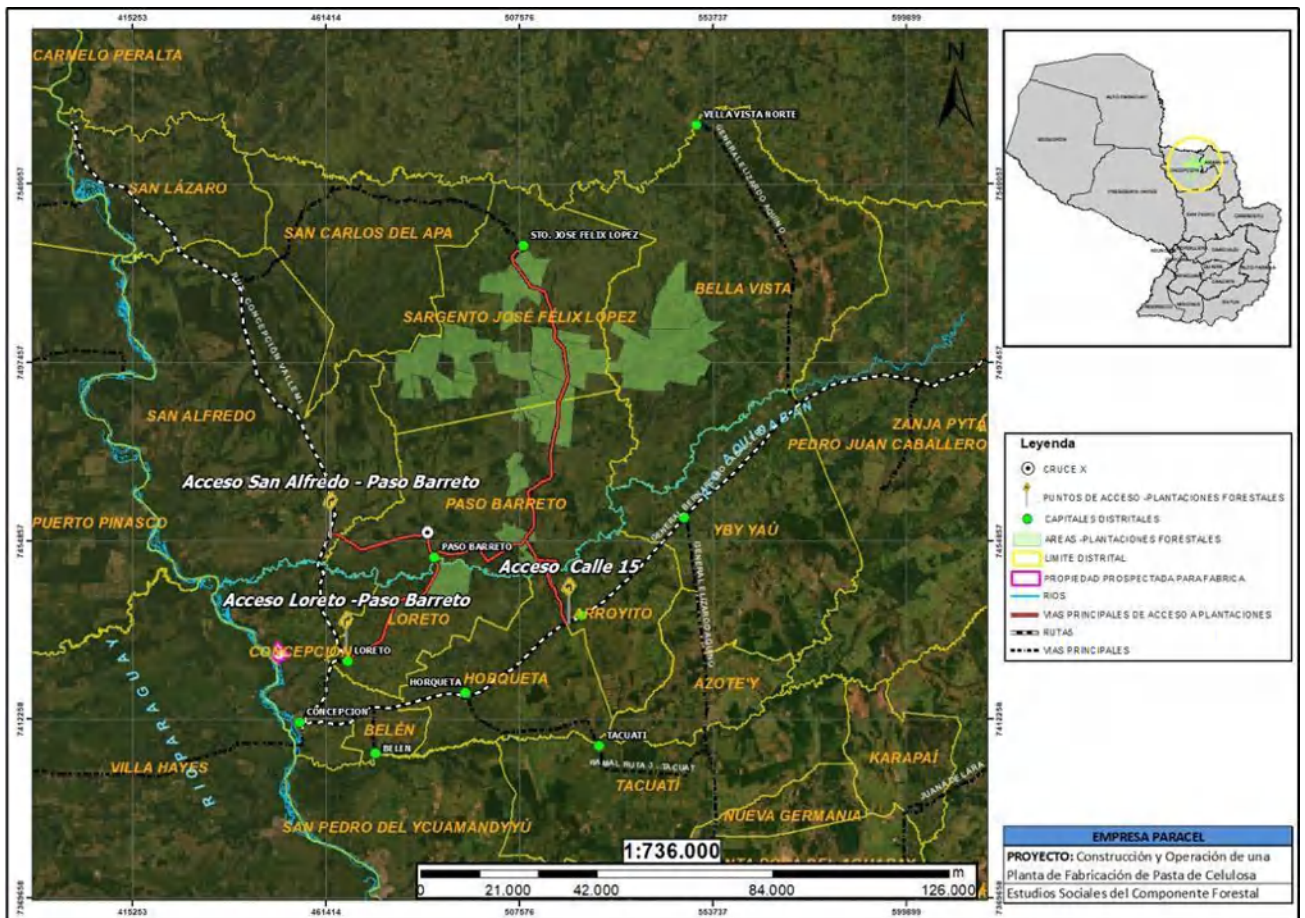
Description of the study zones – Identified Communities

Depending on the characterization of the territory, it can be seen that there are districts and communities located in the North and South areas of the department of Concepción and Amambay.

The districts of Loreto, Arroyito, Horqueta and San Alfredo are territories where the main accesses to the projected forest plantations are located. Each of them has communities linked to AID based on two central aspects:

- Be located on the roads (accesses) that must be crossed to reach those fields; and/or
- Be communities adjacent to the identified forest plantations.

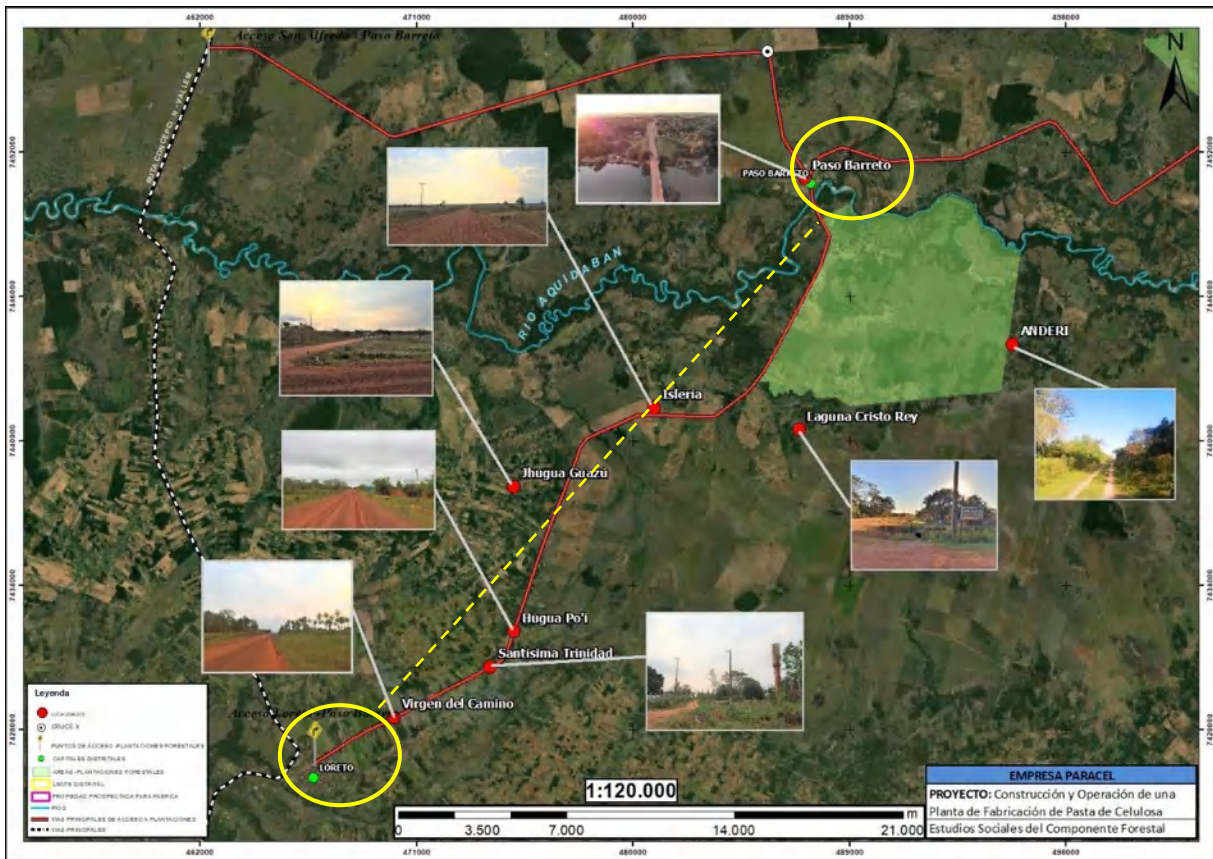
Map 2. Main Access routes linked to the project



Considering these distinctions, a total of 16 communities²⁷ have been identified in the study area. They are presented below.

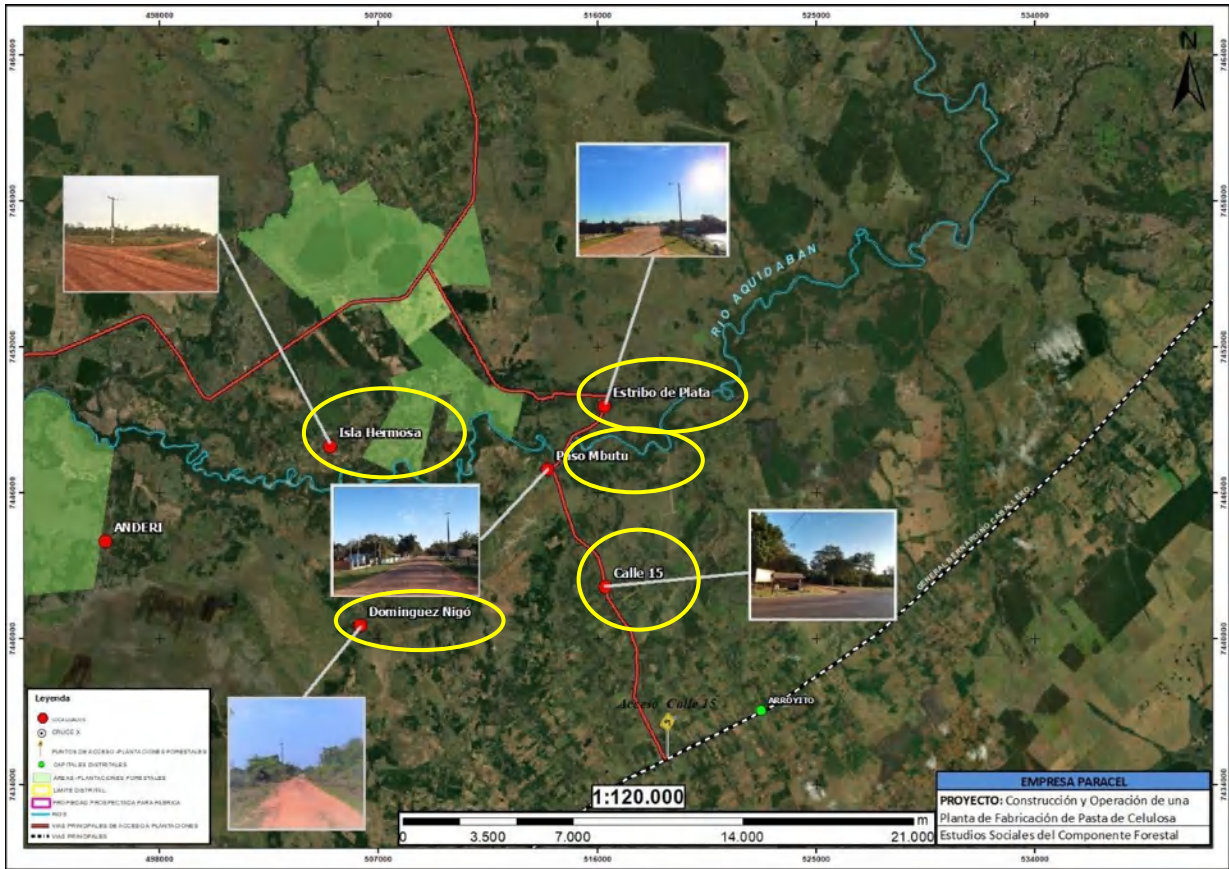
The communities identified in the Loreto-Paso Barreto access route, highlighted in yellow on the map, are: Virgen del Camino, Santísima Trinidad, Hugua Po'i, Jhugua Guazú, Islería, Laguna Cristo Rey, Anderi and the community of Paso Barreto .

Map 3. Access to Loreto-Paso Barreto



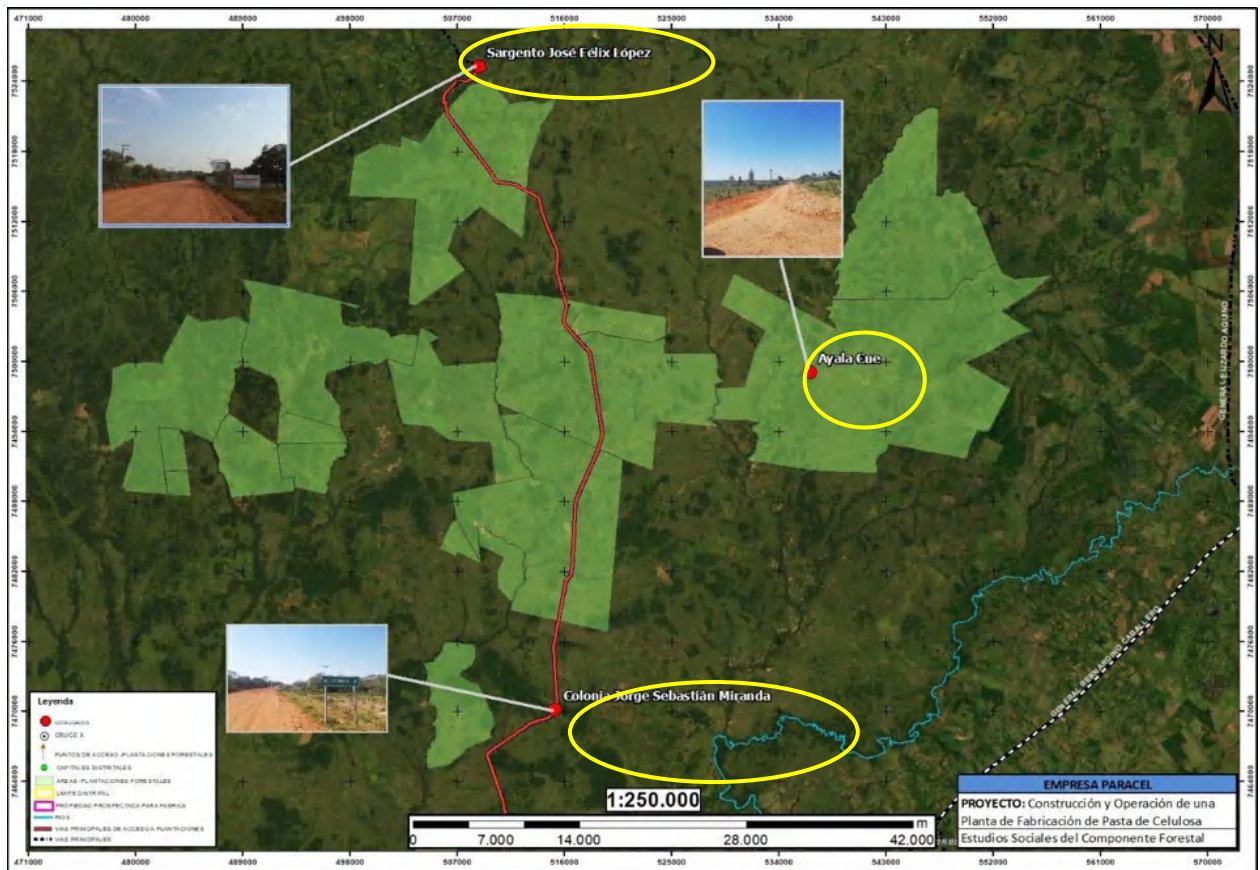
27 For more information, consult Annex 4, where you can access files that contain representative aspects that contribute to the characterization of each of the mentioned communities

Map 4. Access to Street 15 (South Zone)



At the access located on the border of the Horqueta and Arroyito district, called Calle 15, are the communities of: Calle 15, Domínguez Nigó, Isla Hermosa, Paso Mbutu and Estribo de Plata.

Map 5. Access to Calle 15 (North Zone)



Continuing along the aforementioned path (access to Calle 15) heading north are the communities of Colonia Jorge Sebastián Miranda, Sargento José Félix López and Ayala Cue.

In the case of the community located in the Bella Vista Norte district of the Amambay department, it can be accessed through a right-of-way road located in a farm area in the Sargento José Félix López district; entering approximately 20 km to the community of Ayala Cue.

As for properties for forest plantations, according to information provided by the project, these amount to 20 in the entire AID area; in their entirety they constitute livestock establishments.

Characteristics of the field survey process

Obtaining the resulting content in this section was based on different work instances made up of the elements mentioned below:

- Application of information collection instruments considering the following techniques: survey, interview and observation.
- Photographic record of: institutions, sites and aspects of interest relevant to the characterization; and use of GPS equipment for marking main points.
- Obtaining aerial images with drone through flights at strategic points. This made it possible to identify the main accesses to the prospected forest fields and to obtain a better visual perspective of specific study areas.




In this sense, it should be noted that a total of 30 face-to-face interviews and 4 videoconferences were conducted with the total participation of 43 informants, key social actors (carried out individually or with a maximum of up to 3 members). In addition, 4 focus groups were developed with the participation of 20 social referents (key informants) subdivided into groups of between 4 and 8 members respectively; attending to the sanitary measures established in the context of the Covid-19 pandemic. Chart 18. Summary of the field survey process summarizes the process.




Instruments were developed and designed for each information gathering technique (semi-structured questionnaires with open questions). A team responsible for the application of the instruments (Interview and Focus Group) was appointed, made up of a moderator of the meeting and debate space and another person in charge of recording and summarizing the main points discussed.

For the processing of qualitative data; a complete transcription of the interviews was carried out in a matrix prepared in a word processor, in order to allow the identification of different moments of the process, the ordering of textual data and the segmentation into thematic blocks oriented to the analysis and interpretation of information.

A regrouping of the analyzed elements was carried out, and a summary for its presentation through descriptive conclusions by subject; in order to facilitate the description and explanation of the different study elements.

Chart 18. Summary of the field survey process

Survey Technique	District	Communities	Total	Referential photographic record
Face to face interviews	Loreto	Virgen del Camino	2	 <p>Islería</p>
		Hugua Po'i	3	
		Santísima Trinidad	2	
		Jhugua Guazú	2	
		Islería	2	
		Laguna Cristo rey	2	
		Anderí	2	
	Horqueta	Paso Mbutu	3	 <p>Paso Barreto</p>
		Calle 15	1	
	Paso Barreto	Paso Barreto	4	 <p>Virgen del Camino</p>
		Isla Hermosa	2	
Estribo de Plata		1		
Sargento José Félix López		Puentesíño	4	
Videoconference Interviews	Bella Vista Norte	Ayala Cue	1	
	Horqueta	Dominguez Nigó	1	

	Paso Barreto	Colonia Jorge Sebastián Miranda	2	
Focus Group	Sargento José Félix López	Puentesíño	2	
	Paso Barreto	Paso Barreto	1	
	Horqueta	Paso Mbutu	1	

Source: Own elaboration based on field work. August – September 2020

Collection instruments

Two data collection instruments were applied, consisting of semi-structured guides with open questions; prepared and designed by the social team responsible for the consultancy.

The interview guide was made up of 37 open questions; oriented, on the one hand, to the identification of participants and geographical location; and on the other, a series of questions related to historical conditions, economic, health and education aspects, relevant institutions in the area and other places of interest, the identification of main problems, aspects necessary for development, community organization, services and existing programs and projects in the area.

The guide for the focus group consisted of a total of 8 key questions; in addition, the identification data of participants and location. This guide was developed based on the complementation and/or deepening of the information obtained during the development of the community interviews; at the time of rescuing elements originated from the exchange and the dynamics of the group.

A responsible team was appointed for the application of the instruments (Interview and Focus Group), a person responsible for moderating the meeting and debate space; and another person in charge of recording and summarizing the experience.

Data processing and analysis

For the processing of qualitative data, the interviews were completely transcribed in order to pour them into a matrix made in a word processor; with this, it was possible to facilitate the identification of different moments of the process, the ordering of textual data, and the segmentation into thematic blocks oriented to the analysis and interpretation of information.

A regrouping of the analyzed elements was carried out, presented in a summary as systematized results, through descriptive conclusions by themes. The thematic analysis seeks to facilitate the description and explanation of the different elements of the study.

4.2.1.1. Total AID Population

The following Chart 19 presents the figures of the total projected population of AID for the period 2020-2025; according to the STP/DGEEC data. It can be seen that there is a growth in the total AID population, with an estimated increase from 114,224 in 2020 to 121,288 in 2025, which would result in a total increase of 5.82% according to the projection. This trend is projected in most districts; although it can be seen that in the Paso Barreto district a decrease of 3.55% of its population is estimated.

Chart 19. Departments of Concepción and Amambay: Projected population, according to districts (2020-2025)

Department and district	Year					
	2020	2021	2022	2023	2024	2025
Dpto. Concepción	254,976	258,653	262,360	266,072	269,805	273,579
Horqueta	50,205	50,738	51,270	51,796	52,320	52,845
Loreto	17,312	17,362	17,411	17,456	17,497	17,538
Sgto. José Félix López	7,087	7,144	7,202	7,258	7,314	7,369
San Alfredo	4,989	5,070	5,151	5,233	5,315	5,398
Paso Barreto	3,885	3,858	3,831	3,803	3,775	3,747
Arroyito	13,181	13,398	13,617	13,836	14,057	14,280
Dpto. Amambay	174,169	174,721	177,252	179,773	182,281	184,772
Bella Vista Norte	17,565	18,226	18,690	19,160	19,634	20,111
Total AID Population	114,224	115,796	117,172	118,542	119,912	121,288

Source: STP/DGEEC. Paraguay. Population projection by gender and age, according to district, 2000-2025. Revision 2015

As mentioned in previous sections, there is more information available at the district level in regards to secondary sources; but it does not apply to the local level corresponding to the studied communities. In this sense, the role of the USF was fundamental at the time of providing data related to the peculiarities of the territory, because they carry out a sociodemographic census once a year in addition to being aware of the local reality due to the visits and meetings that they organize permanently in the assigned intervention area.

Thus, in the field, there was direct contact with representatives of the existing USF and with key social actors at the community level who shared their knowledge and information available in reports or follow-up studies regarding the number of inhabitants, dwellings and/or families existing in the area.

With the figures provided, Chart 20 is prepared; and although it is not possible to estimate the total amount due to the disparity of the data mentioned, at least it allows estimating an approximate amount.

Chart 20. Total population of the identified communities

District	Community	Amount	Number of houses	Number of families
Loreto	Hugua Poi ²⁸ - Santísima Trinidad	619	156	-
Loreto	Santísima Trinidad		-	35
Loreto	Virgen del camino	281	75	-
Loreto	Laguna Cristo Rey ²⁹	224	-	-
Loreto	Islería	108	-	-
Loreto	Anderi	94	-	-
Loreto	Jhugua Guazú	1,061	-	-
Horqueta	Domínguez Nigó	-	-	36
Horqueta	Calle 15	241	-	51
Horqueta	Paso Mbutu	-	-	-
Paso Barreto	Paso Barreto	-	-	862
Paso Barreto	Isla Hermosa ³⁰	700	160	-
Paso Barreto	Estribo de Plata	61	-	17
Paso Barreto	Colonia Jorge Sebastián Miranda	1,300	-	-
Sargento José Félix López ³¹	Township Norte Pyahu	5,695	-	169
Sargento José Félix López	Township 29 de Junio		-	175
Sargento José Félix López	Township Yvy Maraney		-	76
Sargento José Félix López	Puentesño centro		-	861
Sargento José Félix López	Yvype		-	226
Bella Vista Norte	Ayala Cue	-	-	130
Parcial Total		10,384	391	2,638

Source: Own elaboration based on field work. August-September 2020.

As can be seen in Chart 20 as perceived by the people involved in the consultation, the number of inhabitants of the visited communities amounts to 10,384 and the mentioned number of families amounts to 2,638.

4.2.1.2. Access to Services

Regarding access to basic services for the Districts of Concepción linked to AID, it can be observed in Chart 21 on basic services, that access to electricity predominates with 93.1%; the Arroyito district being the one with the highest access percentage (94.6%). The second service to which the population has the most access is running water with 74.4%; being the District of San Alfredo the one with the highest percentage of access (78.7%); while 46.9% correspond to homes with improved sanitation and 22.8% to homes with garbage collection. In the districts linked to the AID there is no access to the sewage service. However, according to information obtained; in the city of Horqueta, works are being carried out for the construction of a sanitary

28 Data provided by referent of USF- Hugua Po'i.

29 Data provided by referent of USF- Jhugua Guazú.

30 Data provided by referent of Satellite Health Unit- Isla Hermosa.

31 Data provided by referent of USF-Sargento José Félix López.

sewer system and a wastewater treatment plant³². Likewise, in the Paso Barreto district, the construction of the canalization system and the storm drainage canal is being carried out, according to local residents.

Chart 21. Basic Services

Basic Services	Department of Concepción	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargent o José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
Private dwellings occupied with people present	42,402	8,761	3,063	1,221	966	838	2,011
% Homes with electricity	93.1	93.0	91.3	73.1	92.3	85.2	94.6
% Homes with running water	74.4	72.0	72.2	59.9	78.7	70.3	58.2
% Homes with sewage drainage	6.3	-	-	-	-	-	-
% Homes with garbage collection	22.8	10.5	9.2	0.1	0.7	0.1	0.1
% Homes with improved sanitation	46.9	34.8	25.8	6.8	33.1	22.1	19.0

Source: STP/DGEEC: Nacional Census of Population and Housing 2012.

(**) Districts that have been affected by the dismemberment of new districts and therefore there may be differences with information already published for them, since there is no coincidence of boundaries due to the recent detachment.

(***) Postcensal District 2012

Illustration 1. Construction of the canalization system and the storm drain channel - Paso Barreto



Source: Field work. August – September 2020

Also, according to district indicators from the 2012 DGEEC census, in the Bella Vista district, 78.62% of the population has access to electricity; 61.76% of the population has access to running water and 20.34% of the population has access to solid waste disposal.

32 Sanitary sewer system project and wastewater treatment plant. MOPC- Available in: <https://www.ip.gov.py/ip/acuerdan-iniciar-obras-de-alcantarillado-sanitario-y-planta-de-tratamiento-en-horqueta/>

From the information collected in the field regarding access to drinking water, the following is summarized:

- The communities of Puentesíño, Virgen del Camino, Hugua Po’i, Jhugua Guazú, Paso Barreto, Isla Hermosa and Colonia Jorge Sebastián Miranda: They have a water supply network managed through SENASA.
- Virgen del Camino: It has three wells, one of them is used for irrigation and consumption of animals due to its color (red).
- Puentesíño: It has at least 10 wells managed through the Sanitation Board. The Calle 7 settlement does not have a water supply network; and it has about 47 families that are supplied by the Kora stream, which has the peculiarity of being muddy. In general, it can be said that they have water systems through SENASA, tajamares and some common wells. Those who have a water problem have cutwaters and use the streams; but they are not suitable for consumption because the water is salty, it has a lot of salt. In Norte Pyahu and Calle 3 there are areas from which water cannot be extracted, where attempts were made to excavate more than 100 meters deep.
- Hugua Po’i: Has a well through the Sanitation Board.
- Jhugua Guazú: They have two wells built for an irrigation system for agricultural production and they also built one for community distribution managed with SENASA.
- Colonia Jorge Sebastián Miranda: It has 5 tanks that serve as supply to the community; some of which were managed through SENASA and the Government.
- Paso Barreto: It has a drinking water network organized through Sanitation Boards.
- Isla Hermosa: It has a water supply network managed through SENASA.

Illustration 2. Registry images about water access



Water System, Center of Puentesíño

Water System, Isla Hermosa

Water System, Paso Barreto

Water System, Jhugua Po’i

Water System, Virgen del Camino

Source: picture registry of field work. Consulting Team. Concepción. August -September 2020

Illustration 3. Registry images about water access



Water System, Santísima Trinidad, Loreto

Water System, Laguna Cristo Rey

Water System, Isleria

Water System, Domínguez Nigó

Source: picture registry of field work. Consulting Team. Concepción. August -September 2020.

Among the communities that have artesian wells installed in a self-managed way, are Laguna Cristo Rey, Santísima Trinidad, Islería and Domínguez Nigó, Ayala Cue. For their part, the indigenous communities in the Paso Barreto area have tanks and, in some cases carry water from the Aquidabán River.

Four are the communities identified in the territory that do not have water supply systems.

In Estribo de Plata, most of the houses have wells, but they are unable to manage an artesian well for the entire community because there are few residents; and both installation and maintenance have a cost. In total there are 2 people who do not have wells and are supplied by the closest neighbors.

Anderi: It is another of the towns that does not have a drinking water supply network. The houses have private wells or cutwaters. During the dry season they have access problems since the wells tend to dry up.

Paso Mbutu: There is no running water in the area. Most use wells for irrigation and everyday use, because the water is salty and is not used for human consumption. To drink they carry water from a source on the left bank of the Aquidabán river, called Chorro or Yvu, and it is not treated for consumption. They are also supplied with accumulated rainwater in drums of 100 or 200 liters; in certain cases, they pay 20 thousand guaranies per drum.

Calle 15: They are supplied from private wells that in some cases are shared with the nearest houses. There are families that use the water from the cutwater daily.

Illustration 4. Registry images about water access



Tajamar Calle 15



Manantial paso Mbutu



Vivienda con Pozo

Source: picture registry of field work. Consulting Team. Concepción. August -September 2020.

TIC

Regarding access to TIC in the department of Concepción, according to the 2012 National Census data, it can be observed that the majority corresponds to households with a cell phone with 83.3%, followed by households with a radio with 80.6 %; and with 79.8% to homes with television sets, thus being the most used media by the population linked to AID.

The results of the survey in relation to this issue coincide with the aforementioned figures, especially with regard to access and use of cell phones, due to the health context and the fact

that classes are held virtually by provisions of the MEC. They also commented about the existence of connection problems (bad signal) in Anderi, Paso Mbutu, Domínguez Nigó and Isla Hermosa.

Chart 22. Access to Information and Communication Technologies (TIC)

Access to TIC (Information and Communication Technologies)	Department Concepción	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
Private dwellings occupied with people present	42,402	8,761	3,063	1,221	966	838	2,011
% Homes with radio	8.6	76.9	83.2	86.2	90.4	79.5	80.3
% Homes with TV	79.8	75.4	80.0	48.2	81.3	70.8	68.9
% Homes with landline	8.0	5.2	4.4	1.1	0.8	0.5	0.7
% Homes with cell phone	83.3	83.7	84.1	79.4	86.2	77.7	83.1
% Homes with computer	11.9	7.7	5.4	1.2	2.2	2.0	2.7
% Homes with computer connected to internet	9.2	5.3	4.3	0.6	1.2	1.2	1.1
% Homes with satellite dish	10.8	6.3	4.8	11.8	9.0	19.3	11.8
% Homes with TV cable	13.4	15.7	8.2	2.4	1.6	2.0	0.9

Source: STP/DGEEC: Nacional Census of Population and Housing 2012.

(**) Districts that have been affected by the dismemberment of new districts and therefore there may be differences with information already published for them, since there is no coincidence of boundaries due to the recent detachment.

(***) Postcensal District 2012

Regarding access to comfort goods, it can be observed in Chart 23 that dwellings with motorcycles, refrigerators and washing machines predominate in the Districts linked to AID.

Regarding the information collected in the field, it was again coincident since the motorcycle is the most used comfort good.

Chart 23. Access to comfort goods

Comfort Goods	Concepción Department	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyito (***)
Private dwellings occupied with	42,402	8,761	3,063	1,221	966	838	2,011

people present							
% Homes with refrigerator	68.1	62.2	64.2	48.2	65.0	61.8	63.0
% Homes with washing machine	50.9	44.5	44.8	29.6	30.1	38.4	44.2
% Homes with video /DVD	21.2	16.1	16.3	10.8	15.0	8.9	15.9
% Homes with thermo-heating	4.0	3.7	2.2	1.1	1.4	1.4	1.1
% Homes with electric shower	25.7	19.9	16.0	4.2	3.6	7.2	8.9
% Homes with air conditioner	15.2	8.8	6.4	2.0	3.7	4.4	1.8
% Homes with microwave oven	14.4	7.4	11.7	3.2	6.9	4.4	4.1
% Homes with car/ truck	9.9	8.5	5.0	4.4	4.1	3.9	4.6
% Homes with motorcycle	74.3	72.3	73.8	80.7	74.2	62.3	76.7

Source: STP/DGEEC: Nacional Census of Population and Housing 2012.

(**) Districts that have been affected by the dismemberment of new districts and therefore there may be differences with information already published for them, since there is no coincidence of boundaries due to the recent detachment.

(***) Postcensal District 2012

In relation to the condition of home ownership, according to the DGEEC data, in the districts linked to the AID, the majority are own dwellings, 85.2%, as can be seen in the following Chart.

Chart 24. Condition of home ownership

Condition of home ownership	Concepción Department	Selected Districts					
		Horquet a (**)	Loret o (**)	Sargent o José Félix López	San Alfred o	Paso Barret o (***)	Arroyit o (***)
Private dwellings occupied with people present	42,402	8,761	3,063	1,221	966	838	2,011
% Is own	85.2	88.8	92.0	88.9	82.0	87.6	91.8
% They are paying it in installments	0.9	1.7	0.1	0.1	-	0.5	0.0
% It is in a condominium	0.4	0.6	0.2	-	0.4	-	0.1
% Is rented	5.1	1.6	1.6	1.8	1.7	1.3	0.5
% It is borrowed, they take care of it	7.5	5.9	5.6	7.5	15.3	9.9	7.0
% It is taken	0.8	1.3	0.5	1.7	0.5	0.2	0.5
% Not reported	0.1	0.1	-	0.1	0.1	0.5	-

Source: STP/DGEEC: Nacional Census of Population and Housing 2012.

(**) Districts that have been affected by the dismemberment of new districts and therefore there may be differences with information already published for them, since there is no coincidence of boundaries due to the recent detachment.
 (***) Postcensal District 2012

4.2.1.3. Unsatisfied Basic Needs, poverty and migration

According to the DGEEC data in relation to AID households, it can be observed in Chart 25, that more than half of these have at least one unsatisfied basic need (NBI), prevailing the district of Sargento José Félix López with the 89.4%.

Chart 25. Unsatisfied basic needs (NBI)

Indicators of Unsatisfied Basic Needs (Nbi)	Concepción Department	Selected Districts					
		Horquet a (**)	Loreto (**)	Sargento José Félix López	San Alfredo	Paso Barreto (***)	Arroyit o (***)
Private dwellings occupied with people present	42,638	8,772	3,063	1,221	967	839	2,012
% Homes with at least one NBI	56.2	58.2	59.5	89.4	49.1	65.1	68.6
% Homes with NBI in quality of housing	19.0	18.0	21.3	24.5	19.0	22.3	17.4
% Homes with NBI in health infrastructure	29.7	31.3	33.1	82.9	21.5	28.8	40.5
% Homes with NBI in access to education	20.3	19.5	15.8	26.3	24.5	31.1	33.6
% Homes with NBI in subsistence capacity	19.8	21.0	20.7	37.5	12.5	24.2	17.5

Source: STP/DGEEC: Nacional Census of Population and Housing 2012.

(**) Districts that have been affected by the dismemberment of new districts and therefore there may be differences with information already published for them, since there is no coincidence of boundaries due to the recent detachment.
 (***) Postcensal District 2012

In the Bella Vista district, according to DGEEC data on NBI³³, as can be seen in Chart 26, more than half of the households have at least one UBN with 64.0%

33 DGEEC. Unsatisfied Basic Needs (NBI) 2012 PARAGUAY. Available at: <https://www.dgeec.gov.py/Publicaciones/Biblioteca/investigacion%20tematica/Triptico-de-necesidades-insatisfechas-NBI-2012.pdf>

Chart 26. Houses with NBI, by department and district

Indicators of Unsatisfied Basic Needs (NBI) (%)	Total Country	Amambay Department	District of Bella Vista
Private dwellings occupied with people present	1,232,496	27,047	2,675
% Homes with at least one NBI	43.0	48.3	64.0
% Homes with NBI in quality of housing	12.6	18.6	23.5
% Homes with NBI in health infrastructure	20.8	26.5	46.5
% Homes with NBI in access to education	15.7	25.9	32.2
% Homes with NBI in subsistence capacity	14.9	14.7	16.2

Source: DGEEC: *Triptych of Unsatisfied Basic Needs (NBI) 2012. Paraguay in base of STP-DGEEC. National Census about Population and Housing 2012.*

Poverty

Monetary Poverty Indicators – income distribution -results 2019

According to published data on monetary poverty indicators, in Paraguay around 1,675,000 people live in households whose per capita income is lower than the cost of a basic consumption basket, estimated for 2019³⁴.

This same source indicates that in rural areas the extreme poverty line for 2019 has a value of 243,608 guaraníes per month per person and the total poverty line is 497,049 guaraníes per month per person.

In general, the cost of the basic food basket (extreme poverty line) in 2019 increased by 1.5% compared to 2018 and the basic consumption basket (total poverty line) increased by 2%.

The official measures of total and extreme monetary poverty are obtained from two data sources; on the one hand, the information on the population's income, from the Continuous Permanent Household Survey, executed annually by the DGEEC; while the cost of the Basic Food and Consumption Baskets are obtained from the Income and Expenditure Surveys, and the values updated annually by the Consumer Price Index (IPC), prepared by the Central Bank of Paraguay (BCP).

Poverty at a departmental level

According to data from the Permanent Household Survey³⁵, 43.97% of the population of Concepción is in a situation of poverty, that is, around 107,097 people have per capita income lower than the cost of a basic consumption basket (LPT). Of these people, 15,911 (6.53%) have per capita monthly income lower than a minimum food consumption basket, that is, they cannot cover the cost of the minimum amount of food. Amambay has a lower poverty index as can be seen in Chart 27.

34 DGEEC-STP-2. Available at: <https://www.stp.gov.py/v1/dgeec-publico-los-principales-indicadores-de-pobreza-monetaria-del-ano-2019/>

35 DGEEC. Housing Permanent Census 2017.

Chart 27. Total and Extreme Poverty according to department (year 2017)

Department	Total Population ⁽¹⁾	Total Poor Population ⁽²⁾		Extreme Poor Population	
		Absolute (amount)	Relative (%)	Absolute (amount)	Relative (%)
Concepción	243,560	107,097	43.97	15,911	6.53
Amambay	164,254	25,026	15.24	5,390	3.28

Source: DGEEC. Housing Permanent Census 2017.

(1) Does not include non-retirement domestic employees. (2) Includes extreme and non-extreme poor

Regarding the districts included in the AID, as shown in the poverty map of Paraguay³⁶, the districts with the highest percentage of poverty are Sargento José Félix López, followed by Loreto and San Alfredo, and as can be seen in the following Chart, the district with the lowest percentage of poverty is Concepción, the departmental capital.

Chart 28. Information about poverty in homes of Concepción

Poverty Map of Paraguay		
Codes	Department/District	% of poor homes according to censused houses (Census 2012)
Total General		21
	D. Concepción	29
01	Concepción	22
02	Belén	32
03	Horqueta	32
04	Loreto	37
05	San Carlos	27
06	San Lázaro	35
07	Yvy Ya'u	27
08	Azotey	37
09	Sgto. Jose Félix López	39
10	San Alfredo	36
11	Paso Barreto	31

Source: STP-Poverty Map of Paraguay by district

In the case of the Bella Vista district (Amambay), it is stated that there are 19% of households living in poverty.

During the survey work in the field, the "poverty" factor was repeatedly mentioned by residents of the different areas included, this associated with problems such as:

- Lack work sources.
- Job insecurity: most of them are day laborers and receive low payment for the activities they carry out.
- Poor access to public services (health, roads, etc.).

36 Technical Planning Secretariat Available at: <https://www.stp.gov.py/v1/mapa-de-pobreza/>

Migration

As explained in the "Migration" chapter of the project's All, this can be defined as permanent or semi-permanent transfer of people and families between geopolitical units, with the consequent change of residence. And the "Pendular Migration" is of a periodic nature and does not translate into a change of residence³⁷; it refers to people who periodically move to another country, department or even district, for work reasons.

Regarding the AID area of the project, in its forestry component (Concepción and Amambay departments), there is a very significant proportion of residents who work in the Chaco: 45% in the three Chaco departments³⁸. In the case of Concepción with ease of access by the Nanawa bridge that connects the Western and Eastern regions. In the case of Amambay, 84.2% of the pendular migrant population moves to another country (probably Brazil due to the geographic location of the department); and the lowest percentage of people move to Concepción (4.7%), although significant numbers of interdepartmental pendular migration are not recorded. In Paraguay, for the years 2001 to 2024, migration rates are negative in all departments, except in the Central department, where a high immigration rate is observed³⁹. These data suggest a significant migratory movement from the interior of the country to the cities surrounding the capital.

According to Pereira, in his text *"Department of Concepción. Wealth and social inequality"*, based on official data from the 2002 Population and Housing Census, 40% of the people migrated to the central department, 16% to Asunción and 12% to the Amambay department. Likewise, he relates that in that period *"emigration from the department of Concepción has the face of a woman. Fifty-seven out of every 100 migrants... were women"*⁴⁰.

The residents who participated in the survey mentioned problems such as migration and uprooting on a continuous basis, these associated with poverty and the lack of job and educational opportunities as the main causes of these situations.

Likewise, they detailed that women, faced with this situation, move to cities in search of jobs and are even forced to go to countries such as Argentina or Spain to financially support their families; they also commented that women work in ranches, in charge of cooking and cleaning these establishments. In the case of men, they go mainly to the Chaco to work in the ranches, in the dairy farms and refrigerators; mainly in the Loma Plata area.

In many cases, the population that leaves their community of origin no longer returns and this leads, among other things, to uprooting since the young population decreases considerably in certain areas, such as the communities of Anderi, Laguna Cristo Rey and Islería.

4.2.1.4. Economy

37 DGEEC. Pendular Migration in Paraguay, 2012.

38 On the contrary, the total number of people who migrate from the Chaco to Concepción temporarily to work is low, being 101 people, which represents 1.57% of the total number of people from Chaco with pendular migration.

39 Including the capital, Asunción.

40 Pereira, Hugo. "Concepción Department. Wealth and Social Inequality". Available at: <https://revistascientificas.una.py/index.php/RE/article/view/714>

Through the data provided by the STP/DGEEC, it can be observed that the total employed population in the department of Concepción corresponds to 89,881 people, this constitutes 39.67% of the total population of the department of Concepción.

Likewise, in the department of Concepción the Tertiary sector predominates with 42.2%. However, in the districts of the sector linked to the AID, the primary sector predominates (agriculture, livestock, hunting and fishing); then the tertiary sector (groups electricity, gas and water, commerce, restaurants and hotels, transportation, storage and communications, finance, insurance, real estate, community, social and personal services; and not informed) and finally the secondary sector (industries manufacturing, construction, mines and quarries).

Chart 29. Population by economic sector in the AID

Economic Sector of the working population	Concepción Department	Selected Districts					
		Horqueta (**)	Loreto (**)	Sargent o José Félix López	San Alfred o	Paso Barret o (***)	Arroyit o (***)
Total population(*)	226,585	6,029	16,817	6,610	4,800	4,085	11,540
% Primary	40.9	53.5	66.1	72.9	48.9	57.6	80.3
% Secondary	15.7	11.3	8.0	9.8	30.1	17.0	4.0
% Tertiary	42.2	34.7	25.1	16.3	18.9	23.9	15.5
% Not reported	1.2	0.6	0.8	0.9	2.1	1.5	0.3

Source: STP/DGEEC: National Census of Population and Housing 2012.

In the Bella Vista Norte district, according to data from the 2011 National Economic Census, the employed population linked to industry, commerce and service activities corresponds to 666 people, as can be seen in Chart 30. Magnitude of socioeconomic activity in the Bella Vista district. Year 2011. In this, the predominance of the commerce sector can be seen, followed by the services sector and finally the industrial sector.

Chart 30. Magnitude of socioeconomic activity in the Bella Vista District. Year 2011

Department, district, and sector	Economic Units	Working Staff		
		Total	Man	Woman
Amambay	6,249	18,502	11,071	7,431
Bella Vista	292	666	383	283
Industria	20	55	45	10
Comercio	197	439	241	198
Servicios	75	172	97	75

Source: Elaboration based on National Economic Census 2011.

Main economic activities

Among the main economic activities referred to by the people consulted, the following were mentioned:

- Small-scale agriculture and livestock, mainly for self-consumption and sale as needed.

- Breeding and sale of small animals and products such as cheese, milk, eggs.
- In the case of Paso Barreto, Puentesíño and Calle 15, they mentioned the production and sale of coal.
- In the Paso Barreto area, the number of family gardens for consumption increased, as well as the sale of fast food (minutes) and more elaborate as an economic alternative due to the Covid-19 pandemic.
- There is also a significant number of farms in the area that are mainly dedicated to large-scale livestock production.

A large number of the population is dedicated to making trades per day ("per day" or "for treatment"); performing work in the rooms, cleaning and wiring the land; others are engaged in tasks such as bricklayers, plumbers, or chainsaw operators. This type of activity in any of its manifestations has the particularity of being a form of informal employment that is not carried out permanently. As referenced, depending on the area and the activity they carry out, they receive between fifteen and one hundred thousand guaranies daily.

Illustration 5. Photographs of registry of economic activities



*Agricultural Production -
Livestock Company
Jhugua Guazú*

Paso Barreto Snack

Coil Production

Ranch – Isla Hermosa

Source: Picture registry of field work. Consultant Team. Concepción. August-September 2020

The people who are dedicated to working in the ranches, both in the Chaco and in the area, are to a lesser extent permanent employee ("monthly") who work as managers or "laborers". Generally, the work by treatment predominates, in which a person agrees with the managers of the companies or stays to carry out a series of jobs for a period of time and a salary proportional to the activity that is requested. They, in turn, subcontract other people so that they can fulfill the agreed work.

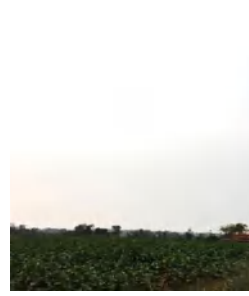
Illustration 6. Photographs of registry of economic activities



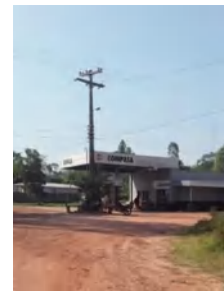
Carpentry- Puentesío



Sawmill- Paso Barreto



Tobacco Company
Virgen del Camino



Service Station Col.
Jorge Sebastián
Miranda

Source: Picture registry of field work. Consulting Team. Concepción. August-September 2020.

As a commercial and service activity, you can see pantries, small fuel supply centers or service stations, motorcycle workshops, snack bars, dining rooms, carpentry shops, sawmills, hairdressers, mainly mini-cargo services.

In some areas, people are dedicated to fishing such as Paso Mbutú, Paso Barreto and Islería. They carry out this activity both for consumption and for sale, and as mentioned they are organized into committees to receive subsidies during the closed season.

Another characteristic activity of communities such as Isla Hermosa, Domínguez Nigó, Anderí and Paso Mbutú is the manufacture and sale of hats made up of Karanda'y. It is a tradition that persists as a source of income for families. The production is carried out individually, by association between people or working for a "boss"; person who buys and resells the products purchased in other areas such as Pedro Juan Caballero and cities in Brazil.

Some people are employees of health, education or other public institutions existing in the area, in companies such as tobacco companies or refrigerators.

Illustration 7

Illustration 7. Photographs of registry of economic activities



Paso Mbutu



Isla Hermosa

Source: Picture registry of field work. Consulting Team. Concepción. August-September 2020.

Employment situation

In the department of Concepción, as mentioned in the report on social researches of the industrial component, there is a Working Age Population (PET) of 186,627 people (53.53% are women), of which 58.33% are Economically Active (108,860 people, of which 41.33% are women). The Activity Rate of the department is 58.33%, a figure lower than the national activity rate (63.09%⁴¹). For women, an activity rate of 45.04% was registered while for men this figure reached 73.64%, in line with the rates registered at the national level of 50.91% and 75.24% respectively, and in Amambay it reached 64.03% (54.07% for women and 74.55% for men).

The report also states that, in 2017, the open unemployment rate in Concepción was 6.66% and that of Amambay was 5.48%. In other words, some 7,247 people from Concepción and another 4,490 from Amambay were unemployed⁴². The country's unemployment rate was 5.20%, a figure lower than any of those mentioned.

In the field interventions, during the different spaces generated with the population, it was commented that the majority of women are housewives, they work on the activities of the farm and small livestock raising, selling cheese, making sweets from peanut or Karanda'y hat production.

Likewise, it was highlighted that peasant family production, for many, ceased to be profitable because they do not have safe markets or fair sale prices for its sustainability; therefore, most of them produce mainly for consumption and sale in some cases as needed.

As already mentioned, people work; also, in estancias in the Chaco and nearby areas. A percentage of that population is absorbed by the tobacco company located between the community of Virgen del Camino and Huguá Po'í de Loreto. However, to a greater extent, they are people who make a living from wage-earning jobs, which are carried out occasionally and sporadically; and in turn a large sum of cases is not well paid. This reinforces the existing precarious labor conditions. A smaller proportion is employed in the public function, mainly in the education and health sector, which are the key reference institutions that exist in the community.

4.2.1.5. Other Query Results

The following are the results of the specific topics consulted with the people who were part of the information gathering process in the field. Which are related to their perception of the community, positive aspects of it, and aspects to improve in the face of local development in the area.

Among the positive aspects identified during the survey process, those related to relationships were mentioned; highlighting the fact that people are kind, supportive, know each other and live in harmony.

41 DGEEC. Main employment indicators. EPH 2017.

42 DGEEC. EPH 2017.

In relation to the place, they characterize it as a quiet and safe area; where the land is fertile and suitable for production (agricultural and livestock). They consider that it is a pollution-free space known for having natural resources such as: native trees and hydrographic basins.

One of the main attractions of the area are the waters of the Aquidabán river; where beach and fishing activities take place.

Regarding aspects to be improved, they pointed out that there is a need for a greater presence of the State and support from local authorities; generation of sources of work and opportunities especially for young people, without losing sight of the importance of avoiding/eradicating job insecurity in the area. Likewise, strengthen peasant family agriculture, generating technical and credit assistance programs, and marketing channels for products at a fair price.

Illustration 8. Representative pictures of the mentioned areas in the consultations



Río Aquidabán- Paso Barreto



Río Aquidabán. Paso Mbutu

Source: Picture registry of field work. Consulting Team. Concepción. August-September 2020.

Other aspects mentioned are related to services and infrastructure, in terms of access and quality improvement; such as the case of the drinking water supply network in communities that do not have this service or receive it in a poor way, as well as in educational and health issues as described below:

- "It is necessary to establish public universities and technical training courses with possible job opportunities", "There is a lack of training programs for young people."
- "Lack of greater investment in infrastructure in order to improve local roads, expand coverage and health facilities", "Promote and develop tourism."
- "Generate recreation and leisure areas such as parks, squares and places to practice sports."

In turn, requests for assistance with social problems such as the consumption of psychoactive substances in young people in general were mentioned; and others that denote gender gaps such as the following:

- School dropout by female adolescents who finish the 9th grade, get married, have children and can no longer continue their studies.
- Increase in cases of early pregnancy in some communities.
- Increase in cases of "prostitution" in the North zone.

- Maleness, taking into account that the distribution of gender roles still persists, where home care is assigned to women and men productive tasks in the farm.
- Lack of opportunities for women in terms of developing training for productive enterprises.

4.2.1.6. Main events that occurred in the area

The chart shows the main hydrometeorological events, indicated during the interviews.

Chart 31. Types of events in the AID

Location	Fires	Flood	Drought	Storm/ Hailstorm	High Temperatures	Frost
Ayala Cue	x					
Paso Mbutu	x			x		x
Calle 15			x			
Domínguez Nigó						
Virgen del Camino	x			x		
Santísima Trinidad				x		
Hugua Po'i	x			x		
Jhugua Guazú	x	x		x		
Islería		x	x			
Laguna Cristo Rey			x			
Anderi	x	x	x			
Paso Barreto	x	x	x	x		
Isla hermosa	x	x		x		
Estribo de plata		x				
Col. Jorge Sebastián Miranda	x	x		x		
Puentesíño	x		x	x	x	

Based on Chart 31, the following can be observed, in order of importance: in 10 communities forest field fires are frequent. It should be noted that the interviewees mentioned that, although the fires caused by burning grasslands decreased due to the existence of regulations that rule the care and protection of the environment, they continue to occur; mainly in the areas of stays and reservations such as Paso Bravo. For the latter case, they mentioned that there are loggers, hunters and ranchers who enter the site and many times they are the ones who originate the fire sources.

The second most prominent event corresponds to the storm and hail variable. Residents of Paso Mbutu reported that these occur mainly in the month of September. In some cases where there are greater impacts, they receive assistance from the Municipality or the Emergency Secretariat.

It also refers to the fact that there are frequently flooded areas due to the overflow of water courses, or intense rains in six of the study communities. In most cases, one of the main consequences of this fact is that the community is completely isolated.

They also pointed out that drought is a big problem in the area since it affects the production and supply of water, as is the case in the communities of Calle 15, Anderí and Puentesíño, as mentioned.

Other events referenced are the frost in the Paso Mbutu community and the extreme heat in Puentesíño.

Illustration 9. Pictures that show consequences of flood in the Aquidabán River area



Aquidabán River flooded roads and isolates districts of Paso Barreto, J. S. Miranda and Isla Hermosa. Source: Última Hora (June 2016)⁴³



Aquidabán River. Bridge connecting Districts of Loreto and Paso Barreto. Source: ABC (April 2019).⁴⁴

4.2.1.7. Tourism and culture at AID

The districts included in the AID have tourist attractions linked to their history, religious beliefs, the natural resources of the area, and infrastructure already generated based on this to receive visitors, thus contributing to the local economy and the development of the area in general.

It is a region with important rivers such as the Aquidabán and streams such as the Tagatiyá, which offer the possibility of outdoor activities, water sports, fishing, sailing and beaches. Numerous watering places were installed in the area, likewise, inns (ecotourism services), establishments that offer stay tourism and boats that offer river tourism services on the Paraguay River, especially walks and fishing.

43 Available at: <https://www.ultimahora.com/rio-aquidaban-se-desborda-y-aisla-comunidades-nortenas-concepcion-n991008.html>

44 Available at: <https://www.abc.com.py/nacionales/rio-aquidaban-inunda-localidades-de-concepcion-1796921.html>

Illustration 10. Photographs of tourist attractions



Tagatiyá-San Alfredo⁴⁵



Ojo de Mar – Bella Vista⁴⁶

In the case of the Horqueta district, this has the museum called: Las Raíces de Horqueta, Luis Alberto del Paraná museum (Radio Guyrá Campana), Virgen del Rosario Church, José Antequera y Castro Square⁴⁷ and the white sand beaches on the banks of the Aquidabán River, Paso Horqueta and the Paso Horqueta Bridge⁴⁸. Likewise, the Loreto district has attractions such as giant statues in the squares, church, and the House of Prayer dedicated to the Virgin of Tuparendá⁴⁹. In addition, the panorama of the city is complemented by the old and large houses and rural ones. In one of them, the trophies of Mcal. José Félix Estigarribia⁵⁰ are exposed.

Illustration 11. Pictures about tourist attractions



Part of the municipal beach, with white sands, on the banks of the Aquidabán River. Paso Barreto. Source: Paraguayan ADN (June 2019⁵¹)

45 Source: Pikuki. Available at: <https://www.picuki.com/media/2238031647874167932>

46 Source: Waters on Paraguay- Available at <https://www.facebook.com/aguasdelparaguay/posts/915631861855148>

47 Paraguayan Intern Tourism. Available at: <https://turismointernoparaguay.blogspot.com/2015/01/concepcion-atractivos-museos-y-centros.html>

48 Municipal Development Plan Horqueta. Concepción Department. 2016. Available at <https://www.cird.org.py/institucional/documentos/PDM%20Horqueta.pdf>

49 MSPBS-CIRD. Local Health Plan of Loreto. Term 2014-2016. Available at: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Loreto.pdf

50 Municipal Development Plan Loreto. Concepción Department. 2016. Available at: <http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>

51 Available at: <https://www.adndigital.com.py/paso-barreto-hace-6-anos-logro-el-sueno-largamente-acariciado/>

Next, and having considered the information included in the local health plans, development plans at the municipal level and other relevant documentation, a range of tourist attractions identified in the department of Concepción is presented. The AID districts of the project are included in its forestry component; and the districts of the industrial component:

- From Concepción, there are options within the city for walking and fishing trips. The Ten Caten, Siete Cabrillas and Santa Filomena boats are some of those that offer this service. They are private services available to those interested.
- The Tagatiyá stream, 90 km from the city of Concepción, in the district of San Alfredo, is one of the major tourist attractions in the department. It runs on a calcareous base and allows you to see the bottom through its transparent waters, surrounded by exuberant vegetation (tall trees, ferns and tacuaras). You can practice *snorkeling* (surface diving) to observe fish in the stream that turns into a natural fish tank. You can also go down the stream, zip-lining, horseback riding and hiking. - Accommodation in the Ña Blanca and Santa Irene ranches with rooms, rustic cabins and camping areas.
- In the city of Concepción, capital of the department, old buildings are preserved that are an example of the historical past of the city, where you can see the old locomotive that worked until 1960, a truck used in the Chaco War, as well as old objects saved in the place.
- The Barracks from the time of Francisco Solano López, from where General Resquín's troops left for the Mato Grosso campaign, during the War of the Triple Alliance.
- The Fort of San Carlos, on the Apa river, an interesting place to visit, built during the Colony as a defense mechanism against the invasions of the Portuguese bandeirantes.

Illustration 12. Pictures about tourist attractions



María Auxiliadora Church–Central Walk



Old Windmill

Source: Picture Registry of field work. Consulting Team. Concepción. August -September 2020

- The rivers and streams that bathe the department offer the possibility of enjoying water sports, fishing, sailing and beaches.
- The hills of San Luis and Paso Bravo are very visited by tourists. Isla Peña Hermosa is a limestone hill located on the Paraguay River.
- The Aquidabán Ecoregion has forests and extensive fields, interspersed, lagoons, estuaries and wetlands. Clover, timbo, red quebracho, karanda, palo blanco, juasy'y

guazú, urundey-mi, kurupa'y, curuñi, jata'i, arasupe in wooded meadows, karanday in palmares.

- The Estancia Primavera, on the Aquidabán river has beautiful beaches and lagoons, nature is prodigious in the area. You can go camping and horseback riding, as well as hiking.
- Rancho JM has a wide beach on the banks of the river, you can also go camping and enjoy fishing.

As for the Bella Vista Norte district (Amambay department), as can be seen in Illustration 10. Photographs of the tourist attractions, this has the natural attraction called Ojo de Mar, which geologically could be a cenote or some kind of lake with underground tributaries. It is located at 58 kilometers from the center of the municipality, in a company called "Rinconada" and is accessed by the route that connects Bella Vista Norte with Sergeant José Félix López (Puentesíño)⁵².

Regarding tourism, the Municipal Development Plan mentions that the Municipal Development Council with the National Tourism Secretariat (SENATUR) must work together with the Amambay Government to develop a Tourism Plan, fundamentally taking advantage of nature for eco-tourism, adding infrastructure and basic equipment with respect for the environment.

Recreational and cultural activities in al AID

As part of the results of the field work carried out within the framework of the preparation of this study, the following is a summary of recreational and cultural activities mentioned by the population included in the survey process:

In the districts and localities of AID, cultural, symbolic, and religious activities related to the celebrations of patron saint and devotional festivals predominate. There is a religious diversity and of traditions that remain in the collective memory and in the exercise of practices that come from past generations that still persist.

These constitute activities of recreation, worship and integration of the inhabitants of the locality and of the nearby communities that give life to a variety of expressions of the intangible cultural heritage of the area and the country.

The celebration is accompanied by activities such as prayer, mass, lottery, "santo corrido", soccer tournaments, horse riding, bull dressage, mechanical laceration, in some cases student parades, raffles to raise funds, bingo, and cannot be missed. the traditional karu guasu accompanied by traditional foods from the north of the country such as So'o Hu'û.

The district festivals are of great importance for the residents of the community and neighboring areas. In general, student parades, artistic festivals, prayer novena, horse riding, serenade, among others are organized.

52 Municipality of Bella Vista. (2016) Municipal Development Plan. Term 2016-2021

Illustration 13. Pictures about cultural and social activities



Student parade, Celebration of the 6th anniversary as San Alfredo municipality⁵³. Source: ADN Paraguayo (2019).



District Anniversary Parade Source: Ultima Hora (2019).⁵⁴

The Municipal festival of the Aquidabán river, of Paso Barreto and the Paso Bravo festival held in the district of Sargento José Félix López were also highlighted.

In terms of sports, soccer, women's and men's volleyball tournaments are held in different areas. There are communities like Puentesño that have their own senior league and women's league.

Horse races are also held in the equestrian club of the communities; where, in general, people from other localities join the activity.

The USF organizes educational talks by interest groups such as a club for pregnant women, hypertensive patients, the elderly, and diabetics.

In schools, some festivals of the school calendar are celebrated, such as: Folklore Day, Saint John's Day, Children's Day and Youth Day. In some places interscholastic, intercollegiate and even interdistrict tournaments are organized.

Recreational activities in rivers and streams in the area were also mentioned, these are cited from section 4.2.1.9. Use of Water Resources in the AID.

53 Available at: <https://www.adndigital.com.py/san-alfredo-sitio-agricola-de-explotacion-forestal-y-ganadera/>

54 Available at: <https://www.ultimahora.com/puentesino-celebra-ocho-anos-distritacion-un-desfile-n2842715.html>

4.2.1.8. Road Infrastructure, ports and means of transport in AID

Road Network in the AID

As indicated in the characterization of the All of the Industrial Component⁵⁵, for more than 50 years, Paraguay's road network was made up of 12 national, departmental and municipal routes. In May 2019, the Ministry of Public Works and Communications (MOPC) classified and restructured the conformation of the National Road Network, expanding the number of national routes to a total of 22. The Directorate of Road Planning of this ministry⁵⁶ states that the department of Concepción has a total of 3,213 km of national, departmental and neighborhood roads and routes, of which 19.18% are paved, as can be seen in the following matrix:

Chart 32. Matrix of the Road Network of the department of Concepción

Road Network Type	Concepción	
	Paved (Km)	Not Paved (Km)
National	383.73	20.52
Departmental	97.8	327.51
Local	134.88	2248.16
TOTAL (km)	3,213	
% paved	19.18%	

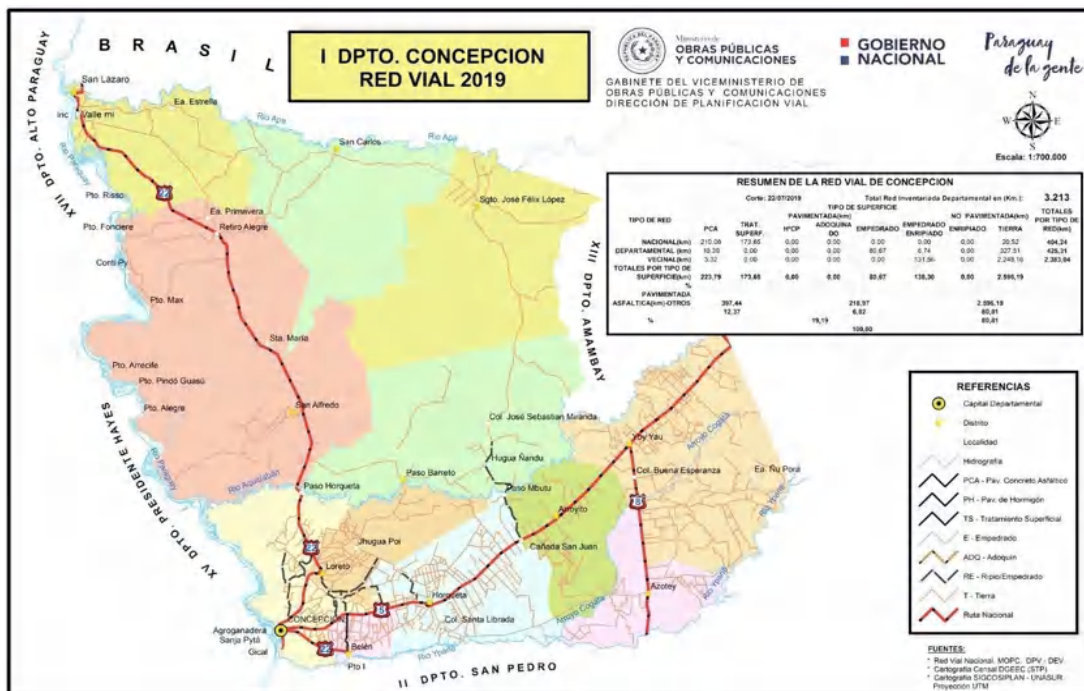
Source: MOPC: Road Planning Direction (data from July 22, 2019)

As can be seen, in Map 6. Concepción road network, 3 national routes connect the department of Concepción with other departments; Route 5 "General Bernardino Caballero", National Route Paraguay 22 and National Route 8 "Doctor Blas Garay", of which 2 (N° 5 and N° 22) are directly linked to the project. The description of each of them follows:

55 Social Researches Report. Industrial Component - PARACEL. 2020. Page 61

56 MOPC-Road Planning Direction. Available at https://www.mopc.gov.py/mopcweb/application/files/3915/8263/6885/1_concepcion_RN.pdf consultado el 2.09.2020.

Map 6. Concepción Road Network



- Route PY05:** From East to West, with a length of 577 km. It begins in the city of Pedro Juan Caballero (Amambay), located on the border with Brazil; it crosses the department of Concepción passing through the city of Concepción; it crosses the Paraguay River through the Nanawa Bridge, and continues in the department of Villa Hayes until it reaches Fortín Pilcomayo, on the border with Argentina.
- Route PY22:** From SOUTH to NORTH, with a length of 424 km. It begins in San Estanislao (San Pedro) at the junction with Route PY03; it passes through the cities General Aquino, Villa del Rosario, San Pedro del Ykuamandyú; it enters the department of Concepción through the city of Belén, passes through Concepción, Loreto, San Alfredo and ends in San Lázaro.
- Route PY08:** From SOUTH to NORTH, with a length of 588 km. It begins in Coronel Bogado (Itapúa), at the junction with Ruta PY01; it passes through the departments of Caazapá, Guairá, Caaguazú; enter San Pedro through San Estanislao: continue to Yby Yaú in Concepción and then to Bella Vista Norte in Amambay.

Main access roads and their status

As mentioned in section 3. Methodology for the preparation of the social studies of this report, the districts of San Alfredo, Loreto, Horqueta and Arroyito are part of the AID of the component since they are located important access roads to the forestry plantations involved in the project. The following diagram describes the national and internal interdistrict connection routes. Likewise, it is important to mention that these routes also link both components of the project (industrial and forestry).

Chart 33. National and internal roads of interdistrict connection

Nationals Routes	
National Route PY 05	Horqueta and Arroyito
National Route PY 22	Loreto, San Alfredo, Vallemí
Internal Routes	
Calle 15	This road links the towns of Horqueta, Paso Mbutú, Huguá Ñandu reaching the district of Sargento José Félix López (Puentesíño)
Calle Loreto -Paso Barreto	It links the towns of Loreto, passing through Paso Barreto, Huguá Ñandu reaching Sargento José Félix López (Puentesíño)
Cruce X	Through this road Paso Barreto and San Alfredo are connected; it is currently undergoing repair work as an all-weather road.

Source: Elaboration based on field work

Illustration 14. Aerial photographs of the entrances



Entrance Cruce X



Entrance Ruta Loreto – Paso Barreto




Entrance Calle 15

Roads linked to the project

Next, the details of the connection between the roads linked to the project, the districts that contain the properties for the forest plantations and the localities near or close to them are presented. Likewise, it presents the districts and localities located at accesses to said properties. Also, a brief description of the observable conditions of each of them is made.

Chart 34. Interdistrict road connection matrix

Districts	Routes and towns	Connected Communities	Section	Status
Horqueta – Sgto. José Félix López	National Route PY 05- calle 15 – Puentesíño (Sgto. José Félix López)	Calle 15, Paso Mbutu, Estribo De Plata, Huguá Ñandu, Puentesíño	Calle 15 - Paso Mbutu	This section is currently undergoing asphalt paving work, with important progress
			Paso Mbutu – Col. Jorge Sebastián Miranda (Huguá Ñandu)	The work prior to the asphalt paving work is in process. In case of rain, circulation is difficult
			Huguá Ñandu - Sgto. José Félix López	This section is currently undergoing asphalt paving works. In case of rain, circulation is difficult
Loreto – Paso Barreto	Ruta Loreto – Paso Barreto	Loreto, Virgen Del Camino, Santísima Trinidad, Huguá Po’i, Jhuguá Guazu, Islería, Laguna Cristo Rey (Anderí Entrance), Paso Barreto, Isla Hermosa Entrance and Cruce Calle 15.	This road is called “all time”. From the exit of the city of Loreto to the access to the community of Jhuguá Guazú, the road is in poor condition, due to the high traffic in the area. From the Community of Islería to the Junction Calle 15, the gravel road is in good condition, even in the rainy season. Anderí is a community isolated from the route, the current state of the road makes it difficult for medium-sized vehicles to circulate and in the rainy season it is completely closed	
San Alfredo – Paso Barreto	San Alfredo - Cruce X - Paso Barreto	Entering from Route PY22, take the San Alfredo-Cruce X road (Paso Barreto). This section does not cross populated areas and its route crosses the ranches area. From Junction X you can take a path that heads towards the northwestern area of the plantations and	Currently work is being done on paving for all weather roads (lifting and graveling), with important progress, from Paso Barreto to Arroyo Pitanoaga. The section from Paso Barreto to Cruce X has also been	

	<p>that entirely crosses ranches. From Junction X to the right, the route heads towards the town of Paso Barreto. This road connects with Loreto.</p>	<p>improved⁵⁷, and work is currently under way on the San Alfredo-Paso Barreto road</p>		
 <p>Ruta Py 22- Acceso San Alfredo- Paso Barreto</p>	 <p>Cruce X- San Alfredo</p>	 <p>Cruce X</p>	 <p>Cruce x-Estancias</p>	 <p>Camión en camino a Loreto</p>

Source: Own elaboration based on information taken on the field. August-September 2020

57 <https://twitter.com/mopcparaguay/status/1259193967037612032>

Illustration 15. Picture registry of actual routes (observable conditions 2020) and means of transportation



Route Calle 15



Route Sgto. José Félix López



Cruce x - San Alfredo



Route Loreto – Paso Barreto



Laguna Cristo Rey

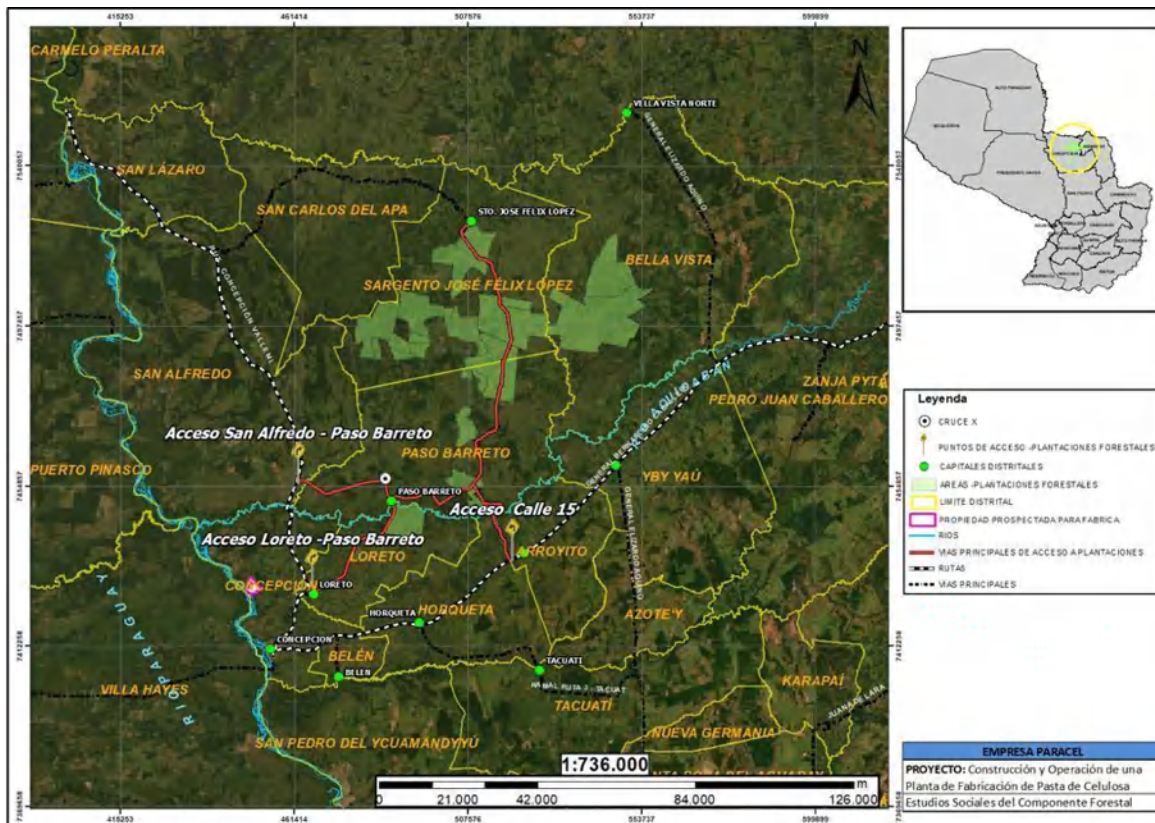


Isla Hermosa Entrance



Laguna Cristo Rey Entrance

Map 7. Main Access Roads to forest plantations



Means of transport in the AID

The means of transport used in the areas involved in AID are motorcycles, cars, vans and trucks, according to data from municipal plans and local health plans consulted. Such is the case of the Sargento José Félix López district where these means are used and there are various companies that offer transportation services for passengers and cargo, covering the destinations of Concepción, Pedro Juan Caballero and Bella Vista. The roads that lead to the colonies are precarious, in times of rain it is almost impossible to enter and exit them, leaving the communities isolated and the population facing many deficiencies⁵⁸.

In the same line, the results obtained during the information survey carried out in the field, it can be affirmed that there are interurban and long-distance passenger transport companies. The companies that make the interurban connections circulate through the cities of Paso Barreto and Loreto to Concepción. This service includes stops in the towns of Isla Hermosa (Paso Barreto) and Laguna Cristo Rey (Loreto). The other communities such as Isería, Jhugua Guazú, Jhugua Po’i, Santísima Trinidad and Virgen del Camino have access to the same service because they are close to these roads.

Long-distance transportation companies connect the cities of Vallemí with Asunción, circulating through the cities of San Alfredo, Loreto and Concepción, on national route 22, to continue through the Chaco (routes 5 and 9).

58 Health Local Plan Sargento José Félix López – Term 2015-2018.

The most used means of transport are the motorcycle (mainly), automobiles, public passenger transport, carts, especially for the transfer of cargo in the communities.

Illustration 16. Pictures of observed means of transportation



Main Ports on the Paraguay River

The Paraguay River is one of the access roads to the department of Concepción; and to all areas of influence of the project. Among the existing ports along its banks are Puerto Concepción and Vallemí. It is a means of transport, communication and commerce used by the inhabitants of the riverside communities, located north of Concepción, which are frequently isolated by the rains. From Brazil, it is also accessed through Puerto Murtiño (Brazil), in front of Puerto Casado (Department of Alto Paraguay, Chaco).

Although the Municipal Development Plan of Concepción states that “despite the fact that it has a port, river traffic has declined compared to its beginnings”, a good part of the production of calcareous products and grains of the region is mobilized through the ports. Another company that bet on the waterway is Frigorífico Concepción, which invested in private ports to facilitate and reduce the costs of transporting livestock.

The Ports of the Department of Concepción are:

- Concepción Port
- Vallemí Port
- Risso Port: it is a lime port, it produces hydrated lime, it has stormy coasts, it has had several owners
- Foncieros Port: important viewpoint over the Paraguay River
- Max Port: “Tres Ollas” Port is currently a livestock establishment, located in front of Pinasco Port.
- Arrecife Port: it has dangerous reefs, when the Paraguay River falls, it is ideal for fishing for dorado
- Abente Port: cattle ranch port, formerly called “Puerto Kemmerich” is located near the Napeque stream. A road north of the Aquidabán River, Paso Horqueta, Concepción – Vallemí Route.
- Negro Port: local ranches are in this port.
- Algesa Port: loading and unloading of cargo and freight
- Antiguo Port: boarding of passengers and minor loads
- Itapucumí Port: a town located opposite to Puerto Pinasco (7 km to the South), here there are vestiges of the administration building of what was the first cement factory in the country (1913); it is currently the largest producer of quicklime, hydrated lime and agricultural lime in the country; from their embarkation ports the products go to other

locations for their commercialization. There is an important viewpoint over the Paraguay River.

- Itapuá Port: formerly "Calera Cué", it is located north of Puerto Fonciere. A coastal road from Puerto Fonciere, has lime kilns and shipments are made throughout the country with private lime boats. In the same area there is an island with beautiful beaches.
- Guyrati Port: it is a famous limestone factory, about to 10 km from Itacuá Port.
- La Candelaria Port – Agroganadera Sanja Pyta S.A., km 694,5 M/I Concepción
- Amistad Port South American River Company S.A. (SARCOM S.A.), km 694,5 M/I Concepción
- Baden S.A. Port, Concepción
- Terminales y Logística Portuaria SA Port: Fuel Supply. Concepción

4.2.1.9. Use of Water Resources in AID

This section describes the issues related to water resources and their uses in the project's AID. The information already presented in the framework of social researches for the industrial component was taken as a basis, both at the level of departments and districts of said area. Likewise, the information is complemented with data obtained from primary sources, the product of the field survey that made it possible to know the value that the inhabitants give to these resources, to the use and availability of them, as a means of life, for home use, for use recreational, among others.

With regard to water resources, in the department of Concepción there are rivers: Paraguay, Apa, Aquidabán, Ypané; and approximately 60 streams; Among which are: Estrella, Sirena, Apamí, Primero, Quiensabe, Negla, Turmentina, Chacalnica, Tapyanguá, PitanoHaga, Guazú, Mbui'i, Ypanemí, Capiibary, Mboi Guazú.

From what was mentioned in the Municipal Development Plan 2016-2021, the territory of Concepción is located in the Aquidabán, Amambay and part of the Central Jungle Ecoregions.

Among the AID districts of the project, San Alfredo, according to data from its Municipal Development Plan, is also watered by two main rivers; the Paraguay, navigable throughout its course by deep draft vessels, and the Aquidabán. The streams that bathe the territory between which is the Tagatiyá; as well as several streams and estuaries in the area, which allow a good irrigation of the district⁵⁹.

The waters of the Paraguay River also serve for the operation of local industries that are supplied by the river. This is the case of Frigorífico Concepción, both in the meat industry and in the tannery. This industry captures water from the river, makes it drinkable in its own treatment plant, uses it, reconditions it through a decontamination process and returns it to the river. The Frigorífico Athena Foods in Belén uses the waters of the Ypané to carry out its operations.

Likewise, the river is an important means of communication, since ships, boats and barges cross its waters to reach various towns such as Puerto Pinasco, Puerto Casado, Vallemí, Fuerte

59 Municipal Development Plan of San Alfredo 2016-2020.

Olimpo, transporting food, fuel and passengers. The Aquidabán ship makes regular trips, once a week, from Asunción to Bahía Negra.

During the field data collection work in the AID districts and localities, it was evident that numerous activities (economic, social, etc.) revolve around these important roads; mainly the Aquidabán River. The latter being mentioned repeatedly by residents of the area, linked to productive and recreational activities, among others; and, finally, they commented on the existence of water and sanitation boards in the area.

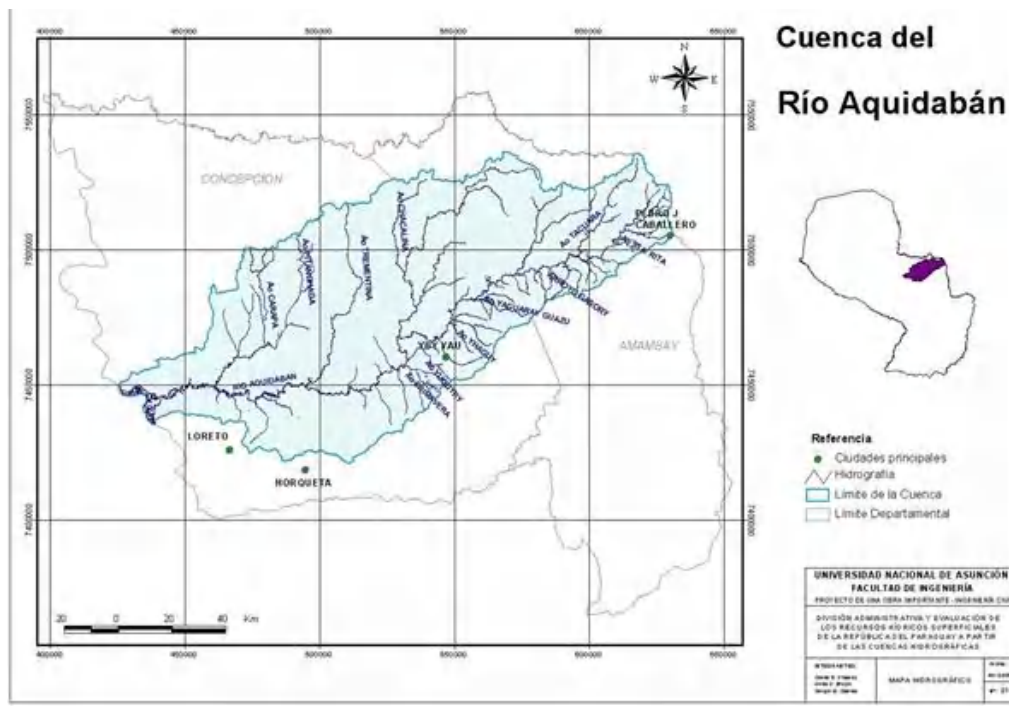
Illustration 17. Aquidabán River in the Paso Barreto area; sub-basin, Paraguay river basin



The basin has an area of 11,768 square kilometers, with a main channel of 250 kilometers in length and according to the material consulted, the districts that encompass the Aquidabán river basin are: Pedro Juan Caballero and Bella Vista Norte, in the department of Amambay, where it crosses the Cerro Corá National Park; and those of Yby Yau, Loreto, Horqueta and Concepción, in the first department. Due to the creation of new districts, San Alfredo and Paso Barreto are added to the north bank of the river and Arroyito to the south bank of it. Some access points are Colonia Aquidabán Cañada, Colonia Punta Pora Ñu, Colonia Ñepotyvo. Several bridges cross it, such as Paso Horqueta and Paso Barreto.

On the Aquidabán River, in Paso Horqueta, 40 km from Concepción, on the road to Vallemí there are public beaches. In the same area there are also recreational spaces in Paso Barreto (65 km from Concepción); and Paso Urunday, Horqueta district, which is about 15 km from the Bernardino Caballero route, at km 70.

Map 8. Graphic representation of the Aquidabán River Basin



Source: <http://jrpa1.blogspot.com/2011/12/la-subcuenca-del-rio-aquidaban-cuenca.html>

Chart 35 shows the departments and districts that occupy the sub-basin.

Chart 35. Area and percentages of area of districts in the Aquidabán basin

Department	Municipality	Total Area (km ²)	Basin Area (km ²)	Basin Percentage (%)	Basin Percentage (%)
Concepción	Concepción	9,616.41	4,958.90	51.57	42.16
	Horqueta	2,823.07	933.78	33.08	7.94
	Loreto	810.67	622.59	76.8	5.29
	Yby Yau	2,169.32	925.82	42.68	7.87
	Subtotal	18,384.05	7,441.09	40.48	63.26
Amambay	Bella Vista	3,787.85	2,622.75	69.24	22.3
	PJC	5,259.57	1,687.99	32.09	14.35
	Subtotal	12,660.64	4,310.74	34.05	36.64
TOTAL			11,751.83		100

Source: Chávez, 2005. Own Elaboration.

In the departments and districts included in the Chart, particularly in the districts involved in the project's AID, according to consulted sources and through field work, it was possible to evidence that various activities are carried out around the areas of the Aquidabán river basin.

In the document "Uses and governance of water in Paraguay", prepared by UNDP (2016) mentions that the department of Concepción is located on the Quaternary aquifer, using 60% to meet the needs of its inhabitants. The other 40% do so through surface waters.

Regarding household use of water, according to the Environmental Statistical Compendium (2017), Concepción has an ESSAP provider and 837 from SENASA at the departmental level. ESSAP has 7,572 connections; while SENASA 19,624. There are also 6,689 connections that correspond to other providers. ESSAP takes the water from the Paraguay River to supply its users.

Regarding sanitary sewerage, ESSAP is the only company that provides this service in the capital of the department with 3,691 connections, which constitutes approximately 7% of the total population of the department; and 20% from the district of Concepción. The other places in the department do not have this service. The population supplied with drinking water is 37,860 through ESSAP, 83,937 through SENASA and 34,114 others. On the other hand, the population cleaned up by ESSAP is 18,455, which covers approximately 10% of the total for the department.

For its part, the evolution of drinking water connections has been from 5,246 in 2008 to 7,572 in 2017, which constitutes an increase of more than 44% in less than ten years. That meant going from 26,230 people with drinking water supply, to 37,860 in the mentioned period. The connection to the sewerage network went from 2,104 in 2008 to 3,691 in 2017, increasing by 75%. The benefited population rose from 10,520 to 18,455 people.

Likewise, as already mentioned, the river is an important means of communication; ships, boats and barges ply its waters to reach various towns such as Puerto Pinasco, Puerto Casado, Vallemí, Fuerte Olimpo, transporting food, fuel and passengers. The Aquidabán ship makes regular trips once a week from Asunción to Bahía Negra. According to the records provided by SENASA, in the department there are about 155 artesian wells distributed in the districts of Concepción, Horqueta, Loreto, Paso Barreto, Belén, San Alfredo, San Carlos, San Lázaro and Sgto. José Félix López. Their distribution is detailed in the following Chart.

Chart 36. Artesian Wells in the Department of Concepción

Department	District	Number of wells	% in relation to the total in the department
Concepción	Horqueta	70	45.2%
	Concepción	44	28.4%
	Loreto	17	11.0%
	Belén	11	7.1%
	Sgto. José Félix López	7	4.5%
	San Lázaro	2	1.3%
	Paso Barreto	2	1.3%
	San Carlos	1	0.6%
	San Alfredo	1	0.6%
TOTAL		155	100%

Source: Elaboration based on information provided by SENASA, 2020.

Waterways - Livelihoods

An important productive activity, linked to the use of water courses in the area, is fishing. In the city of Concepción there are two fishermen's associations, one of which is inactive. The Nanawa Professional Fishermen Association has 25 members and they market their fish at the roundabout at the entrance to the city. On the other hand, there is an Association of Professional and Commercial Fishermen of the Aquidabán River (APRAPY), based in Pedro Juan Caballero; and another in the town of Paso Mbutu, Horqueta. As mentioned during the field work, in Paso Barreto a fishermen's association was recently promoted, but it has not yet been recognized by the Municipality. Likewise, there are cases of people who are engaged in fishing but are not currently unionized.

Tourist attractions linked to water resources

As indicated in the section "Tourism and Culture in AID" of this document, there are numerous tourist attractions in the area, particularly those related to water resources such as rivers and streams; these make it possible to carry out sports activities in the open air, walks, navigation, fishing, among others.

Illustration 18. Picture registry of economical activities



Source: *Varied Supply in the North ABC (2016)*⁶⁰

60 Available at: <https://www.abc.com.py/edicion-impresia/interior/variada-oferta-en-el-norte-1527176.html>

Illustration 19. Picture record of economic activities



Source: Picture record of field work Consulting Team. Concepción. August-September 2020.



Source: Concepción News (2017).⁶¹



Source: Picture record of field work Consulting Team. Concepción. August-September 2020.

Watering Places at Concepción Department

Regarding the recreational use of water resources, there are currently 17 known watering places, of which five are authorized by MADES. In Chart 37. Watering places in the department of Concepción, these spas are listed.

Chart 37. Watering Places in the department of Concepción

Watering Place	District	Authorized by MADES
B. Pororo	Belén	
B. Ysry	Belén	X
B. San Blás	Concepción	
Ranch Morel	Concepción	
Farm JC VIP	Concepción	
Recreational Center Las Palmas	Concepción	
Mega Mix Resource	Concepción	
B. Itá	Concepción	
Farm Don Papito	Concepción	
Farm Don Papito	Horqueta	
Ranch Morel	Horqueta	
B. El Rancho	Horqueta	X
Farm San Miguel	Horqueta	
B. Tagatiyá	San Alfredo	
B. Tres Mangos	San Alfredo	X
B. Tres Cerros	San Alfredo	
Ranch San Juan Tagatiyami	San Alfredo	X
B. Dos Ambientes	Yby Yau	X

Source: Elaboration based on information provided by Concepción Governorate.

61 Available at: <https://www.concepcion-py.com/2017/12/concepcion-ofrecen-bellas-playas-para.html?m=1>

The people involved in the consultations mentioned that the main activities related to the attractions of the area are games on the beach and fishing in the Aquidabán River, Paso Barreto and Paso Mbutu. Places where many people gather from different parts of the country, especially at the end of the year; the Itaky stream or the Apa river in the Pyahu North Settlement, in the Puentesíño community; and also fishing activities in the Yvu stream area in Islería.

4.2.1.10. Land use in the AID

Land use

In this section, information related to land use related to forest plantations in the areas involved in the project's AID is initially presented; likewise, a brief description of the main productive activities of each district is made; types of crops and the change in land use in these areas and their consequences. Finally, the characterization includes issues related to land tenure in the area and problems related to it, which persist to this day.

Land use linked to forest plantations in the AID

The primary sector in the department of Concepción occupies 40.9% of the PEA out of a total employed population of 226,585, according to data provided by the DGEEC within the framework of this study and based on the 2012 National Population and Housing Census (and updates). In other words, this percentage of the population is engaged in productive activities such as agriculture, livestock, fishing and hunting. Likewise, as can be seen in Chart 38, 15.7% of the employed population carries out activities related to the secondary sector and, to a greater extent, 42.2% to the tertiary sector

Chart 38. Data on the employed population by economic sector in the department of Concepción

Characteristics Department of Concepción	
Population Data	Percentage (%)
Total Population^(*)	226,585
Economic sector of the employed population ^(a)	
Primary	40.9
Secondary	15.7
Tertiary	42.2
Not reported	1.2

Source: STP/DGEEC. National Census about Population and Housing, 2012⁶² and updates

62 (*) Figures adjusted with an expansion factor calculated based on population projections by sex and age, for population data. Revision 2015. (a) Economic Sector of the employed population: Employed population 12 years old and older that belongs to a specific branch of activity, where the primary sector comprises agriculture, livestock, hunting and fishing; the secondary sector includes manufacturing, construction, mining and quarrying industries; the tertiary sector includes electricity, gas and water, commerce, restaurants and hotels, transportation, storage and communications, finance, insurance, real estate, community, social and personal services; and not informed.

As for the department of Amambay, according to data from the Permanent Household Survey 2017⁶³, 11.27% of the PEA is devoted to productive activities linked to the primary sector, out of a total employed population of 77,418 people.

Along the same lines, other sources were consulted such as municipal development plans and local health plans, sources that have this type of information at the local level; and in which reference is made to productive activities of the primary sector, linked to the use of land in each district of the AID, these are presented below:

Chart 39. Productive activities by district

District	Productive Activity
Horqueta	Agriculture, specifically farming of cotton, spurge, beans, cassava, corn, seasonal fruits, yerba mate processors, stevia, forestry, and livestock. It has industries that are devoted to the production of agricultural products, oil and cotton gin, bakeries, ice cream parlors, carpentry shops, tanneries, printers, sawmills, tiles and leather crafts. There are also shops in the area.
Loreto	Agriculture for self-consumption and sale, livestock, poultry, pigs, goats and cattle. Characterized by the production of sesame, watermelon, melon, cassava, vegetables, etc. On a smaller scale, services and commerce activities are observed.
Arroyito	Agriculture (family farming), horticulture, items such as cotton, spurge, corn, cassava, sugar cane, tupi corn, watermelon, beans, are some of the main areas of self-consumption and income in the area. It has small raw material processors, milk and yogurt producer and distributor, bakery, carpentry, clothing. There is business development on the rise.
Paso Barreto	Wetland area, low fertility soil for large-scale agriculture (agricultural and horticultural production only for self-consumption), and important livestock activity in large areas. The inhabitants are small ranchers or farm laborers. They are also engaged in general commerce in urban areas and in the wood industry.
Sargento José Félix López	Inhabitants are dedicated to livestock, forestry and agriculture for self-consumption, these activities are also related to the work in the estancias of the district and the sawyers in that area.
San Alfredo	The settlers work in the activities of exploitation of wood, livestock, agriculture. The riparian settlers such as Itakua, Guyrati, Itapukumi live from hunting, fishing, mining and liming.

Source: Elaboration based on municipal development plans and health local plans

In the case of Amambay, in the municipal development plan of the Bella Vista district it is mentioned that there is agricultural and livestock production; however, its border trade stands out above all because it is opposite the Brazilian city of the same name (Bela Vista). In relation to livestock production, they have cattle, horses, sheep and goats, in much of the area.

Land according to use

Considering information provided by MAG, it can be stated that in the districts of Concepción that make up the project's AID, there are 10,623 agricultural farms; 9,742 are farms with temporary and permanent crops; 9,546 farms with other uses; and 5,946 farms with natural and

63 Social researches. Preliminary Environmental Impact Study. Item. 4.1.3.1 Summary of the main labor market indicators. Paracel. Page 38.

cultivated pasture. To a lesser extent, the existence of fallow farms was identified, and farms with natural forests and planted forest trees, as can be seen in the following Chart.

Chart 40. Land according to its usage in number of farms AID districts, Department of Concepción

Districts of the AID of Concepción	Total, agricultural farm	Land Usage				
		Farms with temporary and permanent crops	Farms with natural and cultivate pasture	Farms with natural mountains, planted forest trees	Farms with fallow, resting (Cocuere)	Farms with other uses (occupied by the house, rocky areas, estuary)
Sgto. J.F. López	771	750	599	590	374	752
San Alfredo	309	248	230	143	101	303
Paso Barreto	406	183	256	186	135	384
Arroyito	1,770	1,683	975	643	976	1,645
Horqueta	5,305	4,971	2,843	2,190	2,531	4,670
Loreto	2,062	1,907	1,043	665	1,011	1,792
Total	10,623	9,742	5,946	4,417	5,128	9,546

Source: DCEA-MAG based on Agricultural Census 2008 and updates. Own elaboration (September 2020)

Horqueta is the district that stands out for the largest number of agricultural farms, having 93% with temporary and permanent crops. This average is maintained in almost all the districts, except in San Alfredo (80%) and Paso Barreto where it only reaches 45%. The district with the highest percentage of natural forests and planted forest trees is the district of Sgto. José Félix López with 76%. The district with the fewest forest plantations is Loreto, with only 32% of the farms with natural forests or planted forest trees.

Chart 41. Land according to its use in number of farms in the Bella Vista district

District	Number of farms with lands	Farms with temporary and permanent crops	Farms with natural and cultivate pasture	Farms with natural mountains, planted forest trees	Farms with fallow, resting	Farms with lands destined for other uses
Bella Vista	516	243	483	357	177	198

Source: National Agricultural Census 2008. Own Elaboration.

In the Bella Vista district, according to the National Agricultural Census (2008) out of 516 farms, 483 contain pasture, 357 natural and forest mountains, 243 temporary and permanent crops and vegetables, 198 lands destined to other uses and 177 to fallow and in rest.

It also presents the detail of the surface (in hectares) of the farms according to the use of the land, in the AID districts of the department of Concepción.

Chart 42. Area of farms according to land use by AID districts

Districts	Total area of agricultural farms	Land usage (Ha)				
		Farms with temporary and permanent crops	Farms with natural and cultivated pasture	Farms with natural mountains, planted forest trees	Farms with fallow, resting (Cocuere)	Farms with other uses (occupied by the house, rocky areas, estuary)
Sgto. J.F. López	105,709	2,144	74,188	25,259	2,849	1,268
San Alfredo	296,078	1,203	220,499	51,486	5,987	16,902
Paso Barreto	284,480	250	248,486	33,364	411	1,970
Arroyito	65,340	9,199	45,082	6,267	3,205	1,587
Horqueta	130,388	31,885	70,521	15,416	7,776	4,789
Loreto	41,560	6,656	25,193	4,605	2,756	2,350
Total (Ha)	923,727	51,337	683,969	213,142	22,984	28,866

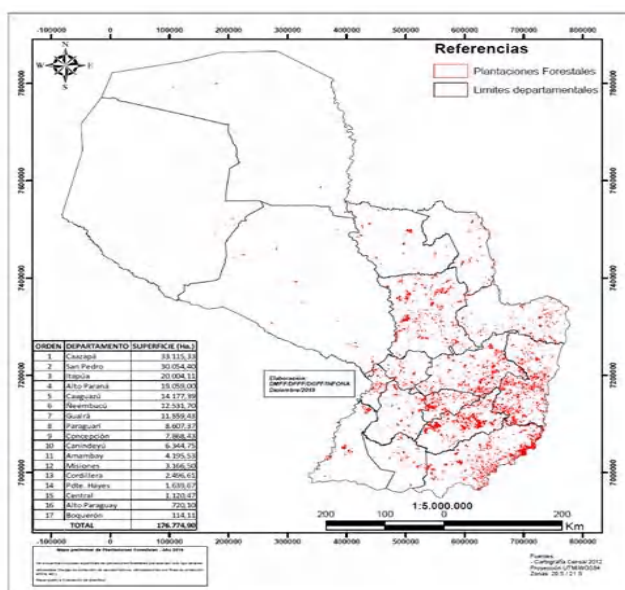
Source: DCEA-MAG based on Agricultural Census 2008 and updates. Own elaboration (September 2020)

It can be noticed that there is a high number of hectares destined for natural and cultivated pasture, followed by farms with natural forests and planted forest trees and in fewer hectares, farms with temporary and permanent crops, farms with other uses and farms with fallow.

Forest plantations

Among the documentation provided by the National Forest Institute (INFONA) within the framework of this report, there are figures (included in maps) regarding existing **Forest Plantation Areas** in the districts of the department of Concepción, involved in the project's AID; as well as **production forest coverage areas** and **potential forest development areas**, at the national and departmental level.

Map 9. Forest plantation areas. Year 2019

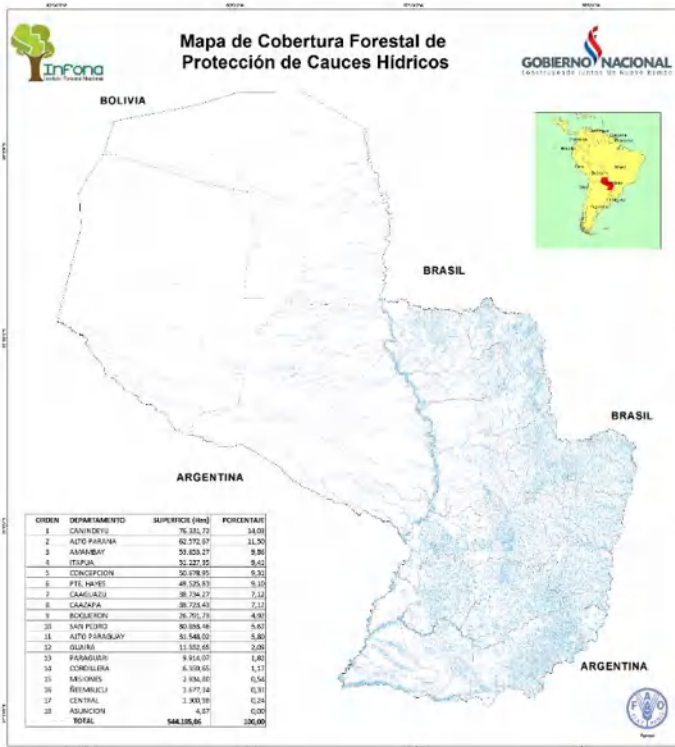


Source: INFONA – General Direction of Forestry Plantations. 2019

This map includes areas of forest plantations that cover all types of reforested area (protection strips of water courses, reforestations for wind protection purposes, etc.). The department with the largest reforested area is Caazapá with 33,115.33 ha, constituting 18.7% of the country's total; followed by San Pedro (17%) and Itapúa (11%). The department of Concepción is in ninth place with 7,868.43 ha (4.4%) and Amambay in eleventh place with 4,195.53 ha (2.3%).

According to INFONA (2018), in terms of forest coverage for the protection of water channels, those located within a margin of 100 meters on both banks of the water channels, cover 544,185.06 ha; Canindeyú being the department with the largest area with 76,331.72 ha (14%), followed by Alto Paraná with 11%, and Amambay in third place with 9.8%. Concepción is in fifth place with 50,678.95 ha (9.3%). The detail of the water channels is presented in Map 10. Forest coverage area for the protection of water channels. Year 2019:

Map 10. Forest coverage area for the protection of water courses. Year 2019



Source: INFONA - General Direction of Forestry Plantations. 2019

Forest Plantation Areas

According to INFONA data regarding forest plantation areas (referring to the areas that cover all types of reforested areas such as: protection strips of water channels, reforestations for wind protection purposes, etc.), the districts with the most forest plantations in the department of Concepción are Sgt. José Félix López with 3,785.78 ha, which constitutes almost half of the total (48%) and Concepción with 3,207.04 ha, with more than 40% of the total. The two districts with the smallest area are Horqueta and Yby Yau. Lastly, the district with the least amount is San Lázaro with just 8.24 ha. According to this source, the other districts of the department do not present forest plantations.

It is important to highlight that the Arroyito district is not mentioned because it was later distributed.

Chart 43. Areas related to forestry plantations

Order	District	Area (Ha)	%
1	Sgto. José Félix López	3,785.78	48.1%
2	Concepción	3,207.04	40.8%
3	Horqueta	382.75	4.9%
4	Yby Yau	382.47	4.9%
5	San Carlos del Apa	102.17	1.3%
6	San Lázaro	8.24	0.1%
7	Azotey	0.00	0.0%
8	Belén	0.00	0.0%
9	Loreto	0.00	0.0%
TOTAL		7,868.45	100%

Source: DGP/DFPF/DMPF. INFONA. 2020. Own Elaboration.

Production Potential Forest Cover Areas

Potential production forest cover zones is the denomination INFONA uses for areas with woody vegetation that could be available for use. In 2013, the total available in the country was 14,397,711.02 hectares.

Map 11. Potential Production Forest Cover Areas



Source: INFONA - General Direction of Forestry Plantations. 2019

Chart 44. Production Potential forest cover areas

Department	Area (Ha)	Percentage
Concepción	421,254.59	2.93
Amambay	238,629.99	1.66
Total	659,884.58	4.59

Source: INFONA, 2013. Own Elaboration.

According to the data provided, in Concepción there are 421,254.59 Ha, almost 3% of the national total, while in Amambay there is an area of 238,629.99 Ha (1.66%). Between both departments they add about 5% of hectares of potential production forest cover area at the time of the survey.

Potential Forest Development Areas

As indicated in the documentation provided by INFONA, the potential forest development zones are those areas available and/or suitable for the activity of forest plantations and they have been divided into three categories.

Those of category A: These are the areas obtained from the union between the 100 km areas of influence of the location of the forest industries and silos; and that they do not constitute areas of use of protective forest cover, forest plantations, native production forest cover, wetland coverage or urban area.

Category B: Are those areas whose current use is different from those named or identified and that do not constitute areas of use of forest cover, forest plantations, native production forest cover, wetland coverage, urban area, potential development zone A.

Potential development zone C: These refer to the zones obtained from the areas of extensive crops and that do not constitute areas of use of protective forest cover, forest plantations, native production forest cover, wetland coverage or urban area.

Once this classification has been made, they clarify that the areas generated include livestock production, due to not having the necessary information in this regard. The following Chart presents the figures related to the potential forest development zones in each AID department.

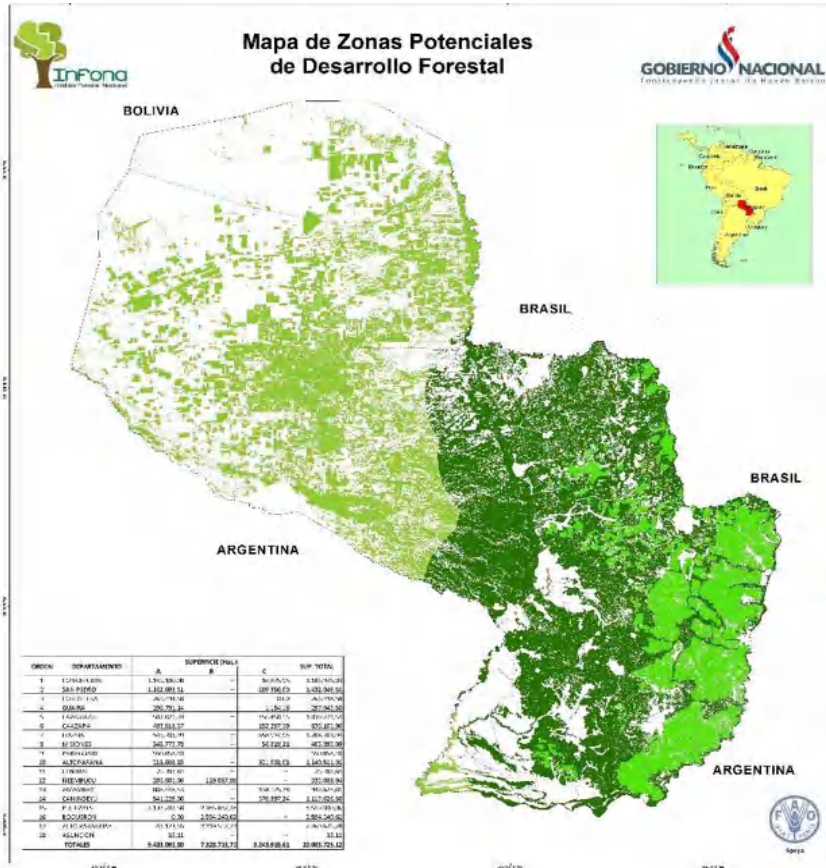
Chart 45. Area of potential forest development areas according to defined category

Area of potential forest development	Department	Category	Area (Ha)	Total Area (Ha)
	Concepción	A	1,169,100.08	1,185,973.03
		B	-	
		C	16,875.95	
	Amambay	A	808,448.53	942,623.81
		B	-	
C		134,175.28		
Total			2,128,596.84	

Source: Elaboration based on information provided by INFONA.

As can be seen in Chart 45. Area of potential forest development areas according to the defined category and in Map 11. Areas of potential production forest cover, there are 1,185,976.03 hectares in the department of Concepción and 942,623.81 in the department of Amambay, out of a total of 20,005,725.12 ha nationwide. Considering zones A and C, this constitutes 5.9% of the total in the department of Concepción and 4.7% in Amambay.

Map 12. Potential forest development areas



Source: INFONA - General Direction of Forestry Plantations. 2013

Crop Types

Regarding the types of crops, as indicated in a consultation source⁶⁴, from an analysis carried out of the report of the Statistical Synthesis of Agricultural Production 2017-2018 prepared by the Ministry of Agriculture and Livestock (MAG), it can be stated that the hectares used to the cultivation of soybeans in Concepción total 40,355 hectares. Corn for fuel occupies 8,222 ha, and sugar cane 321 ha. and rice 51 ha. Peasant family agriculture covers 21,443 ha., of which about 11,000 ha were destined to the cultivation of mandioc.

After 17 years, between 1991 and 2008, the period from the penultimate to the last agricultural census of Paraguay, the geographic space used by agriculture has increased by more than 11 thousand hectares in the department of Concepción, which shows an expansion of the productive sector. A more detailed analysis allows to appreciate; however, the activity that has advanced is mechanized agriculture while the traditional smallholding area of peasant families

64 Report about agribusiness in Paraguay. With soybean around the neck. BASE IS, 2019.

has been reduced. From approximately 60 thousand, the agricultural coverage in Concepción rises to more than 70 thousand hectares in the indicated time⁶⁵.

Peasant Family Farming

Regarding peasant family agriculture, a reduction of -33% is observed in the area dedicated to this sector in the country (166,347 ha) from 2002 to 2017. In the department of Concepción - 12%; and in Amambay -28%. And in greater proportion the difference existing in this period of time in relation to horticulture in Concepción this retraction represented -68% and in Amambay -72; which also denotes the change of category in these areas and from what is mentioned in the reference material, to the small horticultural producer, who due to low profitability ends up selling, parceling out or transferring their land to agribusiness⁶⁶.

Analyzing Family Farming (AF) data, also addressed by the CAN, a marked decrease in the number of family farming farms and an increase in Medium and Large Producers (MGP) farms has been found; which indicates an intensification of the land concentration. This dynamic of decrease in AF compared to other types of production, such as business agriculture, has direct effects on food security, considering that food production occurs to a large extent in the AF segment⁶⁷.

Chart 46. Families dedicated to Family Farming and registered in the RENAF

Department	Universe	Registered	%
Concepción	16,337	14,353	88%
Amambay	3,807	2,536	67%

Source: MAG. <https://es.slideshare.net/FAOoftheUN/registro-de-la-agricultura-familiar-experiencia-mag-renabe-paraguay>

Illustration 20. Representative picture of the extensive agriculture



During the consultations, expressions of fear were expressed regarding the use of agrochemicals, due to the possible negative impacts that may occur in relation to the environment and the health of the population. In addition, the importance of involving producers in the different stages of the project was continuously highlighted.

65 The movement of peasant agriculture from the territory of the Department of Concepción, Paraguay. Pereira, 2011,

66 Mapping Adribusiness in Paraguay. BASE-IS. December 2018.

67 Source: Social, economic and environmental análisis of soy and meat production in Paraguay. WWF Paraguay -2016

Regarding this point, Law No. 6286 (May 17, 2019) was recently enacted by the national government, which through it recognizes the productive activities carried out by peasant family agriculture in order to achieve recovery and consolidation of this productive sector⁶⁸.

Cattle raising

In the social researches report prepared for the industrial component of the project⁶⁹, mention is made that livestock as the predominant activity in the area, occupies three-quarters of the territory of the department according to the publication "Concepción, demographic and socioeconomic characteristics, 2002", occupying, at that time, 5% of the PEA. While only 4% of the total area was used in agriculture, which occupied more than 38% of the PEA. The forested area represented 17% of all land in the department, according to data from the Agricultural Survey by Sampling carried out in 2002 by the Directorate of Agricultural Censuses and Statistics of the Ministry of Agriculture and Livestock.

This same source mentions that the territory used by livestock until 2002 was 76% for natural and implanted pastures, 17% natural or cultivated forests, and the rest temporary and permanent crops, fallow or for other uses.

Of the totality of lands occupied by livestock; the author Hugo Pereira, taking as a source the publication "Territory and Population", states that around 100,000 hectares of the Concepción district are in the hands of Brazilian owners (54 farms); and approximately 46,000 hectares of the entire department are occupied by 8 farms⁷⁰.

Illustration 21. Representative picture of the extensive agriculture



In the departments of Concepción and Amambay, in 2019 approximately 15% of the head of cattle in the country is concentrated, with the highest production in the department of Concepción. Chart 47. Existence of cattle per year, in Concepción and Amambay. 2015-2017-2019 presents the figures in this regard.

Chart 47. Existence of cattle per year, in Concepción and Amambay. 2015-2017-2019

Department	2015	%	2017	%	2019	%
Total Country	14,216,200	100	13,821,500	100	13,801,993	100
Concepción	1,226,100	8.6	1,158,600	8.4	1,104,572	8

68 Source: Official page Senate Chamber. <http://www.senado.gov.py/index.php/noticias/noticias-generales/3050-se-aprueba-ley-que-favorece-a-la-agricultura-familiar-campesina-2019-05-22-1>

69 Social Researches – Preliminary Environmental Impact Study. Item. 4.1.6. Land Usage. Paracel. Page 74

70 Department of Concepción-Wealth and Inequality. Hugo Pereira. 2009. Page 81

Amambay	1,018,200	7.2	970,100	7	923,581	6.7
Total, Concepción / Amambay	2,244,300	15.8	2,128,700	15.4	2,028,153	14.7

Source: Statistical Yearbooks 2015/2017/2019. SENACSA. Own Elaboration

Another source of consultation highlights that, although there are high percentages of beef production in the areas involved in the AID, this has not consequently meant a decrease in poverty levels that still remain high, as can be seen in Table 48.

Chart 48. Comparative data on poverty levels and their relationship with beef production (livestock)

Department	Land Holders 2019	Total cattle by department	% poverty	% extreme poverty
Concepción	14.069	1.104.572	43,97	6,53
Amambay	2.240	923.581	15,24	3,28

Source: Article published in Biodiversidad-La.org. April 2018, data from the DGEEC-EPH 2017 and SENACSA 2019. Own Elaboration.

Land Distribution

Regarding the distribution of land by districts, according to data from the 2008 Agricultural Census, Concepción is the district with the largest number of farms and area, followed by Yby Yaú and Horqueta. It is worth mentioning that the surfaces of these two districts were modified after the Census, due to landslides and the creation of new districts.

Likewise, the fact that the vast majority of farms are managed by a single producer in the four AID districts, as well as in the entire department of Concepción, stands out. Table 49. Distribution of land by district, department of Concepción presents data in this regard.

Chart 49. Distribution of land by district, department of Concepción

Districts Department of Concepción	Number of farms	Total Area (Ha)	Farm Management				
			Only one producer	Two or more associate producers	A company or society legally constituted	The State	Others
Concepción	4,214	924,385	4,083	61	59	2	9
Belén	1,479	16,080	1,421	57	1	-	-
Horqueta	7,075	195,727	6,870	183	17	1	4
Loreto	2,062	41,560	2,032	28	2	-	-
San Carlos del Apa	86	62,146	77	9	-	-	-
San Lázaro	219	56,161	199	19	1	-	-
Yby Yaú	2,242	323,357	2,127	74	35	1	5

Source: National Agricultural Census 2008. Own Elaboration

The dominance of a single producer is verified in all farm management strata, either by use of family labor or hired as day laborers.

Chart 50. Number of farms according to use of inputs

District	Number of farms using technical supplies	Uses hybrid seed	Uses genetically modified seed (Transgenic)	Uses agricultural lime	Uses chemical fertilizers (fertilizers)	Uses pesticides (herbicides – matayuyo)	Uses veterinary products (antiparasitic and curabichera)
Sgto. J.F. López	533	94	4	2	22	430	246
San Alfredo	109	0	2	3	10	10	103
Paso Barreto	345	74	0	1	17	2	320
Arroyito	1,353	272	2	65	101	895	824
Horqueta	3,693	628	61	242	650	1,916	2,635
Loreto	1,660	712	253	225	499	825	1,060
Total	7,693	1,780	322	538	1,299	4,078	5,188

Source: Information provided by the DCEA-MAG based on the 2008 Agricultural Census and updates (September 2020)

As a percentage, the district that uses the most hybrid seeds is Loreto, being the district with the most use of transgenic seeds, where it stands out above all other districts. Likewise, this is maintained in terms of the use of chemical fertilizers, although in number it is surpassed by Horqueta. Both districts have about 50% in terms of pesticide use. The district with the least use of inputs is San Alfredo.

Chart 51. Farms according to use of inputs. Bella Vista District

Department and District	Number of farms using technical supplies	Supplies					
		Uses hybrid seed	Uses genetically modified seed (Transgenic)	Uses agricultural lime	Uses chemical fertilizers (fertilizers)	Uses pesticides (herbicides – matayuyo)	Uses veterinary products (antiparasitic and curabichera)
Amambay	3,424	1,068	293	194	409	2,046	2,090
Bella vista	401	77	4	4	3	59	348

Source: National Agricultural Census 2008

In Amambay, Bella Vista owns about 12% of the total farms in the department. Of these, less than 20% use hybrid seeds and only 1% work with genetically modified seeds. That same percentage uses agricultural lime and less than 1% uses chemical fertilizers. Around 15% use pesticides and more than 86% apply veterinary products.

Chart 52. Number of farms according to soil management and conservation-AID districts

Districts	Number of farms with soil management	Level Curve	Crop Rotation	Green Manure	Plots with organic production certification	Direct sowing	Others
Sgto. J.F. López	637	2	616	0	0	119	7
San Alfredo	46	3	43	0	0	1	1
Paso Barreto	122	2	113	0	0	1	8

Arroyito	964	18	921	5	86	6	100
Horqueta	3,618	53	3,099	62	45	183	483
Loreto	1,428	41	1,333	26	56	51	132
Total	6,815	119	6,125	93	187	361	731

Source: Information provided by the DCEA-MAG based on the 2008 Agricultural Census and updates (set, 2020)

With regard to the management and conservation of soils at the district level, Horqueta, Loreto and Arroyito lead the list of use of conservation techniques; which could be linked to the work/enforceability of peasant organizations given the need for support and technical assistance in development programs and/or projects with an emphasis on said issue.

Likewise, the figures related to the management and conservation of soils in Bella Vista Norte, Amambay are presented below:

Chart 53. Management and Conservation of Soils, number of farms according to management in Department of Amambay, district of Bella Vista

Distritos	Cantidad de fincas con manejo de suelos	Manejo y conservación de suelos					
		Curva a nivel	Rotación de cultivos	Abono verde	Parcelas con certificación de producción orgánica	Siembra directa	Otros
Amambay	1,715	307	1.123	10	39	740	241
Bella Vista	95	47	9	-	-	32	15

Source: National Agricultural Census 2008

Land Distribution and problems that persist

In terms of distribution and forms of land tenure in the AID, particularly in the department of Concepción, it has been important to turn to sources that contain information regarding the origins of historical problems that persist to date with socioeconomic, environmental and political consequences for the population, of which the following aspects stand out:

- Transgenization and loss of peasant territories due to the advance of agribusiness⁷¹.
- High amount of production in the area vs. persistence of the percentages of poverty and inequality.
- A relegated and fragile territory with a constant presence of armed groups such as the so-called Paraguayan People's Army (EPP) and the Joint Task Force (FTC).
- 16.5% of the territory of Concepción (267,446.99 hectares) is currently owned by foreigners. Between 1991 and 2008, almost 110,000 more hectares passed into foreign hands. Brazilian landowners own more territory than Yby Yaú, the third largest district in the department of Concepción, which has a little more than 217,000 hectares⁷².
- On the other hand, several AID districts constitute areas where several raids of marijuana crops have been carried out, according to different journalistic publications consulted. In this regard, a publication of Última Hora (2017), since its inception in Amambay and its passage to Canindeyú, the Cannabis Sativa plantations now green in clearings in the mountains of Concepción, San Pedro, Caazapá, Caaguazú, Alto Paraná and Itapúa.
 - According to the same publication, a study carried out by SENAD, by the statistical production in the eradication operations, as well as in the aerial reconnaissance overflights carried out to locate the crops, it is appreciated that the majority of these are located in the reserves of agricultural and livestock establishments; in second order in the lands destined to the peasant settlements (colonies); and to a lesser extent in parks managed by the State. According to estimates made by SENAD, at present some 20,000 peasants are engaged in cultivation, recruited by necessity and lack of opportunities.

Illustration 22. Photographs alluding to the presence of armed groups in the area



National Police and Armed Forces arrive to a Base of the FTC in Arroyito. Source: Última Hora (09/2020).⁷³



Ten Tons of Marijuana are destroyed in Concepción. Source Megacadena (July 2020)⁷⁴

71 Peasant Colonies in Paraguay. Rojas and Areco. Introduction (Fogel Ramón)-Base IS (Social Investigations) December 2017- Page 7

72 Pereira Hugo, 2011

73 Available at: <https://www.ultimahora.com/llegan-refuerzos-el-norte-del-pais-casi-800-policias-y-militares-n2904948.html>

74 Available at: <https://megacadena.com.py/destruyen-10-toneladas-de-marihuana-en-concepcion/>

4.2.1.11. Natural Heritage

In relation to the natural heritage existing in the areas involved in the project, as mentioned in the report/social researches for the industrial component, this name is given to the set of natural or environmental assets and wealth that society has inherited from their predecessors. It is made up of: natural monuments made up of physical and biological formations or groups of those formations that have exceptional universal value from an aesthetic or scientific point of view; geological and physiographic formations; and the strictly delimited areas that constitute the habitat of threatened or endangered animal and plant species; natural places or strictly delimited natural areas (such as national parks, natural reserves, conservation areas, among others) that have an exceptional value from the point of view of science, conservation or natural beauty⁷⁵.

Next, the Protected Areas and Reserves identified in the project's areas of influence are presented according to consulted sources.

Chart 54. Relevant natural heritage list: Protected Areas and Reserves in project areas

	Natural Heritage	Area (Ha.)	Norm of Creation	Department/District	All/AID
1	Paso Bravo National Park	93,612	Decree N° 20.712/98	Concepción/San Carlos Apa	All
2	Serranía San Luis National Park (1991/2010)	10,282	Decree N° 11.964/91	San Alfredo	AID
3	Bellavista National Park	7,397	Decree N° 20.713	Bella Vista	AID
4	Cerrados del Tagatiya Private Natural Reserve	5,281	Decree N° 7.791/06	Concepción/San Alfredo	AID
5	Tagatiya mi Private Natural Reserve	28,755	N° 10.396/07	Concepción/San Carlos Apa-	All
6	Natural Monument Santa Elena	36	Law N° 4.577/11	Concepción/San Lázaro	All
7	Natural Monument Cavern Kamba hopo	17	Law N° 4.577/11	Concepción/San Lázaro	All
8	Natural Monument Tres Cerros	140	Law N° 4.577/11	Concepción/San Lázaro	All
8	Natural Monument Cerro Morado Cavern Ycua pa`i	77	Law N° 4.577/11	Concepción/San Lázaro	All
10	Guayacan I, II y III Private Natural Reserve	1,447	Decree 1230/	Concepción/San Alfredo	All
11	Kai Rague Private Natural Reserve	1,769	Without data	Amambay /Capitán Bado	All
12	RAMSAR Milagro Estuary	26,503	Law N° 350/94	San Pedro	All
13	Arrecife Private Natural Reserve	7,812	Without data	Concepción/San Carlos Apa	All
14	Biosphere Reserve of Cerrados of the Apa River	267,836	Executive Power	Concepción/Am ambay	All /AID

75 https://moodle2.unid.edu.mx/dts_cursos_md/lic/ET/FT/AM/09/Patrimonio_clasificacion_y_definiciones.pdf

			Decree N° 14.431		
		183,128			

Source: MADES, 2018; Guyra Paraguay, 2007 IBas. Among the important areas as bird conservation sites (Ibas), there are 4 recognized for the study area (Guyra, 2017): Ypane medio - Arroyo Tagatiya - Estrella and Cerrados de Concepción

From another source it is stated that Concepción has the second most extensive wooded area in that area. According to data from the agricultural census of 2008, the natural forests and cultivated forest plantations cover more than 233 thousand hectares of the first department, which represent approximately 14% of the entire forest area of the Eastern region. It is the second largest department in the eastern region of Paraguay⁷⁶.

Two public protected wild areas, Paso Bravo National Park and Serranía San Luis, located in the north of the department concentrate more than 113,000 hectares while two private reserves cover almost 40,000 hectares of forests. To all this, there must be added more than 157,000 hectares of biosphere reserves, of the Cerrado ecosystem of the Apa river, shared by the departments of Concepción and Amambay (SEAM, DGECC, 2010).

The Cerrado Biosphere Reserve of the Apa River, which protects representative samples of the Cerrado ecoregion. It was created in 2001 by Executive Decree No. 14,431, with an area of 267,836 ha, located in the departments of Concepción and Amambay. Its core areas are the Paso Bravo National Park and the San Luis National Park (SINASIP, 2007).

In the Annex, a complementary baseline report of the Heritage Study of the industrial component is presented, giving further details of the forest component AID districts.

Cerrados del Tagatiyá Natural Reserve

The reserve represents the most direct physical corridor between the Paso Bravo (to the East) and Serranía San Luis (to the West) national parks; interconnecting these areas, which will enhance the comprehensive protection of the eco-diversity contained in the region. There is a part of the upper basin of the Tagatiyá Guasu River, of impressive scenic beauty and high fragility (Clark, 2012).

According to the Technical Justification document for the reserve (2004), there are three key elements when evaluating the quality of the Garay Cué ranch in relation to the conservation of biodiversity:

- The ranch is the **most direct physical corridor** between the Paso Bravo National Parks (to the east) and Serranía San Luis (to the west), interconnecting these areas, which will enhance the comprehensive protection of the natural resources contained in the region.
- Most of the **upper basin of the Tagatiyá Guasu River**, of impressive scenic beauty and high fragility, is **made up of no more than four properties**, three of them, Paso Bravo National Park, Estancia Garay Cué and an indigenous community that would

76 According to Pereira, 2013.

grant protection to it. Based on this initiative, a watershed management strategy could be designed.

- The northern portion of the property is frequently **visited** by a group of **gua'a pyta** and **hovy**, relevant elements of this natural area. Therefore, protecting this portion of habitat will contribute to the conservation of the species in the region.

Tagatiya Mi Natural Reserve

Clark (2012) mentions that it covers 33,000 hectares in the department of Concepción, also forming an eco-diversity corridor such as the Cerrados del Tagatiyá nature reserve to the south. There are gallery forest, thicket and natural grassland. It was established by decree No. 10,396 in 2007.

The reserve forms a bridge or boreal ecological corridor between the San Luis National Park and the Paso Bravo National Park, which increases the dispersal range of species with wide *home ranges*. So, with the important ecological characteristics of the reserve as a corridor, the role of the neighboring conservation units is more efficient and the viability of the populations is ensured for a prolonged period of time. Another important aspect of the area is that it is located in a confluence zone of different ecoregions. This is demonstrated by the variety of fauna that presents both elements from Chaco and from the Upper Paraná (BAAPA) and Cerrado Atlantic Forest.

The towns closest to the reserve area are: San Alfredo, 45 km; Tres Loma, 20 km; Itacal, 30 km; Pto. Fonciere, 30 km; San Lázaro, 25 km; Saint Charles; 20 km; human settlements of Ex Antebí, 60km. All these communities have some communication via land with the reserve⁷⁷ (Ibídem).

4.2.1.12. Organization and Territory

Considering the community as a process of social construction implies recognizing and interpreting the dynamics at the local level; the extension of the territory in its spatial and social dimension.

Therefore, in order to understand the influence of social processes, it is necessary to take into account two key factors: the geographical limits and the spaces where the community interconnects (institutions, squares, recreational centers, meeting places and common interest, associations, organizations, expressions of identity, among others).

Relating these aspects, it should be noted that it is precisely the social actors who build the territory and converge around general and collective interests.

In this sense, based on data provided by key actors at the local level, from the social work in the field carried out during the period of information gathering, it was possible to identify some elements in terms of social territory; among which are noted:

Connecting roads: A map⁷⁸ was drawn up in order to visualize the main access roads to the prospected forest fields. A matrix⁷⁹ where the inter-district road connections and existing

77 Clark, P. 2012. SPSs del Cerrado. <http://parquesnacionalesdelparaguay.blogspot.com/2012/10/asps-del-cerrado.html>

78 Map 2. Main Access roads related to the project.

79 See Table 33. National and internal roads of inter-districtal connection

localities are visualized and some community files⁸⁰ where the roads most used by the inhabitants of the area are identified.

These roads interconnect with sites where service institutions, shops, recreation spaces, food supply centers are located. They are channels for the transfer of local products for their distribution and commercialization, they are routes that connect with national routes and allow access to the urban centers of the communities and district capitals. Some of them are in poor condition and are impassable in the rainy season and others are in the improvement stage (in previous processes and in asphalt paving works).

Being the territory an eminently rural area, where the health infrastructure and the educational offer is limited; and in which agricultural production predominates, land access roads are necessary aspects for the development of communities; hence the importance of having roads in permanent accessibility conditions.

Community organization: The residents get together in search of solutions to problems of a social, economic, cultural, recreational and productive nature.

The organization facilitates the opportunity for management at the community level, with central governments and other groups in society. Likewise, they are spaces that promote cohesion, cooperation and articulation of the population according to the needs, interests and improvement of the quality of life.

In the identified communities there are organizations linked to different thematic areas such as: educational, cultural, promotion and local development, production, water supply, health and sports.

Below is a list based on the organizations referenced during the field survey process.

Chart 55. Organizations at the local level

District	Locality	Organizations/ Associations
Loreto	Virgen del Camino	Virgen del Camino neighborhood commission Virgen del Camino Sanitation Board Committee of women producers Mburukuja Poty. Base delegates of the Catholic Church Farmers Committee Teachers affiliated to OTEO AND SINADIS Associated with the FNC, and Tekopyahu.
	Santísima Trinidad	Santísima Trinidad neighborhood commission Base delegates of the Catholic Church Water Commission- (Not through SENASA) – Association of School Cooperative (ACE) Tekoporâ Committee
	Hugua Po'i	Neighborhood Commission Women's Productive Committees (SAS) Church youth group Church commission Sub-council of health

80 See annex 4-Identified Communities Sheets.

		Water commission
	Jhugua Guazú	Neighborhood Commission Productive committee María Auxiliadora Farmers and Horticulturists Committee Church Commission-Sports Clubs.
	Islería	
	Laguna Cristo Rey	Neighborhood Commission Church committee Commission for water network
	Anderi	Neighborhood Commission Celebration commission for the celebration of the patronal feast (it is punctual for the activity) School Cooperative Association (ACE)
Paso Barreto	Paso Barreto	Neighborhood commissions Church commissions Youth groups of the church and schools Association of School Cooperators ACE and EGIE Health Council-Aquidaban Radio Association Water Commission Sanitation Board Women's Commission (Tekoporâ)
	Isla Hermosa	Neighborhood Commission Church Commissions (2) School Cooperation Association Committee of Women United Arms of the Karanda'y Hat (stopped activating during the pandemic) Church youth group
	Estribo de Plata	Neighborhood Commission
	Col. Jorge Sebastián Miranda	Neighborhood Association Neighborhood Commission: Alegría and San Isidro Neighborhoods Agricultural Production Committee (2) Church Commission (Las Mercedes and San Juan) Youth group to organize the patronal feast Association of School Cooperators (ACE)
Horqueta	Calle 15	Church Commission Sports Commission (race) School Cooperative Association (ACE)
	Domínguez Nigó	Neighborhood Commission Drinking water commission Church commission for celebration EGIE Educational Institutional Management Team. Sports Commission
	Paso Mbutu	Neighborhood Commission Paso Mbutu Fishermen's Commission (in formation) – School Cooperative Association (ACE) Health Council Water Commission Lay Church Commission Soccer League Sport Paso Mbutu Football school

Sargento José Félix López	Sargento José Félix López	Neighborhood commissions Church committee Youth Groups Sports Commission Association of School Cooperators (ACE.) Educational Institutions Management Team (EGIE) June 29 Committee Jaiko Poravê Rekávo North Pyahu Peasant Association. Merchants Association
Bella Vista Norte	Ayala Cue	Association of School Cooperators (ACE.)

Institutions: Public and private, existing in the study area at the district and local level. The institutions with the greatest presence at the state level at the local level belong to the field of health (USF- Satellite Units) and education (Schools, Colleges). These have coverage by areas of intervention and number of people who access the service; this leads to residents of certain localities having to move to other communities in order to access health coverage and the educational offer according to the level of schooling they require.

Places of interest: They are spaces for meetings and collective interest with which the population identifies; these are established according to the way the communities are formed. Among those the following are indicated: squares, parks, courts, sports clubs, monoliths, community radios, tourist places, beaches, watering places, nature reserves, churches, temples, water supply systems, cemeteries, and others that vary according to each community.

The territory is the product of social interactions between people, institutions, and organizations that confer a collective identity. Next, the institutions and sites of interest identified in the study communities are graphically presented.

Chart 56. Main institutions and interest places identified on the local level

N ^o	Institutions/ Places of interest	Communities															
		Virgen del Camino	Santísim a Trinidad	Hugua Po'i	Jhugu a Guazú	Islerí a	Lagun a Cristo Rey	Ander i	Paso Barret o	Isla Hermos a	Estrib o de Plata	Col. Jorge Sebastiá n Miranda	Paso Mbut u	Calle 15	Domíngu ez Nigó	Sargent o José Félix López	Ayala Cue
1	School	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x
2	College			x	x		x		x	x		x	x			x	
3	USF			x	x				x			x	x			x	
4	Satellite Unit									x						x	
5	Social Farmacy			x													
6	Police Station								x			x	x			x	
7	Sub police station			x	x		x										
8	Catholic Church	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
9	Evangelic Church	x		x	x				x				x		x	x	
10	Tobacco Company	x															
11	Community Radio	x														x	
12	Sanitation Board	x	x	x	x				x	x		x			x	x	
13	Drinking Water System Office								x								
14	Municipality								x							x	
15	Magistrate's Court								x							x	
16	Civil Registration								x				x			x	

17	Educational Supervision								x								x	
18	INFONA								x									
19	SNPP								x									
20	COPACO								x									
21	ANDE																x	
22	Electoral Justice																	
23	MOPC								x									
24	Electoral Registry								x								x	
25	SENEPA																x	
26	SENACSA								x									
27	INDERT																x	
28	Sawmills								x									
29	Local Productive Committee					x				x								
30	Ranches				x	x	x	x	x	x		x		x	x	x	x	x
31	FTC											x						
32	Equestrian Club	x	x						x	x	x		x		x	x	x	
33	Lazzo Club																	
34	Social Club						x											
35	Court	x	x	x	x	x	x		x	x			x	x			x	
36	Cemetery				x	x	x		x	x			x				x	
37	Square								x	x								
38	Fuel Dispenser/ local	x			x	x			x	x		x	x	x			x	
39	Dump																x	

40	Garbage incineration site								x							
41	Lodging								x							x

4.2.2. Farms/Reforestation Areas

It is estimated that the company currently owns more than 180,000 hectares of land approximately; distributed in approximately 20 fields located mostly in the department of Concepción. These will be destined to sites for eucalyptus plantations in order to supply 80% of the raw material necessary for the operation of the pulp manufacturing industry.

A pilot plan is currently being developed at one of the properties as an initial part of the work under the forestry component.

Illustration 23. Pictures of the sites for forest development



San Liberato Ranch



Trementina Ranch

According to project data, as already mentioned, nowadays the establishments have livestock as their main activity. For the present study, contact was made with administrators or other referents of said establishments, who provided information to have an approach to the following characteristics:

- They have **permanent contract workers** who work as foremen, laborers, tractor drivers, beach workers, people who perform jobs related to cleaning and cooking; in addition to administrators and veterinarians; most of them come from nearby towns and the department in general.
- Due to the work system that is implemented, rotating shifts are established as necessary and **other workers are hired** (per shift), in some cases using contractors, with their cleaning equipment, wiring work, maintenance, among others.
- Regarding the **perception** of the implementation of the project and the change of category in the area. On the one hand, it is seen as a positive change due to the promotion of other productions apart from livestock, which "will give a lot of work", which "will work on the reforestation of the area." On the other hand, it was pointed out that beyond the change of category, some people want to continue exercising their current economic activities (related to livestock), they stated that "people are used to working in livestock and it is very difficult for them to change their category, even if the payment is better, they will remain in the area".

5. Survey of social perception

5.1. Presentation of the results of the perception survey

In order to contribute to the identification and evaluation of social impacts, and the recommendation of measures and programs, perception surveys were applied in the communities involved in the AID. The results have served; in addition, to complement information obtained in secondary sources and the subsequent development of the characterization of said areas.

In the following paragraphs we proceed to the description and analysis of the central elements of the process. Initially, the data corresponding to the profile of the people surveyed and the locality to which they belong are presented; followed by perception questions related to entrepreneurship. In addition, the social perception results obtained during the first stage of fieldwork for the industrial component are included for the analysis, in order to visualize the comprehensiveness of both components.

The communities were selected according to their relationship with the following aspects: because they are located on the main accesses, because of their proximity to the projected forest fields and because they are central locations with the largest number of inhabitants and local movement as indicated in 2.2. Criteria for defining the areas of influence. Being able, in some cases, to combine at least two of the mentioned aspects.

Data Collection Technique

It should be noted that the collection technique used is the survey. It was developed under two modalities: in situ and by videoconference. In both cases, for their application, a person responsible for facilitating the questions contained in the instrument and a person responsible for recording the perceptions issued was appointed.

Data Collection Instruments

The survey was divided into two parts. Both were made up of a total of 30 questions, mostly open. In the case of closed questions, the option was given to specify the field corresponding to "other answers" for processing, if necessary.

The first section was aimed at identifying the profile of the people surveyed, based on the interest groups and data referring to the geographical area of location.

The second part was related to the perception aspects of the project's knowledge (in its forestry and industrial components); opinions on the venture, expectations, priority aspects to consider before and during implementation, and some final recommendations.

Key Inclusion Criteria

- To be of legal age
- To reside or work in the area for more than one year

- To ensure the participation of women and men
- To belong at least to one of the following “interest groups”:

Chart 57. Interest Groups

Interest Groups	Description of the profile
Old Settlement	They are people with at least 5 years of residence in the town
Education Reference	This population is made up of directors, undergraduate teachers, professors, office managers and/or supervisors.
Organizational Leader	They are members or representatives of neighborhood commissions, productive committees, organizations and/or community associations at the local level.
Health Referent	They are people who are part of the team of professionals, technicians of the Family Health Units and Satellite Units of the territory.
Church Leader	They are people who act as members of a commission, organization or base delegates.
Referent of neighborhood committees or commissions at the institutional level	They are references of key institutions that work directly with neighborhood committees and commissions at the local level
Referent of the Municipality/ Local Project Designee	This is the focal point assigned to attend to questions related to the project during the survey process.
Representatives of local initiatives	They are people who carry out some productive activity in the area.

Source: Own Elaboration

These groups were defined according to characteristic elements of the organization of the territory as public institutions.

Data processing and analysis

The data obtained from the application of the surveys were subjected to a review process ensuring that the percentage of the responses issued were greater than 90%.

The open questions were categorized after the completion of the field survey process.

The data obtained were systematized in matrices and tables, and were subjected to a descriptive statistical analysis for presentation.

Application results

As part of the field work, a total of 63 surveys were applied; of which 3% of the sample corresponds to the Bella Vista district, 19% to Horqueta, 29% to the Loreto district, 32% to Paso Barreto and the remaining 17% to Sargento José Félix López.

In Chart 58. Summary of applied surveys and involved districts, a list is presented with the districts and localities involved in the survey process.

Chart 58. Summary of surveys applied and districts involved

District	Locality	Amount	Total
Bella Vista Norte	Ayala Cue	2	2
Horqueta	Dominguez Nigó	1	12
	Paso Mbutu	10	
	Calle 15	1	
Loreto	Hugua Po'i	3	18
	Jhugua Guazú	3	
	Laguna Cristo Rey	2	
	Anderi	2	
	Islería	4	
	Santísima Trinidad	2	
	Virgen del Camino	2	
Paso Barreto	Isla Hermosa	2	20
	Estribo de Plata	1	
	Paso Barreto	14	
	Jhugua Ñandu	3	
Sargento José Félix López	Puentesíño	11	11
Total		63 people surveyed	

Source: Own elaboration

5.2. Sociodemographic Characteristics

It should be noted that the average age of the people surveyed ranges between 20 and 79 years. According to the results obtained, the group of people between 40-49 years old predominates and they represent 34.92% of the sample. Secondly, there are those who are between 30-39 years old and correspond to 33.33% of the surveyed population. And to a lesser extent, there are the groups that comprise people between 20-29 years and 70-79 years respectively and that represent 9.52% and 4.76% of the total sample. Chart 59 shows the age range according to the districts involved in the study.

Chart 59. Population distribution by age groups

Age	Paso Barreto	Horqueta	Loreto	Sargento José Félix López	Bella Vista	Amount	Percentage
20 – 29	3	2	1	0	0	6	9.52
30 – 39	7	5	6	3	0	21	33.33
40 – 49	3	4	9	4	2	22	34.92
50 – 59	3	0	1	0	0	4	6.35
60 – 69	0	1	1	2	0	4	6.35
70-79	2	0	0	1	0	3	4.76
N/M	2	0	0	1	0	3	4.76
Total	20	12	18	11	2	63	100%

Regarding the distribution according to sex, it is observed that the resulting consultation process registered a greater participation of women with a total of 50.79% and a slight difference of 1.6% lower corresponding to 49.21% of men consulted.

In this sense, considering the criteria of quantity and representativeness, it can be said that in general terms the equal participation of women and men was ensured, as shown in Chart 60.

Chart 60. Population distribution by sex

Sex	Paso Barreto	Horqueta	Loreto	Sargento José Félix López	Bella Vista	Amount	Percentage
Women	12	5	11	2	2	32	50.79
Men	8	7	7	9	0	31	49.21
Total	20	12	18	11	2	63	100%

Source: Social work in the field. August and September 2020

Interest groups

Regarding the interest groups, it should be noted that most of the respondents are referents from existing organizations in the area such as the producer committee, neighborhood commissions, peasant organizations and water commissions. A total of 19 people participated, equivalent to 30% of the sample.

The second group with the highest participation is made up of representatives of the education sector, corresponding to 27% of the total number of people surveyed. In the process, it was taken into account that the existing administrative and pedagogical levels at the local level were involved, such as: Zone supervisors, directors, office managers, undergraduate teachers, and chair managers. They are key people at the community level due to their direct link with the educational community made up of parents, responsible or guardians, teachers, students, association of school cooperators, and indirectly maintain a link with other families in the area.

The third level is made up of health referents, with a participation percentage of 21% equivalent to a total of 13 referents involved in the consultation, among which are: Doctors, nurses and nursing assistants in charge of the internal management of the health units existing in the study locations. In addition, the sample includes some references from the local health council who agreed to the consultation process.

These three main groups are followed in order of importance by the category of old residents (8%), referents of neighborhood committees or commissions at the institutional level and representatives of local initiatives (both with 5%), referent of the Municipality (3%) and church referent (1%). Chart 61 shows the distribution of these groups by district.

Chart 61. Distribution of the surveyed population by interest groups

Interest Groups	Paso Barreto	Horqueta	Loreto	Sargento José Félix López	Bella Vista	Amount	Percentage
Old Settlement	5	0	0	0	0	5	8
Education Reference	4	3	7	1	2	17	27

Church Leader	0	0	1	0	0	1	1
Organizational Leader	4	3	7	5	0	19	30
Health Referent	4	3	3	3	0	13	21
Referent of neighborhood committees or commissions at the institutional level	2	0	0	1	0	3	5
Referent of the Municipality/ Local Project Designee	1	0	0	1	0	4	3
Representatives of local initiatives	0	3	0	0	0	3	5
Total	20	18	18	11	2	63	100%

Source: Social work in the field. August and September 2020.

Organization

Likewise, 57.14% of the population claimed to be a member of some organization. Such as neighborhood associations, neighborhood commissions, water commissions, women's or mixed producer committees, and peasant organizations. On the other hand, the remaining 42.86% are not part of any organization or association as shown in Chart 62

Chart 62. Population surveyed belongs to some organization

Belongs to an organization	Amount	Percentage
Yes	36	57,14
No	27	42,86
Total	63	100%

Source: Social work in the field. August and September 2020.

Occupation

The three main areas of occupation of the people consulted in order of prevalence indicated correspond to the public sector in 57.14%, to the provision of services in 14.29% and to agriculture and livestock in 12.7%.

Chart 63. Surveyed population belongs to a specific sector

Sector	Amount	Percentage
Public	36	57.14
Services	9	14.29
Agriculture – Livestock	8	12.70
Agriculture – Livestock / Commerce	2	3.17
Industry -Commerce	2	3.17
N/M	6	9.52
Total	63	100%

Source: Social work in the field. August and September 2020.

In this sense, considering the responses issued, it is considered that:

The public sector: It is made up of people employed in health institutions (family health units and satellite units depending on the territorial location and coverage area), education (schools and colleges at the local level), and other existing public offices such as the Municipality and DEAg).

The service sector: It is made up of people who are dedicated to cleaning, plumbing, masonry, construction, security and domestic services, generally they are people who work for a day (trades, sporadically unsustained and with low pay).

People who are engaged in some **commercial activity** have small pantries, are engaged in fishing, making food and hats to market in nearby towns or areas.

The agricultural livestock sector: It is composed, in its majority, by people who are dedicated to agriculture and livestock on a small scale, mainly for self-consumption and in some cases for sale.

5.3. Social perception of entrepreneurship

This section presents data on social perception, obtained in the field and, as explained above, includes information related mainly to the second phase of field work carried out within the framework of this study (forestry component, August and September 2020) complementing, in certain items, with the information resulting from the first phase of the field work (industrial component January and February 2020).

Knowledge regarding entrepreneurship

As a result of the consultations regarding the notion of the inhabitants regarding the project, in both components, the majority have declared to be in ignorance, representing 71.37% during the first stage and 69.84% of the total of respondents during the second. The following chart shows the details of the results obtained.

Chart 64. Are you aware of the installation of a pulp mill in Concepción?

Is aware	Forestal Component		Industrial Component		Total General	
	Amount	Percentage	Amount	Percentage	Amount	Percentage
Yes	19	30.16	67	28.63	86	29
No	44	69.4	167	71.37	211	71
Total	63	100%	234	100%	297	100%

Source: Social work in the field. August and September 2020

Means by which they found out

Most of the people, corresponding to 36.84%, mentioned that they received some type of information about the project mainly through the radio or other press; and to a lesser extent, 10.53%, linked it to their workplace.

Chart 65. Medium through which they found out

Means by which they found out	Amount	Percentage
From mouth to mouth	3	15.79
Radio/other media	7	36.84
At work	2	10.53
N/M	7	36.84
Total	19	100%

Source: Social work in the field. August and September 2020.

During the first stage of the information gathering in the field, for the industrial component, most of the people who responded having heard of the venture, claimed to have found out through friends, neighbors and/or relatives, followed by local radio programs.

Opinion regarding the initiative

In Table 66. Opinion of residents regarding the positive repercussions of the project, data is presented of all the people who expressed their opinion regarding the repercussions of the project (second stage/forestry component).

The majority considered that the project is positive for all levels, while two people mentioned that it does not seem like a positive initiative; on the one hand, due to the possible contamination/affectation of natural resources; and on the other, because there is no credibility in the authorities due to corruption/impunity/lack of control. In addition, two people expressed doubts about respecting environmental regulations and also expressed fear of the possible contamination that the initiative could generate.

Finally, one person expressed neither in favor nor against it ("I will not be able to do anything against settling in, if what I say or do is decided from above, it will not stop the project").

Chart 66. Opinion of residents regarding the positive repercussions of the project

It is positive	Amount	Percentage
Yes	58	92%
No	2	3.17
Might be	2	3.17
Neither in favor nor against it	1	1.59
Total	63	100%

Source: Social work in the field. August and September 2020

Of the 58 people who have expressed their agreement with the undertaking, some have mentioned more than one answer, thus having a total of 73; of that total, it is highlighted that **the majority considers it positive due to the possible generation of jobs** with 43.84%, local development with 24.66%, and movement of the economy with 8.22%, agreeing with the 3 most mentioned positive aspects in stage 1 of the industrial component⁸¹, only varying the order of these aspects.

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Chart 67. Why do you consider this undertaking to be positive at the departmental, district and local levels?

It is positive	Paso Barret o	Horquet a	Loreto	Sargento José Félix López	Bella Vista	Amount	%
Generates job sources/ Hiring of local labor	12	4	12	3	1	32	43.84
Greater opportunity/ Possibility for people	3	0	2	0	0	5	6.85
Local development	8	7	2	1	0	18	24.66
Project viability	0	1	0	1	0	2	2.74
It it is a sustainable project (care and protection of natural resources)	1	0	2	1	0	4	5.48
Movement of the local economy	4	0	1	1	0	6	8.22
Link local producers/ Secure purchase and Sale System	1	0	1	2	0	4	5.48
Others (Due to the reforestation in the area)	0	0	0	0	1	1	1.37
Others (We must see what negative impacts it could have)	0	0	1	0	0	1	1.37
Total	29	12	21	9	2	73	100%

Source: Social work in the field. August and September 2020

Expectations related to the project

Regarding the expectations related to the project, of the totality of people who have participated (63) in the second stage of the information survey (forestry component), 135 responses were obtained (more than one expectation per person who responded to this item).

The majority responded that **"the project represents new sources of work/hiring of local labor for the people"**, this as well as the main expectation surveyed during the first stage, in the areas of influence of the project in its industrial component⁸². Second, by the amount of response obtained, it was expressed as an expectation that the project will **"Link local producers/secure purchase and sale system"**, **"Generate local development"** (growth of investors and population); which again coincides with one of the expectations considered important in the Industrial component. Other expectations mentioned were (to a lesser extent) **"Progress and development"**; **"Link/support/strengthen other productive initiatives"** among others as can be seen in the following chart.

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Chart 68. Expectations expressed during the consultation (August-September 2020)

Expectations	Paso Barreto	Horqueta	Loreto	Sargento José Félix López	Bella Vista	Amount	%
Movement of the local economy	1	0	4	1	0	6	4.44
Link local producers/ secure purchase and sale system	4	3	6	5	0	18	13.33
Sources of work/hiring of local labor	19	10	16	7	2	54	40.00
Local development (growth of investors and population)	7	0	4	2	0	13	9.63
That it is sustainable (care and protection of natural resources)	2	4	2	0	0	8	5.93
Social Responsibility	0	0	0	2	0	2	1.48
Impact on natural resources	0	1	0	2	0	3	2.22
That constitutes a new item	1	0	0	2	0	3	2.22
Education/ training	1	0	0	0	0	1	0.74
Make it sustainable	0	0	2	0	0	2	1.48
Link/support/ strengthen other productive initiatives	0	3	4	3	0	10	7.41
That the improvement on the way is guaranteed	0	0	0	1	1	2	1.48
Maintain communication and link with the community (more reach, meetings, opinions and debates)		0	1	1	0	2	1.48
There is a need of reforestation	0	1	0	1	0	2	1.48
Provide technical assistance, support and accompaniment to local producers	1	0	0	2	0	3	2.22
With sources of work they will not compensate for the damage they can cause if they pollute	0	1	0	0	0	1	0.74
Investment in the area	1		0	0	0	1	0.74
A lot of movement of people in the area	0	1	0	0	0	1	0.74
Not be politicized	0	0	1	0	0	1	0.74

That they are installed in a suitable place	0	0	0	0	1	1	0.74
Project viability	0	0	1	0	0	1	0.74
Total	37	24	41	29	4	135	100

Source: Social work in the field. August and September 2020.

As can be seen, the main expectation was mentioned mostly in the districts of Paso Barreto, Loreto and Horqueta; **“Linking local producers/safe buying and selling system”** was the expectation mentioned above all in Loreto and Sargento José Félix López and Local Development (growth of investors and population) in Paso Barreto and Loreto.

Main aspects/requirements to be taken into account for entrepreneurship

As can be seen in Chart 69. Main aspects to take into account, the people consulted assessed aspects that should be taken into account for the implementation of the venture. For the most part, **“generation of employment at the local level”** and **“care for the environment”** were mentioned, aspects also highlighted during the first stage of the information gathering (industrial component); followed by watershed conservation and local development; finally, and to a lesser extent, the protection of the cultural heritage of the area.

Chart 69. Main aspects to take into account

Aspect	Percentage
Local Employment	96.83
Environment	96.83
Watersheds	95.24
Cultural Heritage	26.98
Local Development	77.78

Source: Social work in the field. August and September 2020.

There were cases in which people asked not to respond to certain points, because they consider the project as **“a potential contaminant of water resources”** and that **“It is very difficult not to contaminate, especially if it is a large project where there are many interests at stake”**.

Suggestions from the population involved

Finally, a space was provided for the consulted population to provide suggestions and a total of 195 responses were obtained. The main suggestion was **“That the project be sustainable”**, including the care and protection of natural resources with 23.59%, **“that represents a source of work/hiring of local labor”** with 11.79%, **“Important to link local producers/secure purchase and sale system”** with 11.28%, **“respect current environmental regulations”** with 6.15%, also **“maintain communication and link with the community”** (more scope, meetings, opinions and debates), **“Local development”** (growth of investors and population) with 5.64%, and **“Health care and protection”** with 5.13%. As can be seen, these suggestions are generally related to the expectations mentioned regarding the project mentioned in the item with the same name and where the expectations of the population consulted are reported.

For the analysis and presentation of the suggestions, the categories that can be observed in the first column of this table were elaborated.

Chart 70. Suggestions surveyed by district

Suggestions	Paso Barreto	Horqueta	Loreto	Sgto. José Félix López	Bella Vista	Amount	%
That it is sustainable (care and protection of natural resources)	17	9	14	5	1	46	23.59
Source of work/ hiring of local labor	8	6	5	3	1	23	11.9
Link local producers/ secure purchase and sale system	4	4	7	7	0	22	11.28
Local development (growth of investors and population)	2	3	3	3	0	11	5.64
Maintain communication and link with the community (more reach, meetings, opinions and debates) that is not only participatory at the beginning	2	1	4	5	0	11	6.15
Respect the current environmental regulations	5	2	3	1	0	11	5.64
Health care and protection	2	4	2	2	0	10	5.13
Social Responsibility	1	2	2	2	1	8	4.10
Transparency of information on positive and negative impacts/ permanent monitoring	3	0	3	2	0	8	4.10
Provide technical assistance, support and accompaniment to local producers	0	3	2	2	0	7	3.59
Link/support/strengthen other productive initiatives	1	2	4	0	0	7	3.59
Decent working conditions	2	1	3	1	0	7	3.59
Total	47	37	52	33	3	171	88.19

Source: Social work in the field. August and September 2020.

The suggestions mentioned less than five times are related to **the training/qualification (4), project feasibility and installation of the plant in a suitable place (3) “that is not installed” and that represents a new item in the area (2)**. Likewise, there were suggestions that were commissioned only once and are presented below:

- Attend to road safety.
- Water is a problem in the area. There are many stones and it is difficult to dig deep.
- It is an opportunity for the villagers. "Take the community into account, help improve the conditions of the place."

- "To generate development, we must involve the peasant sector and not only benefit the owners of capital. The factory does not generate local development with the logic of monoculture, concentration of capital and affectation of natural resources".
- "Mainly the environment, see the impact it is going to have in terms of health, which does not have negative impacts on health. What I don't like is that the factory is going to have wood production, that is going to have labor, but that is going to be circumstantial. Here in Paso Mbutu there are people who are dedicated to producing their eucalyptus. See to generate a system of buying and selling to supply the factory. If the department is not going to grow, it is just going to use the department. The community has to grow that is the eternal problem in Paraguay. An investment that is capitalist does not suit us, capitalism uses a salary of two million, but who lives with that. Most people are going to earn minimum wage"

As previously explained, the consultations were carried out in a complex national and local context; in a climate of risk and social fragility. However, there was the active participation of local referents who facilitated access to the information and documentation necessary for characterization, the identification of social leaders from the areas involved in sectors such as: education, health, community organizations and producers of the zone, among others.

Considering all the information collected regarding the perception of the population included in the consultation spaces, the recurrence of key aspects should be noted, such as:

"The generation of sources of work/local employment" mainly related to the reduction of unemployment, job security and access to better working conditions in the area. Which in turn could contribute to reducing migration, associated with the search for better job opportunities and existing educational offer;

"The care and protection of the environment" for both components. This topic has the particularity of being raised in terms of high importance because forests, land and water resources are closely related to the livelihoods and subsistence of the population present in the study areas; the production of the field is highly dependent on existing natural resources.

"Linking local producers to the initiative" Several residents who have participated in the consultation process expressed their interest in the project, based on the importance of generating mechanisms for the inclusion of local producers in the project; in order to generate a sustained economic impact for the people residing in the area. Some mentioned that it could become a new income category, with a safe market and a fair price.

Contributing to local development, considering existing inequalities and needs, it would be interesting if the company could contribute to improving the conditions of the place at the infrastructure level and at the level of contributing to the development and strengthening of existing local initiatives.

"Maintain communication, the link with the community and the sharing of truthful information", several people valued the fact of involving the population in the consultative processes prior to the approval of the initiative; and they stated that if the project is implemented, it would be interesting to continue generating spaces for exchange in a

sustained manner and with a broader level of participation. In addition, some emphasized the need to know all the implications of the project; both positive and negative, since there are doubts regarding the eucalyptus plantations and their effects on the environment, or the effects that the installation of the factory in an area so close to the river could generate on health.

6. Social Researches Assessment

6.1. Presentation

This chapter corresponds to the evaluation of social impacts of the forestry component; both for the installation stage and for the operation and maintenance of the fields for afforestation. The Social Base Line (LBS), developed in the previous sections, is taken as input.

The analysis of social impacts is presented with this document.

The evaluation of the social impacts of the enterprise is focused on meeting local regulations, considering that forestry activities are framed in Law No. 294/93 on Environmental Impact Assessment, and its regulatory decrees No. 453/2013 and No. 954/2013; that is, in the legislation that regulates obtaining the Environmental Impact Statement (DIA) or Environmental License, whose enforcement authority is the Ministry of the Environment and Sustainable Development (MADES); likewise, the main regulations related to forestry exploitation and related are considered, regulated by the National Forestry Institute (INFONA), as well as by the Municipalities, among them Law No. 4014/2010 "On prevention and control of fires". In addition, PARACEL is committed to complying with environmental and social sustainability standards, where in addition to ensuring compliance with the regulations in force in the Republic of Paraguay, its strategy is to abide by the "Equator Principles" (in particular #2, #3, #4, #5 and #6), the "Performance Standards on environmental and social sustainability" (in particular #1, #2, #4, #5 and #8) of the International Finance Corporation (IFC), the World Bank Group "Guides on Environment, Health and Safety", as well as the principles, criteria and standards of forest management of the FSC (Forest Stewardship Council).

The aforementioned social standards are also consistent with the commitment of the countries adhering to the United Nations to achieve the goals agreed in the Sustainable Development Goals (SDG) for the year 2030, to which Paracel is linked.

For the evaluation of social impacts, the activities of the forestry component are first taken into consideration, both in the installation stage of the plantations, which also includes the start-up of the nurseries, and in the operation and maintenance of the forest fields, since these could generate potential positive and negative impacts on the social environment.

The LBS that precedes this analysis describes the environment, detailing the populations of the area of influence of the undertaking, their demographic and territorial characteristics, access to services, infrastructure, among others, which are considered when quantifying impacts and risks, social aspects of the project.

With the baseline data (LBS) the social factors that could be impacted during the various activities of forest production are defined. These social factors are presented for both the installation and operational stages, in section 2.2. of this report. Next, the impact evaluation methodology is presented and, then, the identified impacts are evaluated according to the "social environment factors" considered; crossing them in correlation matrices with the "environmental aspects", linked to the "activities" of the enterprise in its forestry component.

The analysis of cumulative impacts of Paracel's undertaking was already presented in the evaluation of the "industrial component", following the Good Practice Manual for the Evaluation and Management of Cumulative Impacts: Guide for the Private Sector in Emerging Markets (IFC, 2015). For the forestry component, it is complemented with a more qualitative analysis, focusing on the development of undertakings of a similar nature (forestry) that can make synergies over time, since a change of use (from livestock to forestry) will be made in the area, where a priori "reforestation" is planned in an approximate area of 180,000 hectares.

Finally, the result of the identification and quantification of impacts, in those of significant, medium or high social impact that could generate risks; the risks related to possible contingencies or emergencies that may arise, from the social point of view, are evaluated, with emphasis on the operation stage.

The main results of the evaluation of social impacts indicate that those of a positive nature impact on the factors "**employment**" and "**development of the local and regional economy**". As the result of the industrial component, this is due to all the contributions that Paracel will give to the region, considering that several AID districts are among those with the highest unemployment rate in the country, including that of Concepción. In relation to the social factors with the greatest negative impacts, with emphasis on the operational stage, it is given with regard to "**third party health and safety**", "**Services, infrastructure and/or property public/non-public**", where the first is related to the changes in "**quality of life, uses and customs**" to which the communities in the immediate environment will be subjected; and the second is the impact that public services could have, and in particular the area's road infrastructure.

6.2. Methodology for the evaluation of social impacts

The social impact assessment follows the principles applied to an Environmental and Social Impact Assessment (ESIA), which in Paraguay is documented in each "Preliminary Environmental Impact Study (EIAp)" in accordance with local regulations; and international agreements ratified by the country. In addition, taking into account the nature of the undertaking and Paracel's requirements, the IFC performance standards, Equator principles, FSC principles and best practices are taken into account.

In the social evaluation, the area of influence of the enterprise was defined, relevant to establish the geographical scope of the analysis, as detailed below, and as presented in item 2.3. Description of the project's areas of influence:

- **Area of Direct Influence (AID):** Includes the districts of Sargento José Félix López, Paso Barreto, Loreto, San Alfredo, Horqueta and Arroyito in the department of Concepción; and the Bella Vista Norte district of the Amambay department. In these 7 districts are located the areas of the project's forest plantations and the main access roads to them, including 16 neighboring communities.
- **Area of Indirect Influence (IIA):** Includes the departments of Concepción, San Pedro and Amambay in the Eastern Region of Paraguay.

Below, in a summarized way, the main activities and chronology in the evaluation of social impacts are cited, similar to that taken into account for the industrial component, taking into

account the regulatory framework described in item 2.1. Project synthesis and related regulatory framework.

- Prior to the evaluation itself, the baseline studies that provide specific information on the project's area of influence are taken as a reference, with emphasis on the AID population;
- An on-site tour is made in the communities near the properties where the forestry component of the enterprise is projected;
- With the results of the social characterization study and the perception study with information from secondary and primary sources, respectively, the social factors that could be affected by the enterprise in its forestry component are defined, but always considering its link with the industrial component;
- The social impact assessment matrices, normally used in ESIA's, are structured and adapted to the undertaking and its processes or activities, in order to make the factor-aspect crossover, and thus define the potential impacts and social risks. First, a checklist is made that allows to pre-identify what social factors could be impacted by the aspects or activities of the enterprise. - Then, based on the same matrix, the impacts are quantified following the concept of "social significance", according to defined social variables.
- A description of each of the identified impacts is made, which will then be addressed by specific mitigation/compensation measures in the Social Management Plan.

6.3. Entrepreneurship activities that generate potential impacts versus potentially impacted social factors

In the impact assessment procedure, the activities of the forestry component of the enterprise are considered, in its various phases or stages; and these are grouped into what is known as "aspects" that could generate impacts. Then, these activities are related to the "social factors" of the social environment that could be susceptible to receiving potential impacts. Their correlations are normally crossed in specific matrices, as will be presented in Table 76. Qualitative interaction matrix of social factors and aspects derived from activities in all stages of the forestry component of the enterprise.

6.3.1. Entrepreneurship activities that generate potential impacts

The following table presents the aspects derived from the activities of the undertaking, in the installation and operational stages. The grouping of activities could be subdivided again, but it is considered, from a social point of view, that these encompass the aspects that could generate impacts in this environment.

Although there are aspects that must be considered from the early stages of the project, such as hiring of personnel, beginning of construction of access roads, these are evaluated in the installation stage, thus following the methodology commonly used with the matrices that will be presented in the following sections.

Chart 71. Aspects derived from the activities of the undertaking in the installation and operational stages

Aspects in the installation stage derived from the activities of the undertaking	Aspects in the operational stage derived from the activities of the undertaking
<ul style="list-style-type: none"> - Hiring of personnel for NURSERIES AND PLANTATIONS. - Installation of nurseries. - Controlled burning⁸³. - Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers). - Soil preparation, land tillage, plantations (and replacements). - Construction and/or adaptation of internal and access/exit roads and drainage works. - Solid waste and effluent management. 	<ul style="list-style-type: none"> - Hiring of staff for MAINTENANCE, HARVEST AND TRANSFER. - Maintenance of growing vegetation and mechanical control. - Chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers). - Maintenance of internal and access/exit roads, and drainage works - Forest harvest. - Transfer of wood to the Industrial Plant. - Solid waste and effluent management.

Source: own elaboration

Each of the aspects considered is briefly defined below:

Installation Stage

- **Hiring of personnel for nurseries and plantations:** Process by which Paracel hires qualified and unskilled labor, suppliers, among others; for seedling production activities in nurseries and their subsequent planting in forest fields. This activity will involve a flow of workers in the area of influence according to the different activities of the stage.
- **Installation of nurseries:** Process of growing eucalyptus seedlings, in specific areas of the forest fields or in neighboring towns.
- **Controlled burning:** Exceptional and unusual process of planned burning (prescribed burning regulated by local regulations), which could be used only in very particular circumstances. Considered in this study, from the point of view of possible and exceptional effects on communities.
- **Chemical control of plantations:** Process by which adequate management measures are adopted through the use of chemical products (pesticides, including herbicides and insecticides) and fertilization (fertilizers), in order to control the presence of weeds, insects, as well as enriching the soil substrate where the plantations will be made. From the point of view of possible and exceptional effects on communities, the possible practice of applying products through aerial spraying is considered (regulated and allowed in Paraguay).
- **Preparation of the soil, tillage of the land, plantations (and replacements):** Actions are considered from the design of plantations (design and definition of changes in land use); that is, from the planning of forest management, the subsequent mechanical tillage of the soil, the planting of the seedlings prepared in the nurseries (own or outsourced), as well as the possible replacement of those that require it.

83 Although it would be an unusual practice for Paracel, it could occur in very particular circumstances. Law No. 4014/2010 "On fire prevention and control" establishes the following definitions in its article 2: Prescribed burning: is the lighting technique carried out under conditions such that it is possible to assume that the fire will remain within a determined area. The municipalities are constituted as Enforcement Authorities of the said Law, in coordination with the specialized unit created by it.

- **Construction and/or adaptation of roads and drainage works:** Both access / exit roads to the properties; as internal roads. In addition, land drainage works and other related works.
- **Solid waste and effluent management:** Aspects related to the generation, storage, transport and possible final management of waste and effluent from processes and sub-activities in nurseries, during soil preparation and fertilization, chemical control of plantations, as well as those derived from human activities proper, which occur in the staff accommodation (staff dwellings, helmets, administrative posts linked to the nurseries, among others).

Forest Management Operational Stage

- **Hiring of personnel for maintenance, harvesting and transportation of wood:** As for the installation stage, specialists, unqualified personnel, and labor will be hired for the forest management of the plantations, until their harvest and transfer to the industrial plant of Paracel. This activity will involve a flow of workers in the area of influence according to the different activities of the stage.
- **Maintenance of growing vegetation and mechanical control:** Process by which the mechanical maintenance of the plantations is carried out.
- **Chemical control of plantations:** Process by which adequate management measures are adopted through the use of chemical products (use of herbicides and insecticides); and fertilization (fertilizers). From the point of view of possible and exceptional effects on communities, the possible practice of applying products through aerial spraying is considered (regulated and allowed in Paraguay).
- **Maintenance of internal roads and access/exit, and drainage works:** It refers to the maintenance works of the roads, both access/exit of the properties and internal roads, and their complementary works (signaling, others), as well as the (drainage) systems.
- **Forest harvest:** It is considered the planned set of activities related to the cutting, processing and extraction of logs or other usable parts of the trees, for their subsequent transformation, which occurs from year 6-7 after the first planting; and it is carried out mainly in a mechanized way, which guarantees greater safety in the operators. Debarking and delimiting is performed on site, then they are conditioned in the extraction and stacking area, for later transfer to the industrial plant.
- **Transfer of wood to industrial plant:** Process of transporting the wood harvested in the forest fields, to the Industrial Plant located in the area known as Zapatero Cue in the district of Concepción. For this, the use of large cargo vehicles is planned.
- **Solid waste and effluent management:** Aspects related to the generation, transportation, storage and possible final management of waste and effluents from processes and sub-activities in nurseries, during soil preparation and fertilization, control (chemical, mechanical) of plantations, as well as those derived from human activities proper, which occur in the accommodation of the staff (staff houses, helmets, administrative positions linked to the nurseries, among others).

6.3.2. Potentially impacted social factors

The social factors (socio-economic and cultural) considered for all stages are presented in the following table. It should be noted that both, in the installation and maintenance stages of the

forest fields, the same social factors have been considered, similar to those already defined in the industrial component.

Chart 72. Social factors considered for the installation and operational stage

Social Factors Assessed
<ul style="list-style-type: none"> - Jobs - Demographics - Public/private services, infrastructure and/or public/private property - Ecosystem services - Archaeological, historical and/or cultural heritage - Local, regional and extra regional economy - Real-estate market - Occupational health and safety - Health and safety of third parties - Quality of life, uses and customs - Population expectations

Source: Own Elaboration

Next, the social factors are defined, in order to clarify the scope considered in each of them and linked to potential impacts, highlighting that both for the installation and operation phases in forest management there are the same factors:

- **Jobs:** Favorable or beneficial effects that could be produced by the entrepreneurial activities associated with the increase in employment opportunities and its characteristics.
- **Demography:** Favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on the number of people in the localities of the area of influence.
- **Public/private services, infrastructure and/or public/private property:** Favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on access to basic services. These services could be: collection and final disposal of solid waste, provision of drinking water, sanitation, electricity, health care, transportation, security, education, communication and information, etc. The effects that may occur on infrastructures, such as land communication routes, leasing capacity (housing rentals) and/or on existing properties (public and/or private) are also considered.
- **Ecosystem services:** These are the benefits that people, including businesses, derive from ecosystems (IFC Performance Standard 6). There are four types of ecosystem services (IFC, 2012): (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulation services, which are the benefits that people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the non-material benefits that people obtain from ecosystems, and (iv) support services. For this study, provisioning, culture and regulation are considered.
- **Archaeological, historical and/or cultural heritage:** Favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on sites and/or materials considered part of the cultural, spiritual, historical heritage (linked to historical stages and events in Paraguay such as the pre-Columbian period, wars, colonization, others) and/or archaeological, both of local, regional and

national importance. This evaluation refers rather to material or tangible heritage (archaeological sites and objects, architecture, documents, works of art from the past).

- **Local, regional and extra-regional economy:** Favorable or unfavorable effects on the economic development, direct and indirect, of the populations in the area of direct influence, in the region and at the country level. It includes topics related to economic activities related to the forest production area, as well as the use of natural resources, such as water, soil. Additionally, those effects on employment/economic income derived from the indirect actions of the enterprise in the area of influence are identified (increase in businesses, increase in demand for goods and services, generation of new jobs).
- **Real estate market:** Favorable or negative effects on the real estate value of properties near forest fields.
- **Occupational health and safety:** Favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on the health and physical safety of the workers, personnel or operators linked to the installation activities and/or the operation of the Project.
- **Health and safety of third parties:** Favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on the health and/or physical safety of people who are not employees of the Project (third parties), both in the communities of the area of influence as well as from neighboring communities to forest plantations. The issue of citizen security and possible conflicts by external agents is also included.
- **Quality of life, uses and customs:** Favorable and unfavorable/negative effects that could be produced by the activities of the undertaking with an effect on the quality of life, uses and customs of the communities in the area of influence. Regarding quality of life, aspects valued by local people have been considered; such as tranquility and a good relationship between them. With regard to uses and customs, those daily practices carried out by the communities are taken into account, such as leisure/recreational activities, activities related to the use of water or land, areas that involve social relationships (use of watering places, fishing, beaches, for example), among others. The uses and customs also refer to the intangible or intangible cultural heritage, which includes the manifestations of popular culture.
- **Expectations:** Favorable and unfavorable/negative effects that could occur due to the activities of the undertaking on the expectations and perceptions of the project of the communities in the area of influence, both positive and negative. It is related to all the aspects that the communities could perceive as feasible to improve/deteriorate as a consequence of a project of this magnitude

Each of the factors could be subdivided again, but this grouping is the result of the LBS analysis; and the particularities of the social environment. It is clarified that the particularity of the indigenous populations in the Project's area of influence is not considered in any of the factors mentioned, since it is addressed in a specific independent study by specialists hired by Paracel.

6.4. Criteria for impact assessment

In the environmental and social impact assessment process, there are several formulas for assessing impacts, where those related to the one known as the Leopold et.al (1971) Matrix, adapted Leopold or similar formulas are used, which require characterizing the importance and

magnitude of the impacts. For the present study, criteria similar to those of Leopold are used, but where the variables considered have a greater focus on the social environment, adopting the indicator of "Social Significance" of the impacts. The "nature" (NA) of the impacts can be positive (+) or negative (-), depending on the effect they produce, that is, depending on whether they are favorable or unfavorable.

Chart 73. Nature of the social index

Nature of the impact (NA)	Sign	Meaning
Positive impact	IP (+)	Results in favorable effects and benefits
Negative Impact	IN (-)	Indicates unfavorable or negative effects

The social index of each identified impact is calculated from a formula that relates the estimate of the number of affected (ICA), the distance of the impact (ID), the importance (II) and the occurrence (PO), that is, with four variables, according to the following equation:

$$\text{Social Index (IS)} = \frac{\text{ICA} + \text{ID} + \text{II}}{3} \times \text{PO}$$

The value range of each of the variables, and their explanation, is defined according to the following detail. And they were taken by virtue of the undertaking, in its forestry component, and to criteria adopted at the regional level in similar projects⁸⁴:

Chart 74. Variables of the social index and its valuation

Variable	Initials	Value of the variable	Detail
Number of affected (according to areas or equivalent population)	ICA	1 to 3	Forest field workers and/or 16 localities linked by access or proximity to forest fields
		4 to 6	AID: Districts of San Alfredo, Sargento José Félix López, Bella Vista Norte, Paso Barreto, Loreto, Arroyito and Horqueta
		7 to 9	All (departments of Concepción, San Pedro and Amambay and even extra region or country)
Distance	ID	1 to 3	Forest fields and/or 16 localities linked by access or proximity to forest fields
		4 to 6	AID: Districts of San Alfredo, Puentesíño, Bella Vista, Paso Barreto, Loreto, Arroyito and Horqueta
		7 to 9	All (departments of Concepción, San Pedro and Amambay and even extra region or country)
Importance	II	1 to 3	Unimportant: it will not involve a significant effect on stakeholders.
		4 to 6	Medium importance: the effect will be of considerable magnitude.

84 It has been adapted from Pulp mills projects in Uruguay. Source: Environmental Impact Study of the Pulp Mill UPM (Environmental Engineering Study, UPM, 2018).

		7 to 9	Very Important: it will generate significant or irreversible changes in stakeholders.
Occurrence	PO	0.1 to 0.39	Unlikely
		0.4 to 0.69	Medium probability
		0.7 to 0.99	High probability

After crossing the aspects/activities of the Project, with the social factors of the environment and, according to the formula presented above, the result of the social index of the identified social impacts is obtained, where the impacts are finally quantified in high, medium and low social significance, according to the scores presented in the following table:

Chart 75. Social Index and category of impacts

Impact Type	Social Significance	Social Index
High Impact	HIGH	From 6.01 to 9
Medium Impact	MEDIUM	From 3.01 to 6
Low Impact	LOW	From 0.1 to 3

Impacts of **low and medium** significance can be minimized with preventive measures and best practices, while those of **high** significance must be addressed in a particular way, considering that they could entail not only mitigation measures but also compensation and/or contingency measures.

The risk analysis presented in chapter 8 identifies those potential impacts that could generate social risks and complements the impact assessment.

6.5. Interaction matrix between factors of the social environment and social aspects in all its stages (installation - operation)

In order to present a systematic and concise evaluation, the interaction matrix between factors of the social environment and social aspects has been integrated into the forestry component, both for the installation stage of the plantations, from the hiring of personnel that entails a considerable flow of workers, installation of the actual nurseries and the specific processes of plantations, up to the process of forest management of the planted, its harvest, and the transfer of the wood to the Industrial Plant.

From the interaction of the aspects derived from the activities of the enterprise in the installation and operation stages, as presented in Chart 71. Aspects derived from the activities of the enterprise in the installation and operational stages; and of the social factors cited in Chart 72. Social factors considered for the installation and operational stage, an interactive matrix is prepared, which allows previewing which activities could generate impacts, whether positive or negative.

Chart 76. Qualitative interaction matrix of social factors and aspects derived from activities in all stages of the forestry component of the enterprise

ETAPA		INSTALACIÓN							OPERACIÓN								
		Contratación de personal para VIVEROS Y PLANTACIONES	Instalación de viveros	Quema controlada	Control químico de plantaciones (plaguicidas, uso de herbicidas y de insecticidas) y fertilización (fertilizantes)	Preparación del suelo, laboreo de la tierra, plantaciones (y reposiciones)	Construcción y/o adecuación de caminos internos y de acceso y obras de drenaje	Manejo de residuos sólidos y efluentes	Contratación de personal para MANTENIMIENTO, COSECHA Y TRASLADO	Mantenimiento de las plantaciones y control mecánico	Control químico de plantaciones (plaguicidas, uso de herbicidas y de insecticidas)	Mantenimiento de caminos internos y de acceso, y de drenaje	Cosecha forestal	Traslado de madera a Planta Industrial	Manejo de residuos sólidos y efluentes		
MEDIO	FACTORES SOCIALES																
	ACTIVIDADES PREVISTAS																
SOCIAL	Empleos	●	●			●			●	●							
	Demografía	●	●			●			●								
	Servicios públicos/privados, infraestructura y/o propiedad públicos/privados	●	●	●			●	●	●					●	●		
	Servicios ecosistémicos			●	●	●	●			●	●		●	●	●		
	Patrimonio arqueológico, histórico y/o cultural					●	●						●	●			
	Economía local y regional	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Mercado inmobiliario	●															
	Salud y seguridad ocupacional		●	●	●	●	●	●		●	●	●	●	●	●	●	●
	Salud y seguridad de terceros	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
	Calidad de vida, usos y costumbres	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●
Expectativas	●		●	●					●		●		●	●	●	●	

Source: Own Elaboration

According to the factor interaction matrix, for both stages of the forestry component, it can be seen that the social factors **"local and regional economy"**, **"occupational health and safety"** and **"health and safety of third parties"**, **"quality of life"**, Followed by **"services, infrastructure and/or public or private property"**, **"expectations"**, could be affected, positively or negatively, by the various activities of the undertaking. It is important to mention that the **"employment"** factor, although it is not interrelated with all activities, is considered to be a mostly positive impact, in the impact assessment, throughout the project cycle.

Likewise, the impacts derived from the expectations generated by the project are considered, in almost all aspects, taking into account the results of the consultations carried out with local actors, regional referents of the communities near the forest fields.

It can be seen from the matrix that the discrimination of the stages of the forestry component could be summarized, that is, grouping activities or aspects; however, in order to clarify some subactivities and their correlation with social factors (such as chemical control in plantations), it is left discriminated as it was presented.

6.6. Result of social impacts

6.6.1. Social impact assessment result

Next, the impacts derived from the intersection of social environment factors and entrepreneurship activities are listed, both in the installation stage and in the operation and maintenance of the forest fields. First, in Table 77-a and 78-b the impacts are cited, their relationship with the activities, and to what social factor is linked, and later, in Table 79-a and 80-b the valuation of them is presented, following the methodology indicated above.

It should be noted that, for a reason of convenience in how to relate the social impacts in both stages of the forestry component, and its activities, the impacts were defined with the activity that results in the greatest social significance, considering that several impacts can occur by various activities (example: when speaking of the expectation of "development of the local and regional economy", this is due both to the hiring of personnel, as well as to harvesting activities, transportation, etc., but it is considered with greater social significance crossing over with the hiring aspect).

Chart 77-a. Social Impacts identified in the installment stage

Aspect or activity	Social Environment Factor	Social Impact
Hiring of staff for NURSERIES AND PLANTATIONS	Employment	Employment Generation
	Employment	Increase of salaries
	Employment	Formalization of labor links
	Employment	Workers migration (they are moving in)
	Employment	Skills development
	Demography	Increase of transitory population
	Public/private services, infrastructure and/or public/private properties	Increase in the demand of public and nonpublic services

	Public/private services, infrastructure and/or public/private properties	Increase in the demand of houses
	Local and regional economy	Local, Regional and/or extra regional economy direct (related to sector) and indirect development
	Local and regional economy	Increase of visitors to the area
	Third party's health and security	Impact on citizen and environment near of the plantation's security
	Third party's health and security	Potential conflicts by/with external agents
	Life quality, customs and habits	Increase of discomfort or restlessness
	Life quality, customs and habits	Change in costumes, habits and traditions
	Expectations	Positive expectations generation in the local population
	Expectations	Positive expectations generation in the regional and extra regional level
Nurseries Installment	Employment	Women employment promotion
Chemical control in plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers)	Ecosystem services	Impact of regulation, provision and cultural ecosystem services
	Local and regional economy	Possible impact of subsistence and/or local economy means
	Job health and security	Impact of job health and security
	Third party's health and security	Impact on third party's health and security
	Expectations	Negative perception and/or fears generation in the local population
Expectations	Negative perception and/or fears generation in the regional and extra regional level	
Land preparation, land labor and plantation (and repositions)	Employment	Possible job loss
	Demography	Increase of definitive population
	Public/private services, infrastructure and/or public/private properties	Increased vehicular traffic
	Archaeological, historical and/or cultural patrimony	Possible damage and/or loss of patrimony
	Real-Estate Market	Increase in the prices of properties
	Third party's health and security	Roads security impact
	Life quality, customs and habits	Social network impact
Construction and/or fixing of internal roads and access and works	Public/private services, infrastructure and/or public/private properties	Land properties impact
	Public/private services, infrastructure and/or public/private properties	Land properties impact

Chart 78-b. Social impact identified in the operational and maintenance stage

Aspect or activity	Social Environment Factor	Social Impact
	Employment	Employment Generation

Hiring of staff for MAINTENANCE, HARVEST AND TRANSFER	Employment	Increase of salaries
	Employment	Formalization of labor links
	Employment	Workers migration (they are moving in)
	Employment	Skills development
	Demography	Increase of transitory population
	Third party's health and security	Increase in the demand of public and nonpublic services
	Third party's health and security	Impact on citizen and environment near of the plantation's security
	Life quality, customs and habits	Potential conflicts by/with external agents
	Life quality, customs and habits	Social network impact
	Expectations	Positive expectations generation in the local population
Expectations	Positive expectations generation in the regional and extra regional level	
Nurseries' Maintenance y mechanical control	Employment	Possible job loss
	Demography	Increase of definitive population
	Ecosystem services	Impact of regulation, provision and cultural ecosystem services
	Local and regional economy	Increase of visitors to the area
	Public/private services, infrastructure and/or public/private properties	Increase in the demand of public and nonpublic services
	Public/private services, infrastructure and/or public/private properties	Increase in the demand of houses
Chemical control in plantations (use of pesticides: herbicides, insecticides) and fertilization (use of fertilizers)	Local and regional economy	Possible impact of subsistence and/or local economy means
	Third party's health and security	Impact in third party's health and security
	Expectations	Negative perception and/or fears generation in the local population
	Expectations	Negative perception and/or fears generation in the regional and extra regional level
Forest Harvest	Local and regional economy	Development of local, regional and/or extra regional, direct (associated to the sector) and indirect economy
	Job health and security	Impact of job health and security
Transport of wood to Industrial Plant	Public/private services, infrastructure and/or public/private properties	Increased vehicular traffic
	Public/private services, infrastructure and/or public/private properties	Impact in roads infrastructure
	Public/private services, infrastructure and/or public/private properties	Impact on land properties
	Third party's health and security	Roads security impact
	Life quality, customs and habits	Increase of discomfort or restlessness

Source: Own elaboration

Chart 79-a. Assessment of the social significance of the social impacts identified in the installation stage

Social Impact	Social Variables					Social Index	Meaning
	Sign	ICA	ID	II	PO		
Employment generation	1	6	8	7	0,99	6,93	HIGH
Salaries rise	1	3	6	6	0,49	2,45	LOW
Formalization of labor links	1	3	6	7	0,49	2,61	LOW
Staff migration (they are moving in)	-1	7	7	4	0,59	-3,54	MEDIUM
Skills development	1	7	7	9	0,99	7,59	HIGH
Increase in transitory population	1	6	6	5	0,79	4,48	MEDIUM
Increase in the demand of public and nonpublic services	-1	6	6	3	0,49	-2,45	LOW
Increase in the demand of houses	-1	6	6	4	0,49	-2,61	LOW
Development of local, regional and/or extra regional, direct (associated to the sector) and indirect economy	1	8	8	7	0,99	7,59	HIGH
Increase in visitors to the area	1	4	4	3	0,49	1,80	LOW
Impact in the security of citizen and near to the plantation	-1	3	3	6	0,49	-1,96	LOW
Potential conflicts by/with external agents	-1	3	8	7	0,59	-3,54	MEDIUM
Increase in discomfort and restlessness	-1	3	4	7	0,69	-3,22	MEDIUM
Changes in costumes, habits and traditions	-1	3	6	7	0,69	-3,68	MEDIUM
Positive expectations in the local population generation	1	6	8	7	0,89	6,23	HIGH
Positive expectations in the regional and extra regional level generation	1	8	9	7	0,69	5,52	MEDIUM
Women job promotion	1	3	6	7	0,99	5,28	MEDIUM
Impact in regulation, provision and cultural ecosystem services	-1	4	6	8	0,69	-4,14	MEDIUM
Possible impact in subsistence means and/or local economy	-1	3	4	7	0,69	-3,22	MEDIUM
Impact on occupational health and security	-1	1	1	8	0,69	-2,30	LOW
Impact on third party's health and security	-1	4	6	8	0,69	-4,14	MEDIUM
Generation of negative perception and/or fears in the local population	-1	4	4	6	0,69	-3,22	MEDIUM
Generation of negative perception and /or fears in the regional and extra regional level	-1	1	9	4	0,39	-1,82	LOW
Possible job loss	-1	1	3	8	0,69	-2,76	LOW
Increase of the definite population	1	6	6	6	0,59	3,54	MEDIUM
Increase of the vehicular traffic	-1	6	7	5	0,99	-5,94	MEDIUM

Possible damage and/or loss of patrimony	-1	1	1	7	0,69	-2,07	LOW
Increase in the price of properties	1	6	8	4	0,69	4,14	MEDIUM
Impact in the vial security	-1	3	6	7	0,79	-4,21	MEDIUM
Impact in the social network	-1	3	6	6	0,69	-3,45	MEDIUM
Impact in the vial infrastructure	-1	3	7	6	0,79	-4,21	MEDIUM
Impact on land properties	-1	1	5	5	0,89	-3,26	MEDIUM

Chart 80-a. Assessment of the social significance of the social impacts identified in the operation stage

Social Impact	Social Variables					Social Index	Meaning
	Sign	ICA	ID	II	PO		
Employment generation	1	7	8	7	0,99	7,26	HIGH
Salaries rise	1	3	6	6	0,49	2,45	LOW
Formalization of labor links	1	3	6	7	0,49	2,61	LOW
Staff migration (they are moving in)	-1	7	7	4	0,59	-3,54	MEDIUM
Skills development	1	7	7	9	0,99	7,59	HIGH
Increase in transitory population	1	6	6	5	0,79	4,48	MEDIUM
Impact in the security of citizen and near to the plantation	-1	3	3	6	0,49	-1,96	LOW
Potential conflicts by/with external agents	-1	3	8	7	0,59	-3,54	MEDIUM
Changes in costumes, habits and traditions	-1	6	6	7	0,69	-4,37	MEDIUM
Impact in the social network	-1	6	6	6	0,69	-4,14	MEDIUM
Positive expectations in the local population generation	1	6	8	7	0,89	6,23	HIGH
Positive expectations in the regional and extra regional level generation	1	8	9	7	0,69	5,52	MEDIUM
Possible job loss	-1	1	4	8	0,69	-2,99	LOW
Increase of the definite population	1	6	6	6	0,69	4,14	MEDIUM
Impact in regulation, provision and cultural ecosystem services	-1	4	6	8	0,69	-4,14	MEDIUM
Increase in visitors to the area	1	6	6	3	0,49	2,45	LOW
Increase in the demand of public and nonpublic services	-1	6	6	5	0,49	-2,78	LOW
Increase in the demand of houses	-1	6	6	5	0,49	-2,78	LOW
Possible impact in subsistence means and/or local economy	-1	3	4	7	0,69	-3,22	MEDIUM
Impact on third party's health and security	-1	4	6	9	0,69	-4,37	MEDIUM
Generation of negative perception and/or fears in the local population	-1	4	4	6	0,69	-3,22	MEDIUM

Generation of negative perception and /or fears in the regional and extra regional level	-1	1	9	4	0,39	-1,82	LOW
Development of local, regional and/or extra regional, direct (associated to the sector) and indirect economy	1	8	8	8	0,99	7,92	HIGH
Impact on occupational health and security	-1	1	1	9	0,69	-2,53	LOW
Increase of the vehicular traffic	-1	6	6	8	0,99	-6,60	HIGH
Impact in the vial infrastructure	-1	3	6	7	0,89	-4,75	MEDIUM
Impact on land properties	-1	1	5	5	0,89	-3,26	MEDIUM
Impact in the vial security	-1	6	6	8	0,89	-5,93	MEDIUM
Increase in discomfort and restlessness	-1	6	6	8	0,99	-6,60	HIGH

Source: Own elaboration.

It can be verified that thirty-two (32) potential social impacts were identified and grouped for the installation stage; and twenty-nine (29) for operation and maintenance, the impacts identified being similar, and in many cases evaluations of social significance as well, differing in some cases in importance or probability of occurrence. Although, as already mentioned, several of the impacts may occur in different aspects related to the activities of the undertaking, in the previous table they were considered in relation to only one aspect –where they have the greatest incidence–; in order not to make the quantification repetitive. However, the description of the impacts mentions all the activities that cause/could cause them and that, therefore, require attention to prevent and/or minimize them. In addition, the impacts have been grouped by factors of the social environment, this allows identifying the particular modalities or disciplines that need to be addressed when establishing the measures in the Social Management Plan programs.

In the stage of operation and maintenance of forest fields, some impacts are correlated with the aspect of "maintenance of plantations and mechanical control", considering said activity "as a whole"; that is, where other activities are indirectly considered, and where personnel linked to daily tasks in the forest management process also intervene. The activity of "Soil preparation, land tillage, plantations (and replacements)" also integrates the design process itself, where the advance mapping of the plantations on the lands to be forested is planned.

It should be noted that, in some cases, it can have social impacts with "low" social significance, especially because the universe of the potentially affected population, as well as the distance of impact is low, however, they must be addressed because they affect vulnerable or sensitive groups, in order to comply with current regulations and policies and/or good practice guides for social management of projects, or that are related to people's health and lives.

6.6.2. Social impact assessment result

The description of the impacts assessed above is presented below, grouped by social factor, detailing the aspects/activities of the undertaking that generate them.

JOB

Employment Generation

Activities or aspects that generate the impact: *In the installation stage:* hiring personnel for nurseries and plantations, installation of nurseries. *In the operation stage:* hiring of personnel for maintenance, harvest, transfer.

Description:

Employment opportunities will be generated from the installation and operation of plantations and forest nurseries. According to the data provided by the company, it will require up to 70% unskilled labor, 20% qualified professionals and 10% qualified technicians. Up to 95% of the workforce is expected to be national; and of this, around 50% is local (from the Project's AID), with the remaining 50% from the other departments of the country (All and others). Part of the jobs will be continuous over time and part will be temporary and cyclical, according to the sub-stage of the forest production cycles.

It is estimated that the project will progressively employ a growing number of staff, so the flow of workers will also increase, directly and outsourced (hired, through intermediaries), from around 270, through 1,335, 2,545, 2,750 to 3,050 people in the different sub-stages of the installation phases - in a period of approximately⁸⁵ 54 months - and operation - henceforth. Most of the jobs will be outsourced, between 94.44% and 98.36% as one moves from planning to operation. The project will comply with the principles of IFC PS 2 on "Labor and working conditions", clearly defining the labor links, depending on whether the employees are direct workers, contracted (outsourced), or workers in the supply chain, as the case may be. Likewise, FSC Principle 4 on "Community relations and workers' rights" will be considered.

The jobs will be related to the different activities/processes of installation and operation of the forestry component, from planning to the transfer of wood to the industrial plant and the start of a new cycle of plantations. Likewise, it should be noted that not all forest fields will have exactly the same planting cycle simultaneously, so the number of workers in each field will vary at the same time.

According to the socioeconomic data, the people of the department of Concepción will be able to cover the demand for unskilled employment, since there is a large number of available ones. In the department of Concepción, a large part of the population is young; of which 72% are under 35 years of age, with an average of 7.61 years of studies. For its part, the department's working-age population (PET) is 186,627 people, of which 58.33% are economically active. The approximate total of the population of the 6 districts of the department of Concepción, within the AID of the forestry component, is 111,950 people by 2020. With these data, it is estimated that a large part of the unskilled labor that will be employed by the project could be local, in the same department of Concepción.

To a lesser extent, the department of Concepción could also provide a certain amount of skilled labor. According to the data observed in the LBS, different types of technical courses are taught

85 Paracel, Mampower, 2020.

in the department with rapid job prospects, especially in the urban areas of the department, in various public and private training centers. The technical sectors of interest in which there are people trained in the department are: automotive, commercial, electricity, accounting, labor law, finance, taxation, information technology, computing, welding, metalworking, construction, plumbing, carpentry, light and heavy vehicle and machinery driving, safety in road works, painting, among others. In this sense, the project constitutes a job opportunity for unskilled labor that could come primarily from the AID localities directly, neighboring the forest plantations; and technical manpower that could come from other districts within the department of Concepción.

The departments of Amambay and San Pedro, considered within the project's IIA, will also be able to provide labor, mainly unskilled, for the project. In both departments, most of the population is young, under 35 years of age (68% Amambay, 70% San Pedro); with averages of 8.48 and 7.21 years of study. The working age population (PET) is 127,915 and 330,995 people in Amambay and San Pedro, respectively; with an economically active population (EAP) of 64.03% and 63.11%.

The generation of jobs at the local level will contribute to the decrease in unemployment, which is 6.66% (about 7,247 people) in the department of Concepción, higher than the national average rate. And to the reduction of income poverty and structural poverty, which in the department of Concepción are high, of more than 40% in terms of income poverty and more than 50% in terms of at least one (1) Unsatisfied Basic Need (UBN), above the national average. Likewise, the creation of sources of employment, although mostly seasonal, may contribute to reducing the levels of migration from rural to urban areas observed in the department of Concepción, which are mainly motivated by work and study; and that also constitute another outstanding problem in the AID. Unemployment, job insecurity, poverty and associated migration are four of the problems most highlighted by the people interviewed in the AID.

Salary Increase

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations. *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer.

Description:

Salaries for direct jobs generated by the project's forestry component are expected to be higher compared to current average salaries in AID and All. However, this impact may be limited considering that the amount of direct labor (hired by Paracel, without third parties as intermediaries) is between 5.55% (basic engineering stage), and 1.64% (operation stage) of the estimated total of jobs to be generated in the substages of the installation and operation stages. Most of the jobs will be outsourced (contract workers); likewise, Paracel will guarantee compliance with current labor regulations, and in accordance with IFC's Performance Standard 2, to all personnel linked to the project.

In terms of direct jobs, the project could provide higher salaries than the current average per capita income in the All departments, taking into account the related national regulations and

the profiles or qualifications demanded. The average per capita income is Gs 896,026 in Concepción, Gs 981,516 in San Pedro and Gs 1,530,906 in Amambay, all below the current legal minimum wage of Gs 2,192,839. Although the quintiles with the highest incomes make up more than 50% of the population, they are around the minimum wage in force in Concepción and a little more than the minimum wage in force in San Pedro. Furthermore, according to the economic characterization of the IIA, the total poverty level by income in Concepción and San Pedro is above 40%.

Most of the population of the three All departments is rural (Concepción 57%, San Pedro 80%, Amambay 33%); being agriculture and extensive livestock an important sector of employment of the population, although behind the tertiary sector (commerce and services). As for the population of the AID districts, the majority is dedicated to activities in the primary sector, both for sale and for self-consumption, followed by the tertiary sector. Compared to these productive sectors, especially the primary one, the project is expected to offer better paid jobs.

It is considered a positive impact because of the increase in the level of income; a priori means an increase in the purchasing power and debt capacity of employed persons and their dependents, contributing to a greater consumption of goods and services and, therefore, to a greater development of the local economy and quality of life. Thus, a decrease in the level of poverty is expected, not only due to income, but also structural, which is high in the AID districts, where between 49.1% (San Alfredo) and 89.4% (Sergeant José Félix López) of the population have at least one Unsatisfied Basic Need (UBN).

Formalization of labor ties

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations. *In the operation stage:* Hiring of personnel for maintenance, harvest, transfer.

Description:

Both stages of the forestry component of the project will create direct formal jobs (hired by Paracel, without third parties as intermediaries); that is, in compliance with current national legislation. Regarding the jobs generated that will be outsourced, these will be monitored by the company in order to comply with national legal requirements, in compliance with the principles of IFC PS 2 on "Work and working conditions", which defines requirements applied to workers. contracted (outsourced).

This will be beneficial, comparatively, in the area of influence; since only a little more than a third of the salaried population employed in the three departments of the IIA have formal working conditions, in the sense that they are registered and make contributions to a retirement system. In absolute values, as of 2017, this involved only 13,969 people (38.41% of the population) in the department of Concepción, 19,171 people (38.24%) in the department of San Pedro and 14,167 people (35.36%) in the department of Amambay. In the field data survey in the AID, job insecurity (low pay, unsafe employment links) has been mentioned as a relevant problem.

Access to formal employment conditions is beneficial for workers and their dependents, since the system of pension contributions and social security is now integrated. Other labor rights and guarantees are accessed, contributing all this to a better quality of life for the worker (greater peace of mind regarding the future, etc.) and the dependents of him.

Migration of workers

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations. *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer.

Description:

It is anticipated that the forestry component of the project may impact the migration of people in different ways, due to the increase in the flow of workers in the area.

One type of migration may occur due to the change of workers from one productive sector to another, bearing in mind that today the predominant activity in the area is livestock and to a lesser extent agriculture. The employment opportunity generated in both stages of the forestry component of the project may attract people who currently already have a job in another productive and/or service sector and promote migration to the project, due to various factors that could make the offer of Project employment more attractive than the existing job/income generation offer, such as: better wages/income, job formalization, related benefits, proximity to the home, desire for experience in a project with such characteristics, etc. The impact would be positive if migration means an increase in the level of income and quality of life of the people who have migrated to the project sector. The impact will be negative for the productive/service sectors that will lose employees and will have to hire new personnel and train them, or that will stop producing due to the lack of labor.

A second type of migration could be indirect. The economic development that may be induced by the project in the AID during both stages of the forestry component, may generate attractions for people, both local and foreign, who are currently engaged in certain productive areas, to migrate to productive sectors that can be indirectly promoted by the project, such as shops and/or services (tertiary sector, in general). In these cases, the impact would be similar to what was previously described in terms of migration from one productive sector to another.

In the department of Concepción, the main productive items historically have been agriculture and extensive cattle ranching, remaining predominant even before the authorization in recent years of some industries. This has also been the case in the departments of Amambay and San Pedro, maintaining this at least in San Pedro. In the AID districts and communities, it is observed that the main economic activities are related to the primary sector, involving between 48.9% (San Alfredo) and 80.3% (Arroyito) of the population.

In the field data collection in the AID, most of the interviewed population declared to work in activities of the primary sector, including agriculture and small-scale livestock; mainly for self-consumption and, as needed, for sale. Part of the population referred to commerce and services

(pantries, minor sales, motorcycle workshop, snack bars/dining rooms, sale of mini-phone charges) as their activities. An important part declared their wage-earning activities (in ranches, masonry, plumbing, chainsaw operators, cleaning and wiring of land, others) as their income-generating activity, which constitute forms of informal employment.

In the context described, it is estimated that the main migration of workers may occur from the extensive and small-scale agriculture and livestock sector; that is to say, small producers, as well as self-employed workers –mainly informal ones– towards the project. According to the surveys carried out among residents in the AID, the low profitability of agricultural production is one of the economic problems that affect the communities, which may give a notion that, given better income opportunities, people would choose to change productive area. As for the current informal workers (changas), these could offer services for forest plantations, since some activities used to carry out in the cattle ranches of the area would also be necessary in the forest area (for example: maintenance of fences, pruning). On the other hand, it is probable that people who are already employed in other specific areas (for example, industrials); and, depending on the type of employment, they may have fewer incentives (comparative wages and/or working conditions, they already have specific training for their field) to leave their current jobs.

According to the data from the All characterization, the departments of Concepción and San Pedro are the ones with the highest levels of pendular migrants (migration of a periodic nature and that does not translate into a change of residence); generally, for work reasons and at the intra-departmental level. At the level of the AID residents (especially in Jhugua Guazú, Loreto, Paso Barreto), in the field information surveys, they indicated "migration" due to lack of job opportunities as one of the most afflicting social and economic problems to the communities, which could be pendular or permanent migration, which produces uprooting. All this could indicate a favorable context for the people interested in migrating from their productive sectors or their current jobs to the project sector to be mostly from the department of Concepción and even from San Pedro.

Finally, a third type of migration would be geographical; since it is expected that workers in the livestock sectors (workers in ranches) may migrate to other establishments due to the change in land use, predominant in the project's buildings, since they will spend, for the most part, livestock production to forest production. In some establishments visited where the forestry plantations of the project are planned to be implemented, people have reported that the workers are used to working in livestock, and it is unlikely that they will want to change their area. In this context, both in the AID, the All and other areas of the country (for example, the Chaco) there are livestock establishments that could attract these workers, considering that livestock is an area in growing development, both at the level of quantity of establishments and occupied geographical areas nationwide. The owners of the establishments are not considered, since they will have the freedom of decision and negotiation for the sale/lease of their land, and the possible migration of these would be voluntary and, furthermore, financially compensated.

Possible loss of employment and/or sources of income

Activities or aspects of employment and/or sources of income: *In the installation stage:* Soil preparation, tillage of the land, plantations.

Description:

The possible loss of sources of employment and/or income would take place due to the change in land use, which will produce the implantation of forest plantations on sites that are currently dedicated to livestock production. This change in production will affect employees currently working in the establishments planned for the project, all linked to stays. The owners of the establishments are not considered, since they will have the freedom of decision and negotiation for the sale/lease of their land.

As indicated before, it is possible that the change in land use produces the geographical migration of workers accustomed to the livestock sector who would not/could not reconvert to the forestry sector. However, some workers are also likely to be unemployed, if they are unable to migrate to other establishments.

Capacity building

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations. *In the operation stage:* Hiring of personnel for maintenance, harvest, transfer.

Description:

The project will train interested persons who will be able to be employed in both stages of the forestry component. This will be in order to counteract, to some extent, the lack of locally available skilled labor; and to strengthen the existing one according to the specific technical needs of the project in the area of forestry production. Along these lines, the training offered by the project will have a positive impact on the personal training of future workers in the forestry component; and at the level of hiring local labor.

In addition, the positive impact of leaving "installed capacity" in the project's area of influence, especially the AID, in the medium and long term is considered. People who have been trained by the project and who have settled in the area and/or intend to settle in any of the AID or All municipalities, will have greater possibilities of hiring in other enterprises in the area, or in those that are projected in the department of Concepción or San Pedro, especially, even more taking into account the possible development of more forestry production ventures that may take place in the future. It is highlighted that the project will establish alliances with the public and/or private technical training centers/institutions for rapid job opportunities in the AID; Therefore, in addition to the people trained in the forestry component of the project, the capacities of the local technical training centers/institutions will be strengthened.

It is worth mentioning that in the surveys carried out among the population of the AID localities, one of the most highlighted aspects as a problem for further development of the communities was the absence of training programs for young people. In relation to this, one of the expectations of the interviewees is the installation of technical training courses with possible job opportunities. In this context of need and expectation, the actions of the project, in this area, will generate a very important positive impact on local technical capacities.

Furthermore, the development of the project is expected to have multiplier effects, in the long term, on the development of other similar projects and on the economy in general of the area of influence, even beyond the AID; and attract new investment. For this scenario, the installed capacity in the area would be key, and it is estimated that the items related to construction, nurseries and forest plantations, among others, could have a rapid labor insertion.

Promotion of women's employment

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations.

Description:

The project plans to employ 90% of women in forest nurseries, thus contributing to reducing the existing gender gap in employment opportunities. The jobs related to the nurseries will be around 150, including more than 80% of unskilled profiles that will be trained by the project. In this sense, it is expected that most of the jobs may be held by local women, considering that the technical/professional qualification of labor in the area is low, with the additional advantage that the nurseries operate throughout the cycle of the project.

In the AID districts, women make up an average of 47.97% of the population. As for the Bella Vista Norte district of the Amambay department, also part of the AID, 49.44% of the population are women. According to the data collected in the field in the localities of these districts close to/neighboring the forest plantations (with emphasis on Paso Barreto, Loreto and Jhuguá Guazú). Women are mainly engaged in household chores, the farm, handicrafts, the raising of small animals, the sale of dairy products and their derivatives, trade, decoration, rentals, gastronomy, hairdressing, dressmaking, among other activities and/or they migrate in search of job opportunities, both to Asunción and its metropolitan area; the departmental capitals of the IIA as well as abroad. Regarding training aimed at productive employment for women, the lack of opportunities was mentioned. It was also mentioned that unequal practices still persist, assigning women to household tasks and to men productive tasks that generate income.

In this context of lack of opportunities for women, the project's human resources policy will contribute to offering employment opportunities that currently do not exist in the AID, from which women from the IIA or other areas of the country could also benefit.

DEMOGRAPHY

Transitory population increase

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; implementation of forest plantations (the forest component of the project as a whole). *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; operation of forest plantations (the forest component of the project as a whole).

Description:

There will be an increase in the population, due to an increase in the flow of workers, as a result of the need for the project of between 1,335 and 3,050 qualified and unskilled personnel; and professionals for the installation and operation of the forestry component, plus the families that these people could bring with them to live in the AID communities. In the case of male employees, it is estimated that many could travel alone to the project sites, since there is a history of single male migration for work reasons (pendulum migration). This increase will be temporary, during the period that the installation activities last, which will be 2 to 3 years and the cyclical activities of the operation where a temporary increase in personnel is required; for example, the times of harvest and transport of wood.

The transitory population may be local or foreign. Local population refers to people from AID and the department of Concepción. Foreign population refers to the population of the rest of the IIA (San Pedro, Amambay), of the other departments of the country and abroad.

Additionally, a transitory population increase in the AID is expected due to the arrival of people not directly related or outsourced, with the installation and operation of the project's forestry component, but who see opportunities to generate income through businesses and/or the offer of services, due to the population, commercial and service dynamism that the project would generate.

In general, AID districts are medium and small depending on the size of their population. There are about 5,799 people in San Alfredo; 7,242 in Sergeant José Félix López; 4,185 in Paso Barreto; 18,879 in Loreto; 13,181 in Arroyito; 62,664 in Horqueta and 17,765 in Bella Vista Norte, distributed in urban and rural areas, with a predominance in rural areas. The communities in the immediate surroundings of the forest plantation buildings are small towns, with up to around 1,000 inhabitants, with the exception of Sergeant José Félix López, who has more than 5,000 people.

These data would indicate that the population associated directly and indirectly with the installation and operation of the forestry component of the project could be important compared to the local population according to the current size of the populated centers where they could settle, especially in the case of the communities closest to AID. However, it is presumed that, due to the existing population density, the location of the additional transitory population is physically feasible, even more so, providing for the installation of temporary and mobile housing solutions for part of the workers, within the same buildings intended for the Forest plantations.

Definitive Population Increase

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; implementation of forest plantations (the forest component of the project as a whole). *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; operation of forest plantations (the forest component of the project as a whole).

Description:

The direct workers of the project, as a result of the increase in the flow of workers linked, in case of being people outside the AID, would become part of the AID on a more permanent basis than the seasonal workers. However, it is estimated that these "permanent" workers would be a very small percentage of the total personnel mobilized by the project in each cycle of forest production. In addition, the project will also provide accommodation for permanent staff inside the forest plantation buildings, with all the necessary basic services. In this sense, this incremental population in the AID would have little significant impacts on the existing accommodation capacities in the communities closest/neighboring to the plantation properties.

Additionally, and in line with the impact mentioned in the preceding section, the installation and operation stages of the forestry component of the project may constitute an attraction not only for those interested in being employed in the direct and outsourced activities of the project. But also for local or foreign people who could obtain a benefit from the commercial development and services that the project could induce in the AID communities, such as, for example, the creation of demand for basic goods and/or services; and the creation of jobs associated with them; also, for people who see opportunities for a better quality of life in the vicinity of the project, due to the potential for greater consumption options, etc. These people would come to increase the definitive population of the AID communities.

Likewise, the increase in vehicular traffic by project vehicles, particularly those with heavy loads, and the conditioning and maintenance of existing communication routes, which connect with the forest plantation buildings for project use, may attract people, local or foreign, seeking to settle in the immediate proximity of these roads, due to the economic opportunities that the greater dynamism of vehicles and people could generate along these roads. These would also go on to increase the definitive population in the AID.

PUBLIC/NON-PUBLIC SERVICES, INFRASTRUCTURE AND/OR PROPERTY

Increase in demand for public and non-public services

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; implementation of forest plantations (the forest component of the project as a whole). *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; operation of forest plantations (the forest component of the project as a whole).

Description:

The temporary and definitive increase in the population in the AID communities, generated by the hiring of personnel and consequent increase in the flow of workers in the area, for the installation and operation of forest plantations and by the potential arrival of other people attracted by the indirect effects of the project, as well as the needs of the facilities of the forestry component of the project and the potential increase in people visiting the area, will produce a certain increase in the demand for public and non-public services, both existing and of those currently non-existent, although it is estimated that it will be lower compared to the industrial component of the project.

These services are: Collection and final disposal of solid waste, drinking water, sanitation, electricity, transportation, health care, police and security, emergencies, education, communications and information, lodging.

The project will provide temporary and mobile accommodations as housing solutions for the workers, which will be located within the buildings of the forest plantations and away from the urban centers and/or communities near/neighboring the buildings. These accommodations will rotate in the fields where the plantations are made and will have all the basic services, provided by the company. In this context, the potential impact on each of the public and/or private services by the project workers is described below.

- **Collection and final disposal of waste, drinking water, sanitation, electricity, communication and information technologies, emergency infirmary, security, lodging:** As the project workers will predominantly settle within the plantation buildings, it is estimated that the pressure on these basic services in the AID will be practically non-existent. Regarding the management of effluents and collection/disposal of waste, these will be attended to by Paracel in accordance with national regulations.
- **Transportation:** It is presumed that the majority of the workers will use their own vehicles of the type of motorcycles for their eventual transfers between the forest plantations (accommodation) and the urban/rural areas of the AID, according to the background that is between 70% and 80 % of households with motorcycles in the AID. Therefore, the impact on existing public transport services –which are very limited in AID– will be insignificant.
- **Health care:** It is estimated that only in situations of illnesses or other minor ailments, the existing healthcare centers in the AID will be used. For mild cases, there will be own infirmaries within the forest plantation buildings. In this way, the pressure of project workers on existing public and private health services will be significantly reduced.
- **Police and security:** It is estimated that only in cases of emergencies and conflict situations of great magnitude/importance and/or when the nature of the event requires the intervention of the public authority, the public police/security service will be used. The project properties will have their own security personnel, which is common in private enterprises. In this sense, the need for the project to have the support of the public police/security service is reduced. However, as it is a sensitive aspect that could involve the violation of human rights, the project will observe, as a minimum, IFC PS 4

on "Community Health and Safety", regarding the safeguarding of personnel and properties; on the one hand, and the minimization of security risks for the surrounding communities.

- **Emergencies (volunteer firefighters, municipal and/or national police, highway police):** It is estimated that only in cases of major emergencies or that occur on public roads will the existing public emergency services be used; as, for example, in cases of uncontrolled forest fires, road accidents during the transport of project loads, etc. The project will have its own emergency care brigades in all the buildings of the nurseries and forest plantations, thus reducing the need for support from the public emergency service. It should be noted that, as described in the study on the industrial component, the volunteer fire services and the national police in the AID could be insufficient in the event of an increase in emergency situations.
- **Education:** It is presumed that since the jobs in the forest plantations will be mostly temporary, there would not be the case of massive removals of relatives of foreign workers to AID; therefore, existing educational services would not be significantly impacted. It is important to mention that some localities do not have tertiary education, which could mean that some families need to refer relatives to the populated centers, predominantly the district capitals, for the educational development of the secondary cycle.

Regarding the potential transitory and permanent population indirectly induced by the project in the AID and the people who could visit the area, it is estimated that all of these could put pressure on all existing public and non-public services; and an increase in the problem of the lack of some of the basic services. As for the existing services, the increase in demand could affect the current service levels in the AID, since, if the development of these does not adequately accompany the population increase, the capacity of the services will be exceeded. Regarding the currently non-existent services that are basic for human populations, the lack of these, together with the temporary and definitive increase in the population, may generate situations of deterioration of the urban/rural and housing environment in the affected communities and living conditions with basic needs dissatisfied.

In the social base line, it has been indicated that there is a problem in the supply of social services in the department of Concepción, and that the cause of these lies in the inefficient geospatial distribution of the same (for example, along communication routes important), in the quality of the provision (for example, the number of schools is not an indicator of the quality of education), in the slow growth of their coverage (which does not accompany the population growth), and in lack of adherence to anthropocentric drivers (population or socio-economic growth) for the development of services (development depends more on political wills of the moment than on development plans). In this context, an indirect impact of the project may be the temporary and definitive pressure of the population induced by the development produced by the project on the existing services and on the environment, due to insufficient or lack thereof.

Increased demand for housing

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; implementation of forest plantations (the forest component of the project as a whole). *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; operation of forest plantations (the forest component of the project as a whole).

Description:

In the event of a temporary and definitive population increase in the AID, indirectly induced by the development of the forestry component of the project, there may be an increase in the demand for housing in the AID, although on a smaller scale compared to the component industrial. Most of these people will be geographically located according to some indicators, such as the magnitude of the movement of people associated with the project in the AID communities, the degree of development of the AID communities (existing services, business/service opportunities), and leasing capacity (the existing offer of lodgings, rentals and houses).

There is no data on homes that are for rent or sale in the AID communities. Regarding lodgings, there are data from the Horqueta and Loreto districts, but these are probably concentrated in the district urban areas, not in rural communities such as those of the AID. In the event that the induced population cannot access housing with minimum habitability criteria -both due to the scarcity of supply, and due to lack of resources to acquire or rent them-, there is a risk of establishing irregular and precarious settlements in the AID communities, contributing to the deterioration of their urban/rural environment and the quality of life of the people in said settlements.

Regarding the demand for housing by the project workers, it is estimated that this will be insignificant since the project will provide temporary and mobile housing that will be installed within the buildings of the forest plantations and that will rotate in the fields where plantations are made. The workers who are current residents of the AID communities closest/neighboring to the forest plantations will be able to live in their own homes or in these accommodations, without the need for new housing solutions.

Increase in vehicular traffic

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; installation of nurseries; soil preparation, tillage, plantations; construction and/or adaptation of internal and access/exit roads; solid waste and effluent management. *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; maintenance of forest plantations; transfer of wood to industrial plant; maintenance of internal and access/exit roads; solid waste and effluent management.

Description:

There will be an increase in vehicular traffic in relation to that currently existing in the area of influence; and especially in the AID due to the needs of transporting harvested wood, materials,

supplies, machinery, equipment, solid waste and effluents that will have the installation and operation stages of the forestry component of the project, particularly during the harvest season and timber transfers to the industrial plant, which is expected to occur at a rate of 1 truck every 4 minutes approximately, from years 6-7 after the installation of the plantations in each forest field. However, as the plantations in each field will be implemented at different times starting in 2020, it is not expected to have timber transported from all the fields at the same time, especially in the first years of installation and harvest.

On the other hand, the increase in the transitory and permanent population will also contribute to the increase in traffic in the AID, due to the increase in the flow of workers linked to the project, as well as the potential population induced by the project. This population will have transportation needs that, considering the context, would more likely be covered with their own vehicles, mainly motorcycles.

Although the project vehicles will not be the only ones traveling in the AID since there are heavy loads of livestock and agricultural products in the area; this increase in traffic may lead to a decrease in service levels (speed, travel time, freedom of maneuver, interruptions, comfort) or traffic flow on the affected roads, during peak hours of use of the roads. According to observations of the existing roads in the AID, the national routes and some branches are paved, have widths of up to 10 meters and two traffic lanes; other secondary roads are dirt (in some cases gravelly) and wide that allows two traffic lanes; these will be the routes shared by the project with other users in the AID.

The increase in vehicular traffic would particularly impact the communities of the districts of Loreto, Paso Barreto, Arroyito, Horqueta and San Alfredo, which are located on the AID roads to access/exit the properties of the forest plantations and to connect these plantations with the industrial plant.

Likewise, the project will require the conditioning and maintenance of certain sections of existing roads in the AID for access/exit of the properties of the forest plantations. In this case, it is not ruled out that the adaptation and maintenance of communication routes for use in the installation and operation stages of the forestry component of the project produce an effect of increasing traffic on these roads, due to the theoretical proportional relationship that, the greater the supply of roads, the greater the demand for vehicular traffic. Just as roads are impacted, road safety is affected, attending to the low and almost zero signaling in the area, with emphasis on areas with concurrence of children, women and the general population (schools, churches, health centers).

Impact on the vial infrastructure

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; installation of nurseries; soil preparation, tillage, plantations; construction and/or adaptation of internal and access/exit roads; solid waste and effluent management. *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; maintenance of forest plantations; transfer of wood to industrial plant; maintenance of internal and access/exit roads; solid waste and effluent management.

Description:

The increase in vehicular traffic of all kinds –traffic of vehicles loading harvest wood (mainly), materials, supplies, machinery, equipment, solid waste and personnel transportation–, in the area of influence of the project's forestry component ; especially in the AID, it could mean the faster deterioration of the existing roads, in terms of their structural conservation and their useful life, affecting not only the traffic of the project vehicles but also the other users of these roads, such as people who use them on a daily basis, the logistics of other productive activities in the area, the logistics of materials and/or passing products, etc. This impact will be minimized through the conditioning and maintenance of the access/exit roads of the forest plantation buildings by the project.

However, even with the roads that the project could condition in the immediate surroundings of the plantation properties, it is clear that there will be greater vehicular circulation on the roads beyond this environment, since materials, supplies, machinery and equipment will be received from populated centers outside the AID districts and/or the same department of Concepción. Vehicle loads of the project in its installation stages; and above all of operation - scheduled at a rate of 1 truck every 4 minutes approximately, during the working day at harvest time - will be communicated to local and national road authorities, in order to establish a strategy for the least impact on existing roads. Paracel has already started talks with the Ministry of Public Works and Communications (MOPC) to define joint strategies for the adaptation/improvement of access roads.

The duration of the causes of this impact is transitory, cyclical and continuous. In the installation phase, it is expected that only for a few months, of the total of 2 to 3 years that it will last, there will be peaks in the circulation of heavy vehicles, according to each substage of the installation (example: installation of nurseries, of accommodation, transport of inputs and machinery). In the operation stage, it is expected that from 6-7 years of the implementation of the plantations in each forest field there will be continuous transit of cargo trucks to transport the harvested wood to the industrial plant. It is estimated that the types of vehicles that would produce the greatest impacts are conventional and non-conventional cargo trucks, but not the private vehicles of project personnel and/or the induced population, which are presumed to be mostly motorcycles and/or other light vehicles.

On the other hand, in case of adaptation of existing roads, on the one hand, it will temporarily affect the pedestrian and/or vehicular traffic that currently uses said roads, since the space of the same will be physically occupied to carry out the works; and, on the other hand, it will contribute to improving the conservation of the roads, several of which are currently in poor condition according to observations in the field and statements by residents of the AID towns. Once these are adequate, compared to the current situation, the structural improvement and paving of all the public routes used for the transport of wood will imply a drastic change in the current situation, reducing travel times (note that traveling the 70 km between Jhugua Ñandu and Puentesiño it takes 1.5 hours today), improvements in road safety, as well as facilitating access to/from emergency services (ambulances, police, firefighters).

It should be noted that the "limited access to local roads" is one of the problems pointed out by the consulted populations of the AID communities, with consequences for local

development. Along these lines, although in a lower percentage, the interviewees stated "**that the improvement of the road be guaranteed**" as one of the expectations in relation to the project in its forestry component. It should be remembered that "**infrastructure and road safety**" was the aspect most mentioned by the representatives of institutions and communities of the AID of the industrial component (districts of Concepción, Loreto, Horqueta and Belén), in relation to the aspects necessary for a greater development of their communities/districts. In this sense, they have highlighted the need to improve the state of roads and neighborhood roads. As Loreto and Horqueta are also part of the AID of the forestry component of the project; and the situation of the inadequate state of some roads is reproduced in the other AID districts of the forestry component; in addition to the already existing perception regarding these in the AID and the loading of the project vehicles, it is estimated that the impact of the project will be important on the road infrastructure from a social perspective.

As already mentioned, as well as an impact on the roads is expected, road safety on the access roads to the forest fields would be affected, attending to the low and almost zero signaling in the area, with emphasis on areas where children, women and the general population attend (schools, churches, health centers).

Impact of land properties

Activities or aspects that generate the impact: *In the installation stage:* Installation of nurseries; implementation of forest plantations (with the transportation it will require); construction and/or adaptation of internal and access/exit roads. *In the operation stage:* Maintenance of forest plantations (with the transportation that it will require); transfer of wood to industrial plant.

Description:

Private land holdings will be affected for the access/exit of the forest plantation properties in the event that it is chosen to use an existing road that crosses private livestock establishments from the so-called "Crossing X" (Paso Barreto), towards the northwest zone of the plantations. Taking as a precedent that this road is already being used for the access/exit of the existing establishments in the area, the project could use it since it offers a significant reduction in the route to connect the areas of forest plantations to the northwest with the area of the industrial plant southwest of the department of Concepción.

The activities of the forestry component that may need to use this route; and, therefore, they would cause the affectation, will be those of various transports, both materials, supplies, equipment and machinery, temporary and mobile accommodation; and residues for the installation and maintenance of the plantations, the potential conditioning of the road that the project could offer in exchange for its use; and, mainly, the transfer of wood to the industrial plant once the forest harvests begin, from years 6-7 of the planting of trees in the buildings in the area.

As the road in question is already being used by other establishments and as there are no populations settled on it; the impact on the part of the project will not be significant as it would be in the case of the opening of a new road and/or the passage through populated

communities. However, this impact on properties will generate rights of way that the project will agree on with each of the owners of the affected properties. In a private legal agreement setting, there would be less difficulty in defining the precise precautions, mitigations and/or compensations that the project will implement to be in compliance with the requirements of the affected owners. The project will observe the principles of IFC PS 5 on "Land Acquisition and Involuntary Resettlement", relating to measures in the event of temporary/permanent impairment or obstruction of properties.

On the other hand, in relation to land tenure, it should be noted that all properties linked to the forestry component of the project have property titles; and that peasant producers will not be affected, since almost all of the land belonged to large fields (or ranches), private cattle farmers with large-scale production. All forest fields are owned by Paracel, and are connected to existing public roads except for the aforementioned road that crosses private properties and could be used by the project. Likewise, the project must ensure, in the medium and long term, that the condition of land tenure always guarantees compliance with local regulations and international standards (minimally, IFC ND 5, FSC Principle 2); in order to minimize claims by third parties, especially small peasant groups in the area and other vulnerable groups (for example: indigenous communities, with the exception that the in-depth analysis of this group is addressed by another specific study).

ARCHAEOLOGICAL, HISTORICAL AND/OR CULTURAL HERITAGE

Impact on materials of archaeological, historical and/or cultural interest

Activities or aspects that generate the impact: *In the installation stage:* Installation of nurseries; soil preparation, tillage, planting, fertilization and replacement; construction and/or adaptation of internal roads and access/exit, and works of drainage of the land; harvest and transport of wood.

Description:

This impact refers to the material heritage of archaeological, historical and/or cultural interest, as it was addressed in the industrial component. On the other hand, the intangible cultural heritage is approached in the impact of potential affectation of uses and customs of the AID localities. In turn, sites of cultural interest related to water uses, which could be considered as part of the cultural-natural heritage, are referred to in the potential impacts on cultural ecosystem services.

Regarding heritage of archaeological value, it is estimated that due to the small magnitude of the works that may require soil movements - since most of the activities will be of small-scale facilities and plantations, where the soil is already intervened-, the forestry component of the project will not affect materials of archaeological value that could be found in the subsoil. Furthermore, the areas covered by forest plantations currently constitute cattle ranches with already a certain level of prior human intervention (soil already intervened). In any case, the project expects to comply with the principles of PS 8 of the IFC, on "Cultural Heritage" and with current national regulations on the matter. Any archaeological type material, although it could

be found within the project's properties, would constitute material of public value, so it must be communicated and rescued through safe procedures and delivered to the national authority responsible for the preservation of national heritage. If these precautions are not taken, the existing material in the subsoil could be permanently affected. It should be remembered that in the area of the department of Concepción the existence of paleontological remains of both flora and fauna has been reported, as well as findings that indicate the presence of pre-Hispanic societies; in addition, in parts of the territory there have been military conflicts in the past.

It is important to mention the forest fields in the north, adjacent to the Paso Bravo National Park. This reserve is close to the San Carlos Fort, in the San Carlos del Apa district, a heritage area linked to war events in Paraguay (War of the Triple Alliance), which, although it is external to the AID, is considered important to mention and boundary.

Regarding materials, objects and/or sites considered as historical and/or cultural heritage, both for the national and/or for the local population, these have not been surveyed within the forest plantation buildings in this evaluation. Outside of these buildings it is possible that there are tangible spiritual/religious and/or cultural heritage materials outside the access/exit roads of the project buildings, considering that at the national level there is the custom of installing small oratories or "niches" in commemoration of people who have lost their lives on the side of the roads. In these cases, it is possible that the project could affect some of these sites through the conditioning of the roads; and the transit of large cargo vehicles, particularly during the period of harvesting and transfer of wood to the industrial plant.

Paracel, both for the forestry and industrial components, will have an operational procedure for eventual finds, within the framework of the Archaeologic Finding Chance Program.

LOCAL AND REGIONAL ECONOMY

Development of the local, regional and/or extra-regional direct and indirect economy (associated with the sector)

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; implementation of forest plantations (the forest component of the project as a whole). *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; operation of forest plantations (the forest component of the project as a whole).

Description:

- Direct economy, associated with the forestry production area

The hiring of labor –local, regional, national– for the installation and operation of the forestry component of the project, including outsourced workers, will contribute to the development of the local economy, considering that the flow of workers in the area will increase over all during the installation stage; due to the greater purchasing power that they will have for the consumption of goods and services, and even investment in their own businesses.

Likewise, the acquisition of significant volumes of agricultural inputs, conventional and specialized equipment and machinery, materials and services for the construction of temporary and mobile accommodation, and forest nurseries with all basic services, vehicles and their parts and repair and maintenance services thereof, materials and services for conditioning and maintenance of access/exit roads and other related works, services for the collection and final disposal of garbage/waste and/or special effluents. Transportation services for these loads and forest harvest wood will also be required. All these will be for the installation and operation of forest plantations, which will generate a greater dynamism of the local and regional economy, depending on the local/regional feasibility of production and provision of the same.

On the other hand, the project is expected to satisfy 20% of its wood needs through the provision of existing small and medium-sized local forest producers, initiating these articulations through a "pilot and incentive project" that is already coordinated with the National Forest Institute (INFONA). This will promote the development of local producers and the dynamization of the economy associated with the sector, beyond the forest fields of the project. This is a significant aspect, taking into account that, in the field data collection, part of the interviewees –especially in Paso Barreto, Loreto, Sergeant José Félix López (Puentesíño) and Horqueta– expressed the expectation that the project "**link local producers**" and/or establish a "**safe purchase and sale system**", as well as "**generate local development (growth of investors and the population)**".

With all the different needs that the forestry component of the project will have, it is estimated that it will contribute to the development of small and medium-sized local, regional and national companies for the acquisition/supply of the necessary goods and services. It is observed that in the department of Concepción there are sectors of the secondary sector (industry) that carry out activities related to the materials that may be required for the subcomponents of works of the forestry component of the project; such as: extraction of stone, sand and clay; wood sawmill; manufacture of non-metallic mineral products; manufacture of metal products for structural use; manufacture of other fabricated metal products and metal working services; furniture manufacturing; maintenance and repair of fabricated metal products, machines and equipment. In addition, there are also forest plantations in the All departments (Concepción, San Pedro and Amambay) and others in the country, so it is possible that these producers enter into a commercial link with the forestry component of the project.

- **Indirect economy**

The temporary and definitive increase in the population, directly associated with and/or induced by both stages of the project's forestry component, will generate a demand for local goods and services that will necessarily be higher than the current one; by the same number of people who will settle or spend time in the AID. This will generate higher income and investment stimuli for the establishment and/or expansion of providers of goods and services of different types (food, communication, vehicles, transportation, recreation, education, health, etc.), formal and informal. As possible examples, we can mention the opening of commercial and/or service stores with products due to the flow of workers linked to the project, in the vicinity of the forest plantation buildings (dining rooms, supermarkets/pantries, telecommunications, mechanical workshops, etc.); the opening of new commercial and/or service premises along the communication routes used, with the expectation of selling

products to carriers; the expansion and/or habilitation of currently insufficient or non-existent public services; the creation of jobs by the aforementioned enterprises, which will be able to employ more local people.

On the other hand, the conditioning of access/exit roads to forest plantations may also contribute to the development of the local and regional economy; since an improvement of the existing roads would facilitate the logistics of products, supplies, materials of ventures and/or producers of the AID outside the project.

The greater dynamism of the local economy has, as positive effects, the increase in household income associated with the provision of goods and services, the possibility of accessing goods and services that are currently non-existent, limited, insufficient or inaccessible.

In the tertiary sector, it is observed that commercial and/or service activities are carried out in the department of Concepción that could be required to a greater or lesser extent during the installation and operation of the forestry component of the project, and that could be enhanced with this: trade, maintenance and repair of vehicles (including motorcycles), their parts and accessories; food and beverage trade; fuel trade; trade in cultural and recreational goods; land transportation service; temporary accommodation service; restaurants, bars and the like; telecommunications; financial services; real estate services for sale and lease; administrative support services for businesses; amusement and entertainment services. Regarding the AID, according to data collected in the field, it is observed that part of the population is dedicated to trade and the offer of services (pantries, minor sales, motorcycle workshop, snack bars/dining rooms, sale of telephone mini-charges). Another important part of the interviewees declared that they are devote to trades for wages in the areas of masonry, plumbing, cleaning and wiring of land, etc. All of these may benefit from the increase in population in the AID associated with, and/or induced by the installation and operation of the forestry component of the project.

Greater dynamism in the local economy will be very beneficial for local communities, since the total poverty rate by income in the department of Concepción is higher than 40%.

Additionally, it is worth highlighting the potential development in the medium and long term of more ventures in the forestry sector in the AID, possibly induced by the initial venture (at least the first of such magnitude) which is the project. Studies of the National Forest Institute (INFONA) document the existing forest plantation areas in the districts of the Concepción department that are part of the project's AID; as well as production forest coverage areas and potential forest development areas, at the national and departmental level. According to INFONA data, the districts with the most forest plantations in the department of Concepción are Sargento José Félix López (Puentesíño) with 3,785.78 ha –which constitutes almost half of the total (48%) - and Concepción with 3,207.04 ha –with more than 40% of the total–; thus, between these two districts almost 90% of the totality of existing forest plantations is reached. Two other districts with less planted area are Horqueta and Yby Yaú; and, finally, the district with the smallest area is San Lázaro with just 8.24 ha. Along these lines, it is important to highlight the potential use of AID for forestry exploitation (without negative impacts to the soil since they are suitable for said development), provided that sustainable management measures are implemented. A potential development of forestry production induced by the project

would entail benefits for the nearby/neighboring towns, creating jobs and contributing to the development of the local and regional economy.

Increase in visitors to the area

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; implementation of forest plantations (the forest component as a whole). *In the operation phase:* Hiring of personnel for maintenance, harvest and transfer; operation of forest plantations (the forest component as a whole).

Description:

The presence in the AID of foreign people who work directly or in outsourcing for the project -particularly foreigners, people from other AID localities and/or from other departments of the country- which will represent an increase in the flow of workers in the area; and of the people who will settle in the area due to the expectations of development induced by the project, it may involve the visit of these same people to different sites of the AID in search of recreation and/or the frequent visit to the AID of other people related to the first (relatives, close friends).

The temporary presence in the AID of non-local people related to the logistics of materials, supplies, machinery and equipment for the installation of forest plantations, representatives of suppliers, personnel of international certifiers, etc. is also foreseen.

These visits and movements of people to the AID, although transitory, could contribute to energize various sectors of the local economy, such as food, lodging, recreation, tourism, etc. To give an idea, there are currently approximately 43 beds in five establishments in Horqueta; and 52 beds in two Loreto accommodations. In this context, it can be estimated that the accommodation sector could grow accompanying the potential local development induced by the forestry component of the project.

Possible impact on means of subsistence and/or the local economy

Activities or aspects that generate the impact: *In the installation stage:* Chemical control of soils and plantations; controlled burning; soil preparation, tillage, planting, fertilization and replenishment (the forestry component as a whole). *In the operation stage:* Chemical control of plantations; solid waste and effluent management; operation of forest plantations (the forest component as a whole).

Description:

In the AID of the forestry component of the project, information has been collected on the practice of small agriculture and livestock that occurs in the area; as well as the raising of farm animals for self-consumption and, as needed, for sale. In addition, there are dairy derivatives production activities for sale. In this sense, the risk of the project affecting these local activities through various possible means must be considered. One is the application of chemical

products for the chemical control of soils and plantations, especially during eventual aerial spraying, with effects that could accumulate and/or last in the medium and long term. Another is the management of solid waste and effluents, especially those with chemical content or that have been in contact with these products. A third activity is the practice of controlled burning in forest fields.

This risk is especially significant for the AID communities that are directly adjacent to the forest plantation buildings, as in the case of Ayala Cue –located in the middle of the forest fields–; Anderí –situated on the edge of one of the fields–, but also for those very close to certain fields such as Laguna Cristo Rey, Paso Barreto, Isla Hermosa, Paso Mbutu, Sargento José Félix López (Puentesíño). Likewise, communities located on the edge of surface water courses in the area, downstream from forest fields, could see their activities affected by possible alteration of the quality of water that is used in crops, livestock and farms.

In this sense, the project will strictly comply with and as a minimum, IFC PS 1, 3, 4, general guidelines on environment, health and safety, FSC Principles 6, 7 and 8 related to environmental impact, plan of management and monitoring plan of potential impacts.

On the other hand, in the event of an increase in the appreciation of land in the area due to the development of the forestry component of the project; This could lead to a greater attractiveness for the sale of real estate by the current owners to those interested in expanding the business, with the consequent displacement of the existing economic activity in said lands, the loss of sources of subsistence and/or of income of both smallholders and workers on the land and possible related geographic migration. That is to say, indirectly, the development of the project could mean pressure for the use of the land in the area that supplies for subsistence and/or generates income, in case that it induces an expansion of forest plantations, depending on the suitability of the soils for this activity. The areas that could be most affected are small agriculture and livestock, farm animal husbandry and, even, illicit plantations of which there is knowledge through secondary sources (on the last item mentioned, the pressure of displacement of these practices would entail an indirect benefit in the fight to eradicate them).

REAL-ESTATE MARKET

Increase in property prices

Activities or aspects that generate the impact: *In the installation stage:* Preparation of the soil, tillage of the land, plantations (the development of the project as a whole). The impact is considered to extend during the operation stage as well, but is assessed only once.

Description:

It is estimated that the development of the forestry component of the project may induce an increase in the appreciation of land in the area, especially in the AID; but probably also in parts of the IIA. One reason may be the value of the land for production in a booming industry; as it would be forestry, since the trend in the price of wood is increasing and the importance of the resource in the country is high due to the demand for buildings in general as well as for biomass, in addition to the type of demand that the project for industrial pulp production will

have. However, it is presumed that the increase in value would not be very marked since currently the lands for livestock production already have high valuation. Another reason would be due to the induced development that the project may generate in the area with the movement of people and the need for goods and services.

This impact is positive for property owners, both of large areas of land and of average land that could benefit from the greater traffic of people in the vicinity of their properties, the installation of shops and services, etc.

OCCUPATIONAL HEALTH AND SAFETY (OHS)

Impact on occupational health and safety

Activities or aspects that generate the impact: *In the installation stage:* Installation of nurseries; chemical control of plantations; soil preparation, tillage, plantings (and replacements); construction and/or adaptation of internal and access roads and drainage works; solid waste and effluent management; controlled burning. *In the operation stage:* Maintenance of growing vegetation and mechanical control; chemical control of plantations; forest harvest; maintenance of internal and access/exit roads and drainage; solid waste and effluent management.

Description:

- Occupational health

During both stages of the forestry component of the project, the health of the personnel could be affected by the following activities and/or hazard events: The handling of, and/or exposure to dusty construction materials and/or toxic and/or dangerous inputs (especially products chemicals –fertilizers, pesticides– and objects that have had contact with them); exposure to chemically controlled areas; exposure to disease vectors (dengue, chikungunya, chagas disease, among others); exposure to solar radiation and heat; exposure to high noise levels and/or vibrations; exposure to stings or bites of wild animals; exposure to dust, fumes, particulate matter; etc. These incidents affecting occupational health could occur in any of the installation and daily operation activities, as well as in more exceptional practices; as, for example, controlled burning. All are dangerous activities and events present in any medium and/or large-scale facility and operation, varying according to the environmental context in which the project in question is developed.

Likewise, occupational health may be affected during the solid waste and effluent management of the facility, in the case of contact with contaminated substances and/or materials that could have adverse effects on human health, for example; organic solid waste, inert and powdery solid waste, solid waste and/or hazardous effluents (waste that has had contact with agrochemicals: obsolete containers, packaging, rags, papers, personal protective equipment, earth, sand, sawdust, etc.), effluents from washing implements in contact with agrochemicals (oils, paints, other chemical agents, etc. or materials contaminated with them), sewage effluents, emissions of agrochemicals, paints or other constructive chemical agents, etc.

Likewise, taking into account the pandemic declared by the World Health Organization, zoonotic diseases could spread, such as COVID-19, and specific measures must be established to avoid or minimize contagion between workers.

- Occupational security

The two stages of the forestry component of the project will entail risks of affecting the safety of the personnel employed, in each of their activities, just like any other project that involves medium-sized civil works, handling of tools, equipment and machinery, handling of different types of transport vehicles and controlled burning.

The impact on the safety of the personnel could be due to the following events: Traffic accidents inside and outside the project grounds; accidents of the type of falls to the same level, from places in height and/or inside excavations; blows by fallen objects and/or by use of tools, equipment and/or machinery; cuts by equipment and/or machinery; electrocution during electrical installations and/or handling of electrical tools/equipment; burns and/or skin injuries due to welding, contact with burning fire and/or chemical inputs; hazards associated with manual handling of loads; eye damage; fires; among others.

The activities in which there would be risks of affecting occupational safety are practically all the activities involved in the installation and operation of forest plantations: The works and installation of forest nurseries; the implementation of forest plantations; the construction/adaptation and maintenance of roads and drains; the installation of temporary and mobile accommodation; waste and effluent management; the transport of materials, supplies, machinery and equipment; mechanical control of plantations; forest harvesting; the transfer of harvest wood; the eventual controlled burning.

The impact on the health and safety of the personnel may present different degrees of severity, depending on each case, from slight affectations to the death of the personnel. However, these impacts are preventable and/or mitigable through specific measures to protect occupational health and safety. In all cases, prevention will be chosen first, as established in ND 2 of the IFC, on "Work and working conditions"; as well as the World Bank Group guidelines on the environment, health and occupational safety. Paracel foresees that all its components are certified; and the forestry component would be through FSC, so it is expected to implement the best operational practices in order to minimize risks in OHS, as well as to have the necessary number of specialized technicians in the subject.

ECOSYSTEM SERVICES

Impact on regulation, provisioning and cultural ecosystem services (water and natural fields)

Activities or aspects that generate the impact: *In the installation stage:* Chemical control of plantations; soil preparation, tillage, plantings (and replacements); construction and/or adaptation of internal and access roads, and drainage works; solid waste and effluent management; controlled burning. *In the operation stage:* Maintenance of growing vegetation

and mechanical control; chemical control of plantations; forest harvest; maintenance of internal and access/exit roads, and drainage; solid waste and effluent management.

Description:

IFC PS 4, on "Community Health and Safety", establishes that the decline or degradation of natural resources, such as adverse impacts on the quality, quantity and availability of fresh water, can cause risks and impacts related to the health of the communities. Considering that the implantation of the project's forest fields takes place mainly in the Aquidabán river basin, the AID communities could be affected by project activities that potentially impact on water resources.

The ecosystem services of water used in the AID are mainly those of provisioning and cultural. During field surveys, in perception studies, many people have expressed the use of water resources for recreation/recreation (bathing, beach, fishing), highlighting the Aquidabán river. Likewise; It is common in the AID to practice fishing, both for sale and for self-consumption (for example, the towns of Paso Barreto, Paso Mbutu, Islería). In addition, the existing drinking water supply systems are supplied by groundwater, and, as for the communities that still do not have access to drinking water systems, the majority are supplied from deep wells, springs, cutwaters, rivers and streams.

During and after the use of chemical products (fertilizers, pesticides), both during the plantations and in the maintenance stage, these could be carried by runoff to the surface water courses of the area and/or infiltrated into groundwater. Fertilizers could cause exceptional fertilization processes of surface waters, with consequent degradation of the quality and habitat of the fauna for fishing, not to mention that the current use of land for grazing will be replaced by afforestation, and according to FAO data, livestock is the human activity that generates the greatest impact on water quality (Paracel, 2021), so although this potential impact could be considered on a smaller scale compared to the current situation of land areas, to intervene by the project, pesticides that could reach watercourses and/or groundwater would also degrade the quality of the water and the habitat of fauna. In all cases, these events represent a direct risk to the health of the population through the consumption of water and fishery products, contact with potentially contaminated water, and a risk of decreased fishery productivity. Likewise, recreational activities would also impact due to the fear that contamination risks could instill in the population. Also, although to a lesser extent, the management of solid waste (containers, packaging, rags, papers, obsolete personal protection equipment, earth, sand, sawdust, etc.), and derived effluents (washing implements in contact with agrochemicals), the use of chemical products may cause these effects on water resources, with their economic, health and social consequences.

Although, according to the experience in MS⁸⁶-Brazil and in Uruguay, afforestation with eucalyptus reduces erosive processes in relation to the grazed pasture or deforested area (Paracel, 2021), the tillage activity could eventually cause erosive processes in the time with drag; both soil and chemical products applied to surface water courses. Soil sedimentation in waterways could decrease the quality of drinking water, the productivity of fishing, and the recreational attractiveness of smaller waterways.

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Likewise, during the road adaptation and maintenance works and the construction and maintenance of drainage works, there may be risks of sedimentation and alteration of the hydrological regime of the surrounding water courses, which in turn are used by the communities of the area for various purposes.

According to studies carried out in plantations in the MS-Brazil area, eucalyptus plantations present a water balance similar to that of the Cerrado native forest, and other studies carried out in Uruguay show that there are no significant differences in water availability in similar plots of grazing versus forested with eucalyptus (Paracel, 2021). However, it is considered that, at the stage of implementation and maintenance of forest plantations, the consumption of water from these plantations could compete with the consumption used by the communities that use groundwater, especially in cases where a shortage at certain times of the year is already observed. Although not only forest plantations absorb water -but also other agricultural and native forest uses-, specific studies to monitor water levels⁸⁷ will be undertaken by the project, in order to confirm that the resources are not affected, or failing that, implement additional mitigation measures throughout the project cycle, not to mention that in Paraguay there is data that indicates that the water table remains the same or even increases in the presence of eucalyptus plantations (Paracel, 2021).

Controlled burning, in the event of being used, could affect the ecosystem services of the native or implanted forest reserve areas, both in the Paracel fields (riparian forests, reserve), and in reserve areas (private / public) adjacent to some of the fields with extensive current vegetation coverage (Paso Bravo Public Protected Wild Area and Bella Vista Private Reserve).

All the potential impacts mentioned will be prevented and/or reduced with strict measures of good practices in the field and of appropriate design (in the case of roads and drains). Furthermore, periodic monitoring of the actual occurrence and perception of the occurrence of these potential impacts will be crucial to implement the corresponding mitigation measures.

Finally, regarding the ecosystem service of supply of raw materials for artisan production and sale; It is possible that the forestry component of the project could affect the populations of karanday (*Copernicia alba*) that grow naturally in the fields of the AID area and that are used as raw material for the production and sale of objects woven with vegetable fiber⁸⁸. In the field survey, in the AID communities (Isla Hermosa, Domínguez Nigó, Anderí, Paso Mbutu, Paso Barreto), karanday crafts have been manifested as one of the main income-generating activities and there are artisan organizations.

Paracel also plans to monitor the quality of the water; likewise, permanent monitoring of perception in the communities would be carried out, these being addressed in the Project's Environmental Management Plan, complemented by the PGS.

87 Studies within the framework of the Environmental Management Plan, the results of which are expected to be disseminated within the framework of the PGS programs, both to the communities and to relevant stakeholders.

88 It should be clarified that it does not refer to the extraction of karanday from the forest fields/to be forested fields in Paracel.

THIRD PARTY HEALTH AND SAFETY

Impact on road safety

Activities or aspects that generate the impact: *In the installation stage:* Preparation of the soil, tillage of the land, plantations (and replacements); construction and/or adaptation of internal and access roads and drainage works; solid waste and effluent management; controlled burning. *In the operation stage:* Maintenance of growing vegetation and mechanical control; forest harvest; maintenance of internal and access/exit roads and drainage; transfer of wood to Industrial Plant; solid waste and effluent management.

Description:

The transport of harvested wood, materials, machinery and equipment inputs, as well as the increased flow of workers linked to the plantations; and the management of waste and effluents in forest fields, with vehicles of various types, will produce an increase in vehicular traffic in the area of influence; and, particularly, in the AID. This, in turn, increases the likelihood of accidents and impacts (collisions, run over) of people (pedestrians, drivers of different types of vehicles, front of the roads), infrastructures and domestic and/or farm animals of the communities that are crossed by the roads that will be used by the project, with greater intensity in the operation stage and the harvest period of the plantations, where the transit of trucks loading wood is expected at a rate of 1 truck every 4 minutes approximately, during the working day. As a background, in 2017 there have been 29 cases of death due to traffic accidents aboard motorcycles in the department of Concepción; in 2018, 7.9% of deaths from various types of accidents were recorded, without specifying the types of accidents.

In addition to the increase in the level of vehicular traffic itself, the probability of accidents is also increased by the existence or not of signs and by the behavior of the carriers or drivers of the vehicles in question. If they do not have a requirement from the project to comply with certain strict rules of road behavior, the probability of inappropriate behavior and, therefore, accidents and/or conflicts with the communities in the area of influence could increase.

Regarding the signaling, it is expected that the projects undertaken by the MOPC in the area, will make the provisions related to the signaling, but these could be reinforced by the project, giving express indications of reduction in the entry and exit area of trucks from forest fields, as well as in areas where vulnerable groups or groups of children and people in general settle (schools, health centers, churches, others located on the roads that connect the forest fields with the industrial plant). Along these lines, IFC PS 4 on "Community Health and Safety" will be observed by the project.

Also the improvement and maintenance of access roads to forest plantations may; on the one hand, temporarily affect road safety, since it will involve construction work on existing roads that are used daily by pedestrians and/or drivers (bicycles, motorcycles, cars, cargo vehicles, etc.) or have people living or working in its immediate proximity, accidents of the type of collision and/or run over may occur involving the vehicles and/or machinery of the project carrying out the road works. On the other hand, road improvement may contribute positively

to avoiding traffic accidents that could have their origin in potholes or other damage to the roads to be used.

Impact on the health and safety of third parties

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers); soil preparation, tillage, plantings (and replacements); construction and/or adaptation of internal roads, access and drainage works; solid waste and effluent management; controlled burning. *In the operation stage:* Maintenance of growing vegetation and mechanical control; chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers); forest harvest; maintenance of internal roads, access/exit and drainage; transfer of wood to industrial plant; solid waste and effluent management.

Description:

The increase in the flow of workers will lead to contact between the current AID communities with the temporary and definitive local and/or foreign population associated with the installation and operation phases of the forest fields, which could increase the transmission of contagious diseases (examples: HIV, hepatitis, other sexually transmitted, etc.). Likewise, taking into account the pandemic declared by the World Health Organization, zoonotic diseases, such as COVID-19, could spread, and specific measures must be established to avoid or minimize the contagion of communities and populated areas.

Another relevant issue related to the health of third parties is the use of chemical products (soil fertilizers, ants, herbicides); those that, in exceptional cases of being dragged to surface and underground water bodies, could generate risks to the health of the population. This is minimized by following the best practices provided by Paracel, within the framework of the Control Program for the application of agrochemicals (Pesticide application management program), in line with the IFC criteria of Integrated Pest Management. Considering that the people in the AID state that it is given various uses (recreational, fishing, consumption) but with an emphasis on use for consumption; In addition, in case of contact with the skin, eyes or the body of people, it could lead to conditions, which could occur more in the area of recreational use of surface water courses. Additionally, in the exceptional case of aerial spraying of pesticides (common practice for certain herbicides, allowed and regulated by Paraguayan regulations), there is a risk of affecting the health of the populations directly adjacent to the plantation properties, by inhalation and/or contact, both immediately and in the medium and long term. Particularly in terms of the use of chemical products, it will be essential to observe IFC PS 3, which establishes that when pest management activities include the use of chemical pesticides, the client will select those of low toxicity to humans, proven effective against the species to be controlled and with minimal effects on other species and the environment.

With regard to the use of pesticide products, in the extraordinary case of aerial spraying (regulated by Paraguayan regulations), the corresponding provisions will be made (schedules, visibility, winds, non-application bands); both in the use and in possible communications to the

neighboring communities, in order to minimize exposures of people on these occasions; these measures will be considered in the PGS and/or PGA.

On the other hand, the increase in vehicular traffic through the project vehicles (cargo, personnel, waste), especially in the operation phase with the transfer of wood, and due to the adaptation and maintenance of access roads/leaving the forest fields may produce higher levels of noise, dust and air pollution due to combustion gases from vehicles, which may affect the health of people located or who carry out daily activities in the immediate vicinity of the roads communication to use/intervene; especially of people with basic diseases related to respiratory problems (they are common in San Alfredo, Puentesíño and Paso Barreto, according to the LBS). It is expected that during the times of harvest and transportation of wood from the forest plantations to the industrial plant, there will be an approximate traffic of 1 truck every 4 minutes; which would increase the levels of vehicle noise, dust and smoke in the AID. Regarding the work of conditioning and maintenance of access/exit routes, these could accidentally affect the safety of the facilities in the immediate environment, due to collisions, vibrations.

Also, the potential improper disposal of waste and effluents in both stages could generate effects on the health of third parties due to contact with contaminated substances and/or materials, particularly from chemical product containers, but also with other types of waste, such as; for example, organic solid waste, inert and powdery solid waste, among others. In addition, inadequate waste disposal could create environments conducive to the proliferation of insects and/or vermin that could be vectors of diseases.

If controlled burning is required, this activity will produce fumes and dusts that will directly affect the populations bordering the plantations, although it is also possible that the impact will extend beyond these communities. The most common affectations will be respiratory, but also visible or others coupled with an environment with low air quality. Regarding third party security, controlled burns could pose a risk of direct damage to people in terms of their physical integrity (burns, death), that of their material goods and that of other facilities. In recent years there has been a history in the national territory on proliferation; and, in many of uncontrolled forest fires, both provoked and accidental, so their consideration is essential in order not to contribute to these critical and far-reaching environmental problems.

All the potential impacts mentioned could be prevented and/or reduced with strict measures of good practices in the forestry and transport sector. IFC PS 4 regarding "Community Health and Safety" provides the minimum aspects that the project must observe to prevent and/or mitigate the aforementioned impacts. Paracel foresees that all its components are certified; and the forestry component would be through FSC, so it is expected to implement the best operational practices in order to minimize risks to the health and safety of third parties.

Affecting the levels of local citizen security

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; the implementation of forest plantations as a whole. *In the operation stage:* Hiring of personnel for maintenance, harvest, transfer; the operation of forest plantations as a whole.

Description:

The establishment of a temporary and definitive population in the AID directly associated with, or induced by both stages of the project in its forestry component, may increase the probability of crime and/or violence events in the AID due to the increase in population and the flow of workers. According to Paracel's forecasts, direct and outsourced labor would increase as more forest fields are developed for the project. Regarding the induced population, this may also increase in the medium and long term, accompanying the development in the AID. The impacts on local security are estimated taking into account that there could be cultural differences; as well as criminal acts due to the greater commercial and service dynamics; and the consequent increase in the circulation of money and assets. This could be favored if the public police service is insufficient for the size of the population that will be in the AID.

Likewise, there is a risk that people who come to the area solely to commit criminal acts will settle in the AID; in view of the aforementioned conditions that would be generated by the presence of the project's forestry component. The increase in the flow of workers could also imply a greater number of cases of gender violence in the area.

According to the information collected in the field already during the social studies process of the industrial component, in the AID of the industrial plant, which includes the districts of Horqueta and Loreto that are also part of the AID of the forestry component, "security" is the third and second most valued aspects, respectively, by the interviewees regarding the positive aspects of living in their communities. Likewise, according to those surveyed in the AID, "violence" appears as one of the least mentioned aspects in terms of the problems identified in the territory. This indicates that people currently feel that there is an important level of citizen security and low levels of violence; so, their alteration, induced by the project, could be abrupt.

Furthermore, during interviews in the field, in the AID communities –particularly Sargento José Félix López (Puentesíño), Paso Barreto, Loreto, Arroyito–, it has been stated and confirmed that **"there is tranquility"**, that people **"are supportive and they know among everyone in the community"**, **"good coexistence"**, **"unity among the inhabitants"**, **"security"** as outstanding aspects of the area. In the communities near the forest fields, there has been no concern about crime, as had been observed in the AID of the industrial plant.

Potential conflicts with external agents

Activities or aspects that generate the impact: Hiring of personnel (in both stages of the forestry component), implementation of the forestry component as a whole.

Description:

On the other hand, although it is an issue not manifested in the AID communities, the consulting team considers it relevant to mention that the presence in the AID of a transitory population (experts and specialized technicians) and definitive (nursery and plantation personnel) linked to the project in both stages of its forestry component, could run a security risk beyond those related to occupational health and safety, taking into account the existence of

armed groups in the area (the so-called Paraguayan People's Army or EPP, groups linked to plantations illicit, others).

This information is relieved in the social baseline mainly through secondary sources (journalistic publications, available research, etc.). A first relevant case is that in the area there is a presence of the Paraguayan State (Joint Task Force) to fight against the criminal group EPP; that on several occasions it has "attacked" the integrity and safety of the staff and/or owners of the rooms, as well as of key public infrastructure (for example, high-voltage electricity transmission towers). Some affected personnel have been residents of the area; and, on occasions, belonging to indigenous communities (a recent case in August 2020), while the main targets of the events have been proprietary, commonly through kidnappings for extortion purposes and pressure on the Paraguayan State to advance their interests.

Another relevant case relates to illicit plantations (mainly marijuana); that currently exist among the forest remnants of the cattle fields, according to journalistic publications and official reports of the national government. These illegal plantations could be threatened by the presence of the project in the area (which will have its own security system⁸⁹); due to a possible migration of workers who are currently engaged in them, to the project's forest plantations (due to formal working conditions that could be attractive) or another situation. As a consequence, the groups responsible for these plantations could in turn threaten the safety of the project workers and the communities surrounding the forest fields.

In both cases, the forestry component of the project will not be the cause of said conflicts. Rather, its implementation may be a target of attack by groups that act illegally in the area, with the consequent exacerbation of an already sensitive local situation, through the generation of conflicts and alteration of the security and tranquility of the AID communities. Along these lines, compliance with IFC PS 1 on "Evaluation and management of environmental and social risks and impacts" is essential regarding risks and impacts in the project's area of influence caused by the actions of third parties.

Finally, it is considered that the project could also contribute positively to the reduction of this type of activities in the area; since, by giving a source of work to nearby communities, it could generate "pressure" and the consequent displacement of these groups.

QUALITY OF LIFE, USES AND CUSTOMS

Increased discomfort or restlessness

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers); soil preparation, tillage, plantings (and replacements); construction and/or adaptation of internal roads, access and drainage works; solid waste and effluent management; controlled burning. *In the operation stage:* Hiring of staff for maintenance, harvest and transfer; chemical control of plantations (pesticides, use of herbicides

⁸⁹ Paracel Will make the necessary provisions so that personnel linked to the security system do not abuse their power, through specific internal protocols, in its Security Policy.

and insecticides) and fertilization (fertilizers); forest harvest; maintenance of internal roads, access/exit and drainage; transfer of wood to industrial plant; solid waste and effluent management.

Description:

In both phases of the forestry component of the project, the quality of life of the AID population could be affected, mainly due to the increased flow of workers linked to the project. The aspects of quality of life affected would be, mainly, the tranquility and comfort of the current inhabitants, attending to the manifestations of high valuation of these characteristics of the area by the people interviewed in the field information survey.

The increase in the flow of workers and the presence of an unusual number of people associated directly and indirectly with the project in the AID communities may promote the appearance (or increase) of activities such as sale and consumption of alcohol and drugs, prostitution, crime, gender violence, disrespect for the vulnerable population, disturbance of public peace due to a greater number of recreational and/or night-time activities (parties, leisure groups, etc.) on public roads and/or in homes within the communities, disrespecting current AID quiet levels. Although it is expected that forest workers will be installed inside the forest plantation buildings, away from the urban/rural areas of the AID communities and districts, it is estimated that they may also visit these urban/rural areas for reasons various such as shopping, recreation, etc. The presence of foreign personnel could impact on the current tranquility of the AID people, since they have referred that "**getting to know each other**" is a highly valued aspect in the communities, thus contributing to greater tranquility.

On the other hand, the current level of access to entertainment spaces for the local population may be diminished by an increase in demand for the use of these spaces, since the transitory and definitive population directly and indirectly associated with it will be installed in the AID project, being able to generate competition for use between the different groups.

It could also generate uncertainty in the communities and alteration of the tranquility due to the use of chemical products that will occur in the plantation process - especially in exceptional cases by air - and the fears related to possible health effects or effects that may occur on the environment. The impact on the environment and health care have been comments raised in perception studies, where the need to safeguard both aspects has been mentioned as suggestions.

Another point involves the potential development of union activities of project workers in the area, given the number of people that will be employed in the different phases of the project's forestry component, and their interactions with the daily life of the communities in whose vicinity they are located. They will settle/work, since they will be able to carry out events in public (or even private) spaces that could alter the tranquility. On the other hand, the existence of these groups could also be positive for local communities, since it can instill in them notions of public participation, groups for the defense of rights or promotion of legitimate interests, etc.

The people consulted in the field recently (2020), in some cases, expressed the need for investment in infrastructure in order to improve neighborhood roads, and also in the consultation process in the industrial component, had indicated concern about the possible alteration of the existing roads due to increased traffic, highlighting that the project foresees improvements and adaptation of these; thus bringing positive impacts to the localities settled on the road, and indirectly to the entire area. However, the increase in vehicular traffic due to the project (cargo, personnel, waste, harvested wood) –especially in the stage of transporting wood to the industrial plant, at a rate of 1 truck every 4 minutes approximately– may affect tranquility and comfort of the people in the area of influence; and, above all, the AID since this will cause higher levels of noise, vibrations and alteration of air quality due to dust and combustion gases, with an impact on people who live or carry out daily activities in the immediate vicinity of the roads that will be used by the project vehicles, within a minimum radius of 100 meters from the tracks. Likewise, the increase in vehicular traffic, especially heavy traffic, may generate uneasiness regarding the potential impact on the structural condition of the homes or buildings located on the roads to be used.

An additional source of annoyance to the population will be the production of dust, vehicle fumes, noise, vibrations and possible obstructions to access/exit of homes/buildings during the works that will be carried out periodically for the conditioning and maintenance of the roads used for the project. The affected population will be the people who are - living or working - in the immediate proximity of the roads.

Other nuisance due to dust, noise and vibrations could occur in the direct proximity of the forest fields, during the process of maintaining the growing vegetation, and during the harvest that will require the use of noise-generating machinery, with an impact on the population that is adjacent to such sites.

Furthermore, if controlled burning is practiced exceptionally, it could generate fear and uneasiness in the localities adjacent to the forest fields; due to concerns related to these not being adequately managed and spreading to third-party homes and to nearby forests of existing reserves (example: Paso Bravo National Park, whose limits border some Paracel forest fields).

Changes in customs and uses

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; installation of nurseries; chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers); soil preparation, tillage, plantings (and replacements); construction and/or adaptation of internal roads, access and drainage works. *In the operation stage:* Hiring of staff for maintenance, harvest and transfer; chemical control of plantations (pesticides, use of herbicides and insecticides) and fertilization (fertilizers); maintenance of internal roads, access/exit and drainage; transfer of wood to industrial plant; solid waste and effluent management.

Description:

The increase in the flow of workers, and the consequent increase in the temporary and definitive population associated with both phases (installation and operation) of the forestry component of the project, as well as the induced population, will force the interaction of customs, uses and current values of local AID communities with those of the additional population in the area. This could result in a negative impact; if these customs, uses, values and habits are changed by the predominant ones that emerge from said interaction, and thus the sense of identity, belonging, community and mutual respect are lost.

Also, the possible alterations in the tranquility, comfort and even the civil security of the current AID population (as described before) may lead to the need to change their daily habits, customs and ways of life to adapt to the new conditions that it would generate the presence of an additional population, due in large part to the increased flow of workers linked to the enterprise. The impact would be adverse if it implied a deterioration of the freedoms enjoyed by the current communities and/or the normalization of acts contrary to the tranquility and harmony of the communities (for example, annoying noises, lack of respect towards vulnerable members of the local communities, with emphasis on women and children, lack of respect for the property of third parties, etc.).

Regarding the increase in vehicular traffic due to the installation and subsequent operation of the forestry component of the project (cargo, personnel, wood transport) –especially at the time of forest harvesting and transport of wood, this may also generate changes in the practices and habits of the AID populations that are located in direct proximity to the roads used. For example; people could stop attending places or take greater precautions to safeguard their physical safety by avoiding the use of roads, decrease in the use of sidewalks as a place for recreation or meeting with neighbors, alteration of the use of volleyball or soccer fields, common on the side of the roads, etc.

Regarding the use of transport, currently it is customary to use motorcycles, four-wheelers, public passenger transport, as well as "carts" propelled by oxen, donkeys or horses to transport products. With the adaptation and maintenance works of the access/exit roads of the forest plantations; these modes of transport today common may need to adapt to new means of transport, traffic and safety rules, as well as avoid the use of roads where traffic speeds are greater than "customary" on current dirt or gravel roads.

On the other hand, the recreation and leisure to which the inhabitants are currently accustomed is related, to a large extent, to the watering places on the shores of natural water courses. There are 17 known watering places in the AID, of which only 5 are authorized by the national authority. The Aquidabán River and the Amambay Stream are places referred by the people consulted as the main recreation and leisure sites (bathing, fishing), practices that could be affected; in addition, due to the fear linked to the use of chemical products (fertilizers, pesticides, others) and the potential alteration of the quality of water courses.

Additionally, it is estimated that the leisure/recreation sites will be visited by the temporary and permanent population, directly and indirectly associated with the forestry component of the

project, with potential negative impacts on the carrying capacity and their natural state, the forms of usage and frequency of visits by locals to these sites.

Impact of the social network

Activities or aspects that generate the impact: For the hiring of personnel (both stages), as well as for the preparation of the soil, tillage of the land and plantations; and, later, by the harvest.

Description:

The impact on customs and uses of the AID population, due to the forestry component of the project, it may have consequences on the networks/interconnections of the communities, as well as on family networks. For example, in the event that there are marked differences between the current population and the installed population, or in the event that people decrease their visits to recreational sites or the homes of relatives/neighbors due to fears caused by the increase in the flow of workers, and the additional population directly and indirectly associated with the project, and/or the potential impacts of increased traffic due to project cargo; it is possible that there is a gradual erosion of relationships (beyond the daily customs) between people or even within families or family networks, and may even promote the breakdown of these.

On the other hand, in the data collection in the field, people consulted who work in some of the farms where the forest plantations will be implemented have stated that they are accustomed to livestock activity and that they hope to continue dedicating themselves to it. In this sense, a potential geographical migration of livestock workers who could not/would like to reconvert to forestry production could lead to breaks or ruptures in family networks. Although according to the antecedents of the social baseline, migration of both men and women for work reasons is a common practice, in the AID community's migration due to lack of work and study opportunities has been emphasized, as a of the most outstanding social problems.

It should be noted that social networks are important factors for the subsistence of, above all, families with limited economic resources, since through them the burdens of family expenses, housework and child rearing are shared.

EXPECTATIONS

Generation of positive expectations in the local population

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; implementation of forest plantations (the forest component as a whole). *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; maintenance of forest plantations (the forest component as a whole).

Description:

Both stages of the forestry component of the project may generate expectations in the population that could result in positive effects for the project (in its favor).

There are the opinions and expectations gathered from the AID population of the forestry component, regarding the improvements and/or opportunities that the project would bring to the area of influence; for which 92% of those consulted stated that "they consider the project to be positive". Of these, 43.8% indicated that it is a positive project because it "generates sources of work/hiring of local labor", 24% expressed "local development", 8.2% indicated that it would bring "Movement of the local economy", and 6.8% highlighted the "greater opportunity/possibility for the people".

It is important to remember that the data from the social survey in the field, for the industrial component, also confirm the mentions of "development of the economy" and "generation of job sources" as the main expectations of AID people about the project.

In the consultations carried out with local and institutional actors, the interest of referents in the area (especially in Concepción) has risen in giving work to "companies in the area"; giving as an example other undertaking developed in the department, in which "large companies from Asunción" have participated. The expectation at the local government level is positive, and they have expressed support for the development of the enterprise.

In general, these high expectations occur in the context of the great needs existing in the AID for the forestry and industrial components, mainly the lack of sources of work in the communities, the existence of sporadic low-paid jobs, poverty (for income and structural) and inequality and migration and uprooting in search of opportunities.

Generation of negative perception and/or fears in the local population

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; chemical control of soils and plantations; soil preparation, tillage, planting, fertilization and replacement; management of solid waste, effluents, emissions. *In the operation stage:* Hiring of personnel for maintenance, harvest, transfer; chemical control of plantations; transfer of wood to industrial plant; solid waste management, effluents, emissions; controlled burning.

Description:

In addition to the expectations considered positive; and, as in the industrial component, expectations may be generated in the population related to desires for support from the project to cover certain basic needs neglected by the AID communities in terms of infrastructure and services, thus supplying the functions of provision of services and/or care that should be provided by local and national governments. The survey of data in the field in the AID showed that the interviewees hope that the project "links/supports/strengthens other productive initiatives", that "links local producers/safe buying and selling system" and that it generates "local development (growth of investors and the population)"; as a positive aspect

or benefit for the communities. Although the project could contribute in these aspects locally, it will not be able to cover all existing needs.

Regarding the jobs that would be generated by the project, even though the mostly positive expectations in the communities are in favor of the project; there is also a risk that it could not satisfy them, taking into account, above all, that those hired directly by the project (with the benefits of formality and possible comparatively higher salaries) will be a very small minority of the total number of employees' estimated jobs to be produced by the project. Most of the jobs will be outsourced (hired workers; and, likewise, Paracel will guarantee compliance with current labor regulations, and in accordance with IFC Performance Standard 2, to all personnel linked to the project).

Regarding all of the above, if the expectations generated in the population were not satisfied in reality, conflicts and/or feelings of rejection towards the project could be generated; for example, if local workers are not "sufficiently" employed, the linkage of small producers, that the existing infrastructure is not improved, etc.

Likewise, the project may generate negative perceptions and/or fears in the AID population in relation to various environmental and social aspects. According to the field survey in the AID of the forest fields, although the negative perception of the people consulted was percentage less than the positive perceptions, the AID population states that their main concerns in relation to the project are "that it be sustainable", the "possible contamination/affectation of natural resources", that has "social responsibility", that "with sources of work they are not going to compensate the damage that they can cause if they contaminate", "that is installed in a suitable place". As aspects that should be taken into account for the project, people mentioned "caring for the environment" at the same percentage level as "generating employment at the local level", from which the degree of importance of the environmental aspect for the inhabitants of the AID can be observed. Additionally, people have referred as suggestions for the project the "care and protection of health", the need to "maintain communication and link with the community (more outreach, meetings, opinions and debates)" and "respect for regulations current environmental policy". The main project activities linked to these negative perceptions and/or fears would be the chemical control of soils and plantations, in both stages of the forestry component, where the application of chemical products in the fields could cause environmental impacts with social derivation, such as already described before.

Finally, other negative perceptions and/or fears in the population could be produced by: The arrival of foreigners to the AID, directly and indirectly associated with the project and/or induced by it; the potential increase in citizen insecurity and/or social conflicts between the local and foreign population; the changes that the project's transport activities could cause on existing roads (increased traffic, deterioration of road infrastructure, risk of road accidents); the potential changes in daily habits and customs and the quality of life in general (tranquility, comfort, public safety, etc. which are currently highly valued in the AID); the decrease in productivity of other sectors that could be affected by environmental impacts generated by the project (eg: fishing, in case of impacts to local water courses). These negative perceptions and/or fears could be generated by the project's lack of attention to these aspects, by lack of information about the project, by confusion, by promises not kept by the project.

The ultimate consequence of negative perceptions, fears and high expectations could be the generation of an environment of latent tension and mistrust on the part of the population and/or local authorities towards the project and, in extreme cases, generating conflicts, which they could be recurring over time, with their corresponding transaction costs.

Generation of positive expectations at the regional and extra-regional level

Activities or aspects that generate the impact: *In the installation stage:* Hiring of personnel for nurseries and plantations; installation of nurseries; chemical control of soils and plantations; soil preparation, tillage, planting, fertilization and replacement; construction and/or adaptation of internal and access/exit roads; construction and/or adaptation of the land drainage system; solid waste and effluent management. *In the operation stage:* Hiring of personnel for maintenance, harvest and transfer; maintenance and mechanical control of plantations; chemical control of plantations; forest harvest; transfer of wood to industrial plant; maintenance of internal and access/exit roads; solid waste and effluent management.

Description:

The forestry component of the project may generate expectations in the population of the districts and departments outside the AID, for reasons similar to those set out in terms of expectations of the local population: Generation of direct and indirect jobs, creation of demand for trade/services in the AID and along the roads used by the project, improvement of infrastructure and existing services, etc. According to these expectations, the arrival of foreigners in search of new and/or better employment conditions, higher income, etc.; in general, greater opportunities in a context of local development induced by the project.

The age, socioeconomic and migratory conditions of the inhabitants of the department of Concepción beyond the AID, which are similar to the conditions found in the department of San Pedro mainly and to a lesser extent of Amambay, provide a favorable context for expectations to be generated for regional level on the possibility of getting a job in both stages of the forestry component of the project.

Likewise, the project may generate expectations at an extra-regional level in suppliers of goods and/or services; due to the demands that the different activities of installation and operation of the project will have (installation of nurseries, temporary and mobile accommodation with their basic services, construction and/or adaptation and maintenance of roads, construction and/or adaptation of land drainage, management of solid waste and effluents) of raw materials, supplies, machinery, equipment, specialized services of forestry production engineering, environmental monitoring, management for certifications, cargo logistics by land, etc.

On the other hand, the implementation and development of the forestry component of the project may produce expectations of developing other ventures/investments in the same area of influence, given the importance that the project could confer as an indicator of a suitable site for locating ventures of different magnitude and/or by the economies of scale that could be identified when undertaking in the vicinity of forest fields, with the improvements in public and private infrastructure that it will introduce in the AID (access roads to/from the plantation properties, etc.).

Furthermore, at the national government level, the project will generate positive expectations; mainly in terms of the generation of jobs and opportunities to reduce poverty in one of the areas of the country where it is most significant.

Generation of negative perception and/or fears at regional and extra-regional level

Activities or aspects that generate the impact: *In the installation stage:* Chemical control of soils and plantations; soil preparation, tillage, planting, fertilization and replacement; solid waste and effluent management. *In the operation stage:* Chemical control of plantations; transfer of wood to industrial plant; solid waste and effluent management; controlled burning.

Description:

It should not be ruled out that there may be a negative perception of the forestry component of the project on the part of individuals, groups, organizations and/or institutions at the regional or national level in relation to environmental and social issues. For the belief that the project will produce environmental and/or social damage; for example, to water resources, air quality and the health of third parties due to the use of chemical products (fertilizers, pesticides) and the generation of solid waste and effluents (especially those related to chemical products); to biodiversity, air quality; and the health of third parties due to possible accidental forest fires and/or derived from the practice of controlled burning; to biodiversity, water resources and sources of supply (water, food, monetary income) of third parties due to the implementation of monoculture eucalyptus plantations of the "extractivist" type.

It should be noted that at the national level there has already been a history of opposition from organized people to eucalyptus monocultures; claiming they "seriously damage the community's environmental balance", "depriving the water sources" (last case in August-October 2020 involving an indigenous community in the department of Presidente Hayes, Chaco Paraguayo), which although it could have been due to a weakness in the procedure related to obtaining free consent according to Decree No. 1039/2018 of Prior Consultation, it is a recent case⁹⁰. Further; and in general, there are also problems of trust on the part of the general population towards the management of national and local public institutions, which must ensure the well-being of the environment and the population, so it could be argued that the project will not comply with national regulations or international standards with the endorsement of these institutions.

In addition, there are Non-Governmental Organizations (NGOs) that could generate concern or uncertainty related to the monoculture of eucalyptus, taking into account that there is a history of both this type of plantation and other types of crops (soybeans) in different areas of the country - Roundtable for Sustainable Rural Development, 2007 - especially for the use of "pesticides" and their link to health conditions in rural, peasant and indigenous communities.

90 <https://www.abc.com.py/nacionales/2020/10/27/conflicto-en-comunidad-indigena-por-cultivo-de-eucalipto-termino-en-agresion-a-una-lideresa/>

Other uncertainties may emerge in other users of the land routes that will be used to transport raw materials, inputs and harvest wood, in terms of potential increase in traffic congestion and deterioration of the condition and useful life of the road network

6.6.3. Grouping of impacts by significant conditions created by the activities of the forestry component

According to the logic of presentation of impacts of this study, developed previously, they are grouped by "social environment factors" and not grouped by activities / causative aspects. Given the need to answer a specific question to better make visible the impacts caused by activities that generate significant conditions such as the flow of workers –and other population induced by the Project–, the impacts related to this flow of people condition are grouped in this section.

However, it should be noted that these impacts have already been presented throughout the description of impacts for each factor of the social environment, mainly in all cases in which the activity of "hiring of personnel" (which implies flow of workers) indicates as a shocking activity.

Impacts by flow of workers and other induced population

The increase in the flow of workers, as well as the population induced by the project (temporary and/or definitive), could generate the following impacts:

- Increase in the employment rate, in a formalized manner, attending to the flow of workers derived from the hiring of the enterprise, which in turn impacts the development of the local economy. This is also related to the induced migration of workers in the area, as well as the increase in population, which would boost the economy, due to the greater purchasing power that they will have for the consumption of goods and services, and even investment in their own businesses. This, indirectly, in both stages of the forestry component of the project, will generate a demand for local goods and services that will necessarily be higher than the current one, which will generate greater income and investment stimuli for the establishment and/or expansion of suppliers of goods and services of different types (food, communication, vehicles, transportation, recreation, education, health, etc.), formal and informal. As possible examples, we can mention the opening of commercial and/or service stores with products due to the flow of workers linked to the project, in the vicinity of the forest plantation buildings (dining rooms, supermarkets/pantries, telecommunications, mechanical workshops, etc.); the opening of new commercial and/or service premises along the communication routes used, with the expectation of selling products to carriers; the expansion and/or habilitation of currently insufficient or non-existent public services; the creation of jobs by the aforementioned enterprises, which will be able to employ more local people. The greater dynamism of the local economy has as positive effects the increase in household income associated with the provision of goods and services, the possibility of accessing goods and services that are currently non-existent, limited, insufficient or inaccessible.

- The temporary and definitive increase in the population in the AID communities, generated by the hiring of personnel and consequent increase in the flow of workers in the area, for the installation and operation of forest plantations and by the potential arrival of other people attracted due to the indirect effects of the project, as well as the needs of the facilities of the forestry component of the project and the potential increase in people visiting the area, it will produce a certain increase in the demand for public and non-public services, both existing ones as for the currently non-existent, although it is estimated that it will be lower compared to the industrial component of the project. It could generate stress in some services, as well as an increase in the demand for housing.
- Occupational health and safety, taking into account the number of workers linked to the enterprise, could have risks associated with vector diseases, such as those transmitted by rodents, due to the solid organic waste generated by the staff, as well as the proliferation of other vector diseases such as dengue, chikungunya, of rapid transmission through the mosquito "aedes aegypti", and currently COVID-19.
- In relation to the health and safety of the communities, the increase in the flow of workers will lead to the contact of the current AID communities with the temporary and definitive local and/or foreign population, associated with the installation and operation phases of forest fields, which could increase the transmission of contagious diseases (examples: HIV, hepatitis, others of sexual transmission, etc.). Likewise, in response to the pandemic declared by the World Health Organization, zoonotic diseases, such as COVID-19, could be spread to individuals and families residing in communities.
- In addition to the risks related to the health of the communities, there are citizen security risks, which may increase the probability of crime and/or violence events in the AID due to the increase in population and the flow of workers. In interrelationships with communities, the increase in the flow of workers could often represent an increase in cases of gender violence.
- Perception could also be negatively impacted, considering that "security" is the third and second most valued aspect, respectively, by the interviewees regarding the positive aspects of living in their communities. Likewise, according to those surveyed in the AID, "violence" appears as one of the least mentioned aspects in terms of the problems identified in the territory. This indicates that people currently feel that there is an important level of citizen security and low levels of violence; therefore, the alteration of them, induced by the project, could be significant.
- In both phases of the forestry component of the project, the quality of life of the AID population could be affected. The aspects of quality of life affected would be, mainly, the tranquility and comfort of the current inhabitants, attending to the manifestations of high valuation of these characteristics of the area by the people interviewed in the field information survey.
- The increase in the flow of workers and the presence of an unusual number of people associated directly and indirectly with the project in the AID communities may promote the appearance (or increase) of activities such as sale and consumption of alcohol and drugs, prostitution, crime, gender violence, disrespect for the vulnerable population, disturbance of public peace due to a greater number of recreational and/or night-time activities (parties, leisure groups, etc.) on public roads and/or in homes within the communities, disrespecting current AID quiet levels. Although it is expected that forest

workers will be installed inside the forest plantation buildings, away from the urban/rural areas of the AID communities and districts, it is estimated that they may also visit these urban/rural areas for reasons various such as shopping, recreation, etc. The presence of foreign personnel could impact on the current tranquility of the AID people, since they have referred that "getting to know each other" is a highly valued aspect in the communities, thus contributing to greater tranquility.

- The increase in the flow of workers, and the consequent increase in the transitory and definitive population associated with both phases (installation and operation) of the project's forestry component, as well as the induced population, will force the interaction of current customs, uses and values of the local AID communities with those of the additional population in the area. This could result in a negative impact; if these customs, uses, values and habits are changed by the predominant ones that emerge from said interaction, and thus the sense of identity, belonging, community and mutual respect are lost.
- Also, the possible alterations in the tranquility, comfort and even the civil security of the current AID population (as described before) may lead to the need to change their daily habits, customs and ways of life to adapt to the new conditions that it would generate the presence of additional population. The impact would be adverse if it implied a deterioration of the freedoms enjoyed by the current communities and/or the normalization of acts contrary to the tranquility and harmony of the communities (for example, annoying noises, lack of respect towards vulnerable members of the local communities, with emphasis on women and children, lack of respect for the property of third parties, etc.).
- Finally, it could have consequences on the networks/interconnections of the communities, as well as on family networks. For example, in the event that there are marked differences between the current population and the installed population, or in the event that people decrease their visits to recreational sites or the homes of relatives/neighbors due to fears caused by the increase in the flow of workers, and the additional population directly and indirectly associated with the project, there may be a gradual erosion of relationships.

All the aforementioned impacts are addressed in one way or another by the various Programs detailed in the Social Management Plan (PGS) of this study, as well as in specific protocols to be developed by Paracel, in order to meet internal measures and procedures that prevent or minimize, or failing that, mitigate them.

7. Identification and analysis of social risks

7.1. Presentation

Continuing with the social evaluation of the forestry component of the Paracel project, the analysis of social risks of the development of forest fields is developed, with an approach to the operational stage of cultivated forests, similar to that already considered for the industrial component.

It is considered that, for the installation stage, the main risks of the project are related to the use of chemical products and possible controlled burning; as well as the possible effects on the communities described in the previous section, with emphasis on the impacts of the social factor "health and safety of third parties" and "quality of life, uses and customs, these being minimized with sustainable forest management practices. Other relevant issues are related to the construction and adaptation of access and internal roads, whose risks are similar to those that may occur in the operation stage; and that must be taken care of from the early stages of the project, especially with regard to roads and access roads.

Environmental and social standards and safeguards policies adopted by financial institutions, including IFC, the World Bank, among others, focus both on promoting sustainable and positive development and managing the risk of project adverse impacts. Although sometimes the terms risk and impact are used interchangeably, as defined in the Social Impact Assessment document (Kvam, Reidar, 2018); impacts can be both positive and negative, while risks refer to potential negative impacts that the project can cause or can contribute to or issues that can negatively affect the project.

The analysis of social risks is carried out for those impacts considered MEDIUM and HIGH social significance and negative, which could lead to a stoppage of the undertaking or adverse risks to the health or safety of the population. Furthermore, as was already presented in the previous section, the impact on occupational health and safety gave a LOW significance; since the criterion of "distance of affectation" is low (zone of forest fields especially), as well as the low probability of occurrence (considering that Paracel adopts high SSO standards). However, it is recommended that before the start-up of the project (linked to maintenance of forest forests, harvesting and wood handling, others), and depending on the technologies to be used in the enterprise, an analysis of specific risks in OHS is carried out.

Although, as in the industrial component, most of the risks could be avoided with efficient operating systems and implemented best practices; as well as permanent maintenance of the equipment, constant training in occupational health and safety issues, norms of conduct for the personnel and related suppliers; it will be crucial to maintain permanent communication between Paracel and the community, throughout the project cycle.

Another risk identified in the forestry component, and that must be addressed in the project, is related to "conflicts due to external factors", linked to the geopolitical, social and economic reality of the area, which will be addressed by Paracel with special protocols, in order to protect both possible effects on third parties, such as the employees of the enterprise.

7.2. Definition of risks and methodology

As defined in the Social Impact Assessment document (Kvam, Reidar, 2018), risk is the combination of the expected intensity of (i) a potential adverse impact that a project can cause or to which it can contribute, or (ii) of issues that may negatively affect the project and the likelihood of one or both of them occurring.

The risk is calculated with the following formula:

$$R = P * C \quad \text{RISK} = \text{PROBABILITY} \times \text{CONSEQUENCE}$$

Where:

R = risk

P = probability of occurrence of an event

C = consequence or magnitude of the event

As there are five levels of probability and five levels of vulnerability, a five-by-five matrix is formed; in whose cells are the risk rating values. This rating is obtained by multiplying the value of the probability by the value of the severity of the consequence. The result of the possible values can be seen in the following chart.

Chart 81. Assessment of probability and consequence of the risk matrix - Semi-quantitative method (from Deere et al., 2001)

		Severity of the Consequence				
		Insignificant 1	Mild Effect 2	Moderated Effect 3	Serious Effect 4	Catastrophic Effect 5
Probability or Frequency	Almost always / Once a Day Punctuation: 5	5	10	15	20	25
	Probably / Once a Week Punctuation: 4	4	8	12	16	20
	Moderated / Once a Month Punctuation: 3	3	6	9	12	15
	Unlikely / Once a Year Punctuation: 2	2	4	6	8	10
	Exceptional/ Once every 5 years Punctuation: 1	1	2	3	4	5

The probability or frequency of occurrence of a risk has been taken on a smaller scale than is usually considered from the environmental point of view, considering that social issues require less response time in order to minimize social contingencies. Regarding the severity of the consequence, the following chart describes each criterion adopted:

Chart 82. Description of the magnitude of a consequence

Magnitude of the Consequence	Description
Insignificant	It has an impact at the point of occurrence or causes an internal limit to be exceeded, without affecting personnel or third parties
Mild Effect	It causes an impact in the plantation area, slightly affecting a staff or a resident of the area
Moderated Effect	It causes a slight negative impact on the environment and/or annoyance in the nearby populations of the forest fields or the communities settled on the access roads
Serious Effect	It causes a notorious problem to the environment, and affects the health of the AID population or accidents in the personnel
Catastrophic Effect	It interrupts activities and generates some fatality either to staff or third parties

Source: Adapted from OPS (2009) for the Enterprise on its forestry component

It is important to be clear about how the different levels of risk are defined. To a large extent, social risks are a function of the expected “footprint” of a project; its scale, complexity, and inherent sectoral risks have to be seen in the context of local conditions, such as people's vulnerability, levels of poverty, lack of resilience, or social exclusion (IDB, 2018). The following chart summarizes some of these aspects:

Chart 83. Description of the risk class and its assessment

Class	Punctuation of the risk	Description
IV	<5	LOW Risk: Project activities with minimal or no adverse social risks and impacts. No specific mitigation measures are required, only preventive and communication.
III	5-8	MEDIUM Risk: Although not significant, operational risks and challenges still deserve attention. Adverse impacts can be limited and few in number and easily addressed through mitigation measures.
II	9-16	HIGH Risk: The nature and magnitude of potential or actual social risks and impacts are significant and problematic. While the likelihood of such a risk occurring may be low, the high intensity of the impact indicates a substantial risk overall.
I	>20	VERY HIGH Risk: The nature and magnitude of the potential or actual risks and social impacts of a project can cause serious adverse impacts on the people affected by the project. Unless properly managed, the impacts can be irreversible.

Source: Social Impact Assessment (Kvam, Reidar, 2018)

7.3. Social risks of the project

In Chart 84. Project risks in the forestry component (social factor), the main identified social risks are presented, derived from negative impacts with HIGH and MEDIUM social significance. These are related to the social factors of "employment", "health and safety of third parties",

"quality of life, uses and customs", "ecosystem services", "local and regional economy", "occupational health and safety", "expectations" and "public services".

Also included are those with a "LOW" assessment but linked to health/life risks for people. General measures are listed to be taken care of; and that could be expanded in the process of designing and implementing contingency plans, where RISKS with a "HIGH" rating must be addressed.

In addition, it can be seen that some impacts of "medium" social significance show "low risk", such as those linked to the impact on the social network and the impact on properties; since the probability that this occurs is low, and the magnitude of the potentially affected group is small.

Risks related to road safety, or increased discomfort and unrest or potential conflict by/with external agents, could lead to "VERY HIGH RISK" in the event of a fatality, and specific protocols must be provided for such situation. Paracel foresees high safety standards, and these will be extrapolated to all activities that generate HIGH risk to the surrounding community, as well as to the company's personnel.

Chart 84. Project risks in the forestry component (social factor)

Social Mean Factor	Social Impact	Probability	Severity	Value	Risk Assessment
Employment	Workers migration	2	2	4	LOW
Third party's health and security	Potential conflicts by/with external agents	2	5	10	HIGH
Quality of live, costumes and habits	Chantes in costumes, habits and traditions	3	2	6	MEDIUM
Quality of live, costumes and habits	Impact of the social network	2	2	4	LOW
Ecosystem services	Impact in ecosystem services of regulation, provision and cultural	2	4	8	MEDIUM
Regional and local economy	Possible impact in subsistence and/or local economy means	2	3	6	MEDIUM
Occupational health and security	Impact on occupational health and security	2	4	8	MEDIUM
Third party's health and security	Impact on third party's health and security	2	4	8	MEDIUM
Expectations	Generation of negative perception and/or fears in the local population	2	3	6	MEDIUM
Public/nonpublic services, public/nonpublic infrastructure and/or property	Increase in vehicular traffic	3	4	12	HIGH
Public/nonpublic services, public/nonpublic	Impact on vial infrastructure	3	4	12	HIGH

infrastructure and/or property					
Public/nonpublic services, public/nonpublic infrastructure and/or property	Impact on land properties	3	2	4	LOW
Third party's health and security	Impact on vial security	3	3	9	HIGH
Quality of live, costumes and habits	Increase of discomfort or restlessness	3	4	12	HIGH

Source: Own Elaboration

8. Cumulative impact analysis

The analysis of cumulative impacts has been developed in the Social Study of the industrial component, whose main results, after correlating Paracel's undertaking with other projects identified in the AID, showed a positive synergy in the generation of employment and in the development of the local, regional and extra-regional economy, as well as other social factors. Likewise, the potential cumulative negative impacts due to pressure on public/non-public services and infrastructures, associated with the people employed and induced by the projects in the AID and the increase in truck traffic in the area of influence, have been detailed. It is considered that the forest component would have the same cumulative impacts, on a greater or lesser scale, on the Valued Socio-Environmental Components (VECs) already predefined in the industrial component.

In addition to the VECs already mentioned above (employment, local and regional economy, others), the forestry component includes the VEC linked to "ecosystem services"; resulting from the identification of possible impacts that the communities near the forest fields could have due to their provisioning and regulation, as well as effects on related customs.

In the case of the forestry component of the enterprise, it is analyzed from another perspective, although complementary to the industrial component, where a qualitative characterization is carried out, considering the synergy that could occur in the area not because of other enterprises, but because of the incremental development of forest production derived from eucalyptus plantations, this in order to identify the *possible systemic consequences resulting from the combination of multiple effects from individual actions over time* (IFC, 2015).

As already mentioned in the LBS, and in the impact assessment developed previously, there would be an important change in land use in the area, although highlighting that the land is already intervened by agricultural and livestock activities; and in the medium term, it would move to a purely forestry activity (analyzing the Paracel plantations). Therefore, the impact on the following social factors, resulting from the evaluation of the impact of the enterprise, could generate cumulative impacts on the following social factors or VECs: Ecosystem services, local and regional economy, quality of life and customs; primarily due to the change in land use and possible effects that could occur in the area's water resources. The VEC linked to the health and safety of third parties is also related to possible conditions derived from the increase in traffic, which to the extent that all forest fields are developed or are even expanded over time, could generate cumulative impacts related to road safety and the safety of the people who live in the communities settled in the localities located on the access/exit roads to/from the forest fields.

Next, a qualitative description of the VECs; on which it is considered there would be cumulative impacts, both positive and negative:

- **Local and regional economy/Jobs:** The development of forestry production in the area would be increasing, and it is expected to start in the short term by Paracel in approximately 3,000 hectares; then move to 15,000 hectares and so on until the development of all the fields to be forested (180,000 ha). In addition, taking into account INFONA data, the "potential" development of the area could be exploited, and

more plantations increased over time, which would entail a positive incremental impact; developing directly and indirectly the economy of the area and providing sources of work. Furthermore, the appreciation of the land could be extrapolated throughout the area, due to the change in land use that would occur in the northern region of the country.

- **Ecosystem services:** They could be affected, incrementally in time and space, taking into account the change of use in the area; and the introduction of activities related to the chemical control of plantations. The main ecosystem services are linked to the provision of communities (use of water for consumption of wells, lakes and springs), and cultural (recreational and leisure activities linked to water).
Although, according to data from Paracel, eucalyptus plantations present a water balance similar to that of the Cerrado native forest, and other studies carried out in Uruguay show that there are no significant differences in the availability (quantity) of water in similar plots of grazing versus forested with eucalyptus, it is considered that there may be competition in the "water consumption" used by the communities that use groundwater (quantity), especially in cases where there is already a shortage at certain times of the year, furthermore, along with a possible gradual change over time in the quality of the water, due to the chemical control of the plantations themselves. The monitoring of water levels and quality throughout the project cycle, will be duly attended by Paracel, in order to minimize possible cumulative impacts on the water (environmental) VEC and its relationship with the social VEC.
- **Infrastructure and services:** From the point of view of improving the infrastructure conditions of and for the communities, as well as the development of the quality of life in the area, the project will determine an incremental benefit over time in the structural improvement and of paving of all public routes to be used for the transport of wood, which would have a positive impact, through: i) decrease in travel times (note that traveling the 70 km between Jhugua Ñandu and Puentesíño takes today 1,5 hours), ii) improvement of road safety; iii) reduction of the emission of rolling dust, with its consequent benefits to the environment and public health in general, iv) facilitation of access to/from emergency services (ambulances, police, firefighters). In relation to potential cumulative negative impacts, the impact on infrastructure and road safety is mentioned, since in the operational stage of the forest fields (during the harvest season and transportation of wood to the industrial plant), the movement of vehicles at the rate of one truck every 4 minutes approximately from years 6 - 7 after the installation of the plantations in each forest field. If to this we add the development of new similar ventures, this rate could increase.
- **Quality of life, customs/Health and safety of third parties:** It is closely related to the previous point; since the population surrounding the forest fields, would be mainly affected in aspects related to road safety; as well as the increase in the flow of workers in the different stages of the forestry component of the project. Other possible effects, which may increase over time, are related to the leisure habits of the inhabitants, closely linked to the water resources of the area (beach, watering places).

As already mentioned in the industrial component, the minimization of cumulative impacts, from Paracel, would be to strictly comply with all the measures indicated in the Social Management Plan; likewise, monitoring measures in the conditions of water resources (quantity/quality) will be key, since the use of water in the area is directly linked to customs in

the area (recreation, fishing, others); as well as in the supply for human consumption. Sustainable forest management also carries out technical and environmental practices that minimize cumulative impacts.

9. Measures and Programs

9.1. Identification and justification of programs/measures

Considering the complementarity between the components of the project, in this chapter the Social Management Plan (PGS) prepared within the framework of the Preliminary Environmental Impact Study for the industrial component is expanded, with the incorporation of aspects related to the forestry component; the social baseline (LBS) and the impact evaluation of the project of this component.

As mentioned in the report related to the industrial component, the PGS contains the scope of the programs and measures proposed to mitigate and manage the negative social impacts identified, in addition to optimizing and/or enhancing the positive impacts; contributing to local development and improving people's quality of life.

9.2. Social Management Plan (PGS)

Considering the impacts of medium and high significance identified through the evaluation presented in chapter 6. Evaluation of social impacts of this document, the programs and measures were formulated taking into consideration the national and international legislation cited at the beginning of the document, and that seek to guarantee the sustainability of actions within the framework of social management.

Through the measures and programs, it is pursued:

- To establish the bases of relationship with the community, enabling their participation.
- To establish a healthy bond between the community and the company.
- To promote local development.
- To raise awareness and keep the population in the area of influence informed about the activities and processes planned within the framework of the project and its stages.
- To encourage the participation of the population in the identification and solution of problems.

For both components, Paracel will implement the PGS through the Communication and Social Sustainability Management, working in a coordinated manner with the Environmental Sustainability Management; and in coordination with the other departments of the company. This PGS is also integrated with the Environmental Management Plan (PGA), thus developing an Environmental and Social Management System (ESMS) at the business level.

As outlined in the PGS in its initial version (industrial component), certain programs in the social field are configured considering the close relationship with impacts that will be addressed from the environmental, engineering or technical areas; and that they will be coordinated and managed in an articulated manner with the different areas to achieve a comprehensive approach. This is the case of impacts such as: impact on road safety, impact on road infrastructure, impact on the landscape, impact on river traffic and ports, temporary increase in population, impact on ecosystem services with emphasis on the forest component, among others.

To monitor socio-environmental performance; and for the coordination and socialization of information, a Socio-Environmental Committee will be created and formed by the supervisors or teams involved in the social and environmental field of Paracel who will coordinate, depending on the particular issues for follow-up, the participation of local referents and/or institutions. The Committee will establish by common agreement the dates and frequency of meetings, work spaces and joint tours.

In addition, the company has created a communication and monitoring committee; composed, among others, by referents of the districts of the areas of influence and whose objective is to involve the population in each stage of the project and establish a direct communication channel between Paracel and its different interest groups.

Various measures and programs will be planned and implemented by interdisciplinary teams from Paracel; and they will require coordination with national level institutions, local governments or other organizations (such as, for example: Signaling and traffic management, training of local labor, among others). For this, the Environmental Sustainability Management and the Communication and Social Sustainability Management will coordinate the alliances and necessary steps for said articulations.

Some of the programs and measures are transversal to all stages of the project; that is, they will be implemented from the pre-construction stage (in the case of the industrial component) or design, to the operation phase (in both components). Monitoring at all stages will be key, in order to guarantee the follow-up of the proposed measures; and, eventually, propose the necessary adjustments that guarantee the sustainability of the undertaking.

In addition to the human resources policies related to occupational health and safety (OHS), specific strategic guidelines related to COVID-19 are added, addressing the pandemic declared by the World Health Organization in the period of development of social researches.

They are presented in *chart 85 below. Programs and measures*, it includes the programs and measures, linked to the stages and the impact associated with each of them. The main guidelines, objectives and scope of each program are described below. Taking into account the current stage of the project (pre-construction), some programs are currently in implementation, while others will be elaborated in detail in due course, depending on the stage in which they are.

Chart 85. Programs and measures

PROGRAMS/ MEASURES	PROJECT STAGE		ASSOCIATED IMPACT
	Industrial Component	Forestry Component	
ADA Social Management Program for Communities ⁹¹	Pre construction	<i>It DOES NOT apply</i>	<ul style="list-style-type: none"> - Physical displacement (home, public services, others) - Possibility of Resettlement - Impairment of properties

91 This program applies only to the industrial component, because it proposes specific measures for the mill area, which is why it is not developed in this chapter.

			<ul style="list-style-type: none"> - Economic displacement - Impact of the social network - Economic displacement and land involvement (ranches) - Migration of workers from one sector to another - Generation of favorable expectations - Generation of fears and uncertainty
Relationship program with the community and Stakeholders	Pre construction, construction and operation	Installation, operation and maintenance	<ul style="list-style-type: none"> - Affecting the social and community networks (family, social and productive) -both components. - Impact to units in the immediate environment due to access or proximity to the plant (industrial component) and small communities. near/adjacent to forest fields and access to them. - Changes in customs and uses - both components. - Increased discomfort or tranquility. - Affecting the health and safety of third parties.
Development program and linkage of local workforce	Pre construction, construction and operation	Installation, operation and maintenance	<ul style="list-style-type: none"> - Generation of local employment - Formalization of labor ties - Skills Development - Promotion of women's employment
Promotion and development program for local suppliers	Pre construction, construction and operation	Pre installation, installation, operation and maintenance	<ul style="list-style-type: none"> - Development of the local economy - Generation of local employment - Transitory population increase
Dissemination and communication program	Pre construction, construction and operation	Pre installation, installation, operation and maintenance	<ul style="list-style-type: none"> - Increase in vehicular traffic - Transitory population increase - Impact on road safety - Generation of local employment - Generation of expectations and fears in the local population - Generation of expectations at a regional and extra-regional level - Changes in customs and uses - Increased discomfort or restlessness - Impact on ecosystem services
Complaints, claims and concerns management program	Pre construction, construction and operation	Pre installation, installation, operation and maintenance	<ul style="list-style-type: none"> - Generation of expectations and fears in the local population - Generation of expectations at a regional and extra-regional level - Impact on the social and community networks - Impact on ecosystem services
Road safety program for institutions and communities of	Construction and operation	Installation, operation and maintenance	<ul style="list-style-type: none"> - Increase in vehicular traffic - Transitory population increase - Impact on road safety - Changes in customs and uses

the ADA and AID			- Effect on the health and safety of third parties
Awareness and monitoring program for contractors and workers on compliance with regulations	Construction and operation	Installation, operation and maintenance	- Impact on the social network - Impact on road safety - Effect of occupational health (including COVID-19) - Effect of occupational safety - Health and safety impact of third parties (including COVID-19) - Impact of land properties
ADA cultural heritage protection and enhancement program	Construction and operation	Installation, operation and maintenance	- Affection of materials of archaeological, historical and/or cultural interest - Management and enhancement of local and national heritage - Possible loss and/or damage to heritage
Community Health and Safety Program	Construction and operation	Installation, operation and maintenance	- Impact on the health and safety of third parties
Prevention and management of social contingencies program	Construction and operation	Installation, operation and maintenance	- Effect of health and safety of third parties (in forestry linked to external factors) - Effect on occupational health and safety (including COVID-19) - Changes in customs and uses - Impact on river traffic and ports - Impact on ecosystem services
Internal management protocols due to land involvement (easement) and risks from external agents	Construction and operation	Installation, operation and maintenance	- Potential conflicts by/with external agents - Impact of land properties
Social monitoring program	Construction and operation	Installation, operation and maintenance	- Generation of expectations and fears in the local population - Generation of expectations at a regional and extra-regional level - Changes in customs and uses - Impact on ecosystem services - Possible impact on means of subsistence and/or the local economy

9.2.1. Community and Stakeholder Relations Program

Stage:

- **Industrial component:** *Pre-construction, construction and operation.*
- **Forest component:** *Installation, operation and maintenance.*

Objectives: Encourage local development and promote close ties between the community and the company.

Measures/Guidelines

The program of relations with the community and local development refers, first of all, to the generation of mechanisms for the participation of the population of the areas involved in the project for both components (ADA/AID for the industrial component and AID for the forestry component). In actions that are oriented to the identification and formulation of alternatives to the changes that could occur with the implementation of this. Likewise, it seeks to contribute to the strengthening and development of communities, both in the social, economic, cultural, and other aspects; and the active involvement of the inhabitants in matters that make the transformation of the current conditions of their environment.

With the field work carried out for the preparation of the LBS studies; both in the first and second stages, information gathering and exchange activities were carried out with the population of the areas that make up the AID in each of the components, enabling a first communication channel with them, which in turn could know the situation of these territories with respect to access to basic services, health, education, participation, others. This process and the international regulations involved constitute the basis for the generation of community development proposals in these areas, before which the following points should be considered:

- The importance of sustaining the communication, already initiated, in the territory by returning the results of the information survey; carried out for the baseline studies and the involvement of the various stakeholders and interest groups; already identified in the different spaces.
- All actions that involve the community must consider the prior elaboration of participatory diagnoses in consultation spaces, promoting equitable participation between women and men in the community, and permanent monitoring of the activities planned for this purpose.

The implementation of the activities with the aforementioned considerations ensure compliance with the principle of Equator No. 5; that highlights the importance of the "effective participation of Stakeholders in a continuous, structured and culturally appropriate manner for the Affected Communities; and, where appropriate, for Other Stakeholders", the importance of carrying out consultation processes according to the degree of adverse impacts that may occur in each area, adapted to their linguistic preferences; their decision-making processes, and the needs of disadvantaged and vulnerable groups.

The communities located on the access roads to the area surveyed for the installation of the plant have the particularity of becoming an area with an identity of cohesion between communities that are linked to each other and interdependent on each other. Saladillo, Mongelos and Roberto L. Petit are communities with greater capacity, in which educational institutions, health services, etc. are concentrated, to which residents of neighboring communities with less capacity attend daily.

For their part, the AID communities of the forestry component also constitute territories in which educational, health, recreational, and religious institutions are present, among others. Those with the largest number of institutions and centers are the district capitals such as Puentesíño, Paso Barreto and large towns such as Paso Mbutú and Colonia Jorge Sebastián Miranda (Hugua Ñandu).

In the areas involved in the project (both components), community organizations, producer committees, neighborhood commissions, water and sanitation boards, among others, were also identified; as well as private initiatives for recreation such as watering places, and also small businesses and places with some type of service.

Taking into account this information and other characteristics surveyed, the following measures are proposed to strengthen local capacities by the project to be implemented within the framework of this program for both components:

- **Support for the strengthening of community identity:** Measure through which it is intended to generate activities that promote the strengthening of the existing community link between communities; accompanying the process of change that could be generated with the implementation of the project. Activities may include the participatory development of joint projects; including vulnerable groups (women, children, people with disabilities and the elderly), the setting up of community centers, the development of health appeasement in coordination with the regional offices of the MIC, SNPP, USF (training in preventive measures against COVID-19, HIV, and other public health issues), the organization of cultural events, etc.
- **Support for the strengthening of community organizations in the area:** In connection with the previous measure; it will seek to offer the organizations in the areas activities that promote their strengthening, placing special emphasis on productive committees (for example, in the forestry component, artisans dedicated to the production of karanday products), technical assistance with a gender approach and the provision of marketing spaces in coordination with different relevant actors in the district. In addition, actions related to the rational use of water, the importance of the prior purification of the water provided by the sanitation boards or commissions, water quality monitoring, among others, will be promoted.
- **Promotion and development of local initiatives:** Aiming to provide technical support for the improvement and sustainability of local initiatives such as MSMEs, small businesses, workshops and others. In addition to support and advice for legal issues; such as the provision of tourist and recreation spaces (watering places) in the area.
- **Improvement of existing infrastructure:** In coordination with departmental and municipal governments, support the generation or improvement of spaces for recreation and outdoor recreation (squares, parks, courts, etc.), road safety signs in areas with concurrence of people and especially children (squares, schools, churches); as well as the improvement of the local landscape and of all kinds of infrastructure of community relevance.

Complementary programs/measures

For this program the following complementary measures apply:

- Dissemination and communication program.
- Program for the reception and management of complaints, claims and concerns.
- Program for the development and linking of local labor.

9.2.2 Local workforce development and linkage program

Stage:

- **Industrial component:** *Pre-construction, construction and operation.*
- **Forestry component:** *Installation, operation and maintenance.*

Objective: To promote the generation of local employment through the linkage of qualified and unskilled labor from the project's areas of influence and capacity development.

Measures / Guidelines

Partnerships for capacity development

One of the measures that the company is working on, in order to promote the employment of local labor, is the development of links with educational institutions present in the department in coordination and in alliance with the Ministry of Labor, Employment and Social Security (MTESS). They currently have two agreements signed with this ministry. These alliances aim to join forces between the company and the education sector, for the planning of training courses and training within the framework of capacity development.

In addition, in the forestry component, Paracel will promote the inclusion of female labor in the nurseries to be installed, thus developing actions for the inclusion of women in the forestry sector.

The characteristics surveyed in each social base line, related to the employment issue; the expectations raised by the population; the educational institutions present in the department of Concepción and the profiles of qualified and unskilled labor required by the company will be taken into account for the planning of actions and the design of the courses.

This measure is currently being implemented, as it was planned for the pre-construction stage, in order to have the necessary local labor. In addition, with a view to the following stages, new training courses may be designed in accordance with the personnel requirements necessary for the operation stage of the project in each of its components. Currently the company is making the first calls for hiring and training of required personnel.

The capacities developed will remain at the end of the construction stage of the plant (as with the forestry component process), as installed capacity, thus enhancing the local qualified workforce that could be reintegrated into other ventures.

Promotion of the linkage of local labor

Paracel's human resources policy prioritizes the hiring of local labor, in the first place; and of national labor, in second place; over the hiring of foreign labor.

The diffusion and promotion for the hiring of local labor is carried out by different means. The planning of promotional activities takes into account the information channels most cited by the population in each of the components.

The MTESS created an exclusive job bank to respond to the needs of Paracel and its suppliers; in order to attract the largest number of local workforce. In accordance with the signed agreement, the MTESS will finance the training of the first 350 operators of the industrial plant.

Currently, courses are being developed through the SNPP in Concepción, to respond to the contracting needs of Paracel and project contractors. The areas covered are construction and forestry through training in the handling of large machines.

The promotion of this program is carried out through informational meetings, job fairs, and other identified spaces, in coordination with the MTESS, the focal points of the local governments, and references from the different localities in the areas of influence.

Applications are made through the website, to the email: talentohumano@paracel.com.py or from the company's service offices and from other points that are coordinated with local institutions.

Paracel will generate periodic reports on the hiring and the process carried out, with information about:

- a) Number of vacancies and required profiles
- b) Media used
- c) Number of applicants presented
- d) Number of applicants hired
- e) % of national, local and international skilled and unskilled labor

In addition, the labor hiring process will guarantee equal opportunities for men and women, with special emphasis on equal criteria for selection, remuneration and promotion and on the equal application of such criteria (Performance Standard 2, on Work and Conditions Standards on Environmental and Social Sustainability of the IFC). Likewise, it is estimated that both components (industrial and forestry), in the different stages of the project, can generate around 40,000 jobs (4,000 direct, 16,000 indirect and 20,000 indirect-direct). Considering the specific hiring profiles, it is expected that 90% of the people who work in the nurseries will be women, in the case of the forestry component; attending to international standards that ensure, among others, employment opportunities and the promotion of gender equality in undertakings of this nature.

Promotion of the hiring of local labor from subcontractors

Considering that for the construction stage Paracel will subcontract to other companies, in the bids or contracts to be signed with each one, the same promotion and equity requirements mentioned in the previous measure will be established.

Complementary programs/measures

For this program the following complementary measures apply:

- Community and stakeholder engagement program
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns
- Awareness program to monitor contractors and workers on compliance with regulations

9.2.3. Promotion and development program for local suppliers

Stage:

Industrial component: *Preconstruction, construction, operation.*

Forestry component: *Pre-installation, installation, operation and maintenance.*

Objective: To promote the development and growth of the local economy through the promotion of local and national companies as possible suppliers.

Measures/Guidelines

In the project's areas of influence there are important companies and people who are dedicated to providing goods and services in different areas, whether they are large or small companies. The largest proportion of people who work do so in MSMEs.

Taking into account the positive impact that the company will generate in terms of the demand for products and services to attend the different activities related to each component of the project; under this program, it will be sought to encourage the development of local suppliers.

Paracel has promoted and initiated an open channel of communication with the different local suppliers and merchants' associations in the area; in coordination with local governments, organizations related to MSMEs and references from certain sectors; some identified in the process of consultation and preparation of the baseline.

In the case of the forestry component, the inclusion of 20% of local producers (large, medium and small) is planned; and in coordination with INFONA, currently, a pilot project is being developed through which the socioeconomic and technical conditions of potential producers are evaluated, to define lines of action such as: Investment funds for small producers, technical assistance and training, among others.

Paracel will provide, in a transparent and clear manner, information related to the demand for goods and services that it will have at each stage, estimated times, bidding processes and tenders, quality standards and required management.

Through this program, other activities and processes that help to:

- Achieve more competitive compliance standards
- Improve business and operational management processes
- Optimize production and delivery times
- Improve the quality of products and services, and the response capacity of suppliers
- Develop new products, services and position itself in other markets
- Contribute to sustainable local development in communities through the strengthening and development of SMEs
- Promote integration and coordination among supplier companies
- Contribute to economic decentralization

Complementary programs/measures

For this program the following complementary measures apply:

- Community and stakeholder engagement program
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns
- Awareness and monitoring program for contractors and workers on the code of conduct and compliance with regulations

9.2.4. Dissemination and communication program

Stage:

Industrial Component: *Preconstruction, construction and operation.*

Forestry component: *Pre-installation, installation, operation and maintenance.*

Objective: Delivery of information about the project to the general population and to the resident communities in the project's areas of influence, in each of its components, in order to maintain and guarantee constant and timely communication.

This program is transversal to all the programs and measures of the PGS and PGA.

Measures/Guidelines

Information dissemination/disclosure

Communication represents a fundamental pillar of the PGS, through the design of alternatives for the use of different spaces and media; that allow the dissemination of clear and precise information about the project, among the different interest groups linked to it and the population in general.

Actions will be envisaged to ensure the arrival of information to the population of the areas linked to the project, in each of its components (All, AIDs and ADA) periodically; containing deadlines, advances and setbacks (if any) of the project. The strategy will also involve a planned communication for other levels such as regional and national. This means that communication, in addition to focusing on business and institutional matters, must have a social communication strategy focused on the communities surrounding both the plant and the properties for forest plantations and accesses, with emphasis on the most vulnerable groups, such as It is presented below in specific guidelines for these social actors.

Currently, the company has various communication channels such as: Social networks, website, exclusive service numbers for this purpose, institutional email: info@paracel.com.py, a YouTube channel.

Likewise, Paracel has promoted the creation of a Communication and Monitoring Committee of the company, a committee created with the purpose of involving the population in each stage of the project, achieving a collaborative development of socio-environmental programs; and above all, establish a direct communication channel between Paracel and its different stakeholders.

All channels and spaces ensure that the content to be transmitted on the stages of the project is sufficiently clear and adapted to the cultural and linguistic particularities of the areas, in order not to generate confusion/doubts at the time of reception. In connection with the Consultation and Claims Attention Program. It will seek to generate materials in various formats (printed and digital), based on the registered concerns, in order to respond to the specific information needs; especially of the resident population in the area of direct influence of the project, in a timely manner.

Taking into account what was found in perception studies; and considering that some people expressed concern regarding the project, stating, among other issues; "That is sustainable", the "possible contamination/affectation of natural resources and the environment", that has "social responsibility", as well as issues related to the use of chemical products; the dissemination of information to the populations near the forest fields must contain data on the afforestation process and related activities, such as the use of chemical products and fertilizers, "controlled burning" activities, among others.

All these actions comply with and will comply with the provisions of IFC Performance Standard 1, in its item 29-Disclosure of information; in which it is highlighted that all relevant information about the project; risks, impacts and opportunities must be issued, ensuring that the affected communities and other social actors dimension these aspects; for which "The client will provide affected communities with access to pertinent information on: (i) the purpose, nature and scale of the project; (ii) the duration of the proposed project activities; (iii) the possible risks and impacts on these communities and the pertinent mitigation measures; (iv) the planned stakeholder participation process; and (v) the complaints mechanism⁹²".

92 IFC- Performance standard son environmental and social sustainability. Page 14.

As part of this program, there have been (6) virtual and (7) face-to-face meetings to date called: "Let's talk"; in order to deliver information about the project to the general population and to the communities residing in the project's areas of influence, seeking to maintain and guarantee constant and timely communication.

The content presented in all the talks was taken from the Environmental Impact Report (RIMA); trigger tool for inquiries, comments and suggestions to appear.

Paracel's communication channels were presented in all the talks and the participants were invited to form part of the Communication and Monitoring Committee of the company. Committee created with the purpose of involving the population in each stage of the project, achieving a collaborative development of socio-environmental programs and, above all, establishing a direct communication channel between Paracel and its different interest groups.

Communication to the population in the construction stage (industrial component)

Communication to the population in the works stage must foresee communication actions both in the preliminary phase and during the works. This will involve the dissemination of specific and relevant information; such as the planned schedule of works, activities related to the industrial plant and forest fields, seeking to prevent temporary annoyances, risks of accidents, in addition to noise, dust, etc., including recommendations and safety measures to be taken into account by the population affected, ensuring their well-being.

The recommendations and measures will be disseminated through the mass media, social networks, printed materials such as newsletters, leaflets, pamphlets, among others; so that the population takes the necessary precautions based on this information. Likewise, informative spaces will be generated with the community, especially with the families residing in the ADA and AID, attending to their expectations, doubts, queries, etc. regarding said stage.

Another aspect to consider, in order to provide timely information to the population of the project's areas of influence, is the preparation and placement of all kinds of posters and signs necessary in the works area and/or in other areas with information related to these.

Delivery of timely information to the community and relevant stakeholders

Through this measure, it is proposed to generate a relationship of trust with the population (social actors, interest groups) in the project's areas of influence. By providing accurate and timely information on issues concerning the impacts and the compensation and/or mitigation measures associated with them; as well as with the delivery of answers in time and form to the concerns that arise from the community.

For this, direct communication spaces will be generated with the population involved; participatory meetings by sectors, house-to-house visits, among others. So that people can take ownership of the process by expressing their needs, points of view, and through that an adequate management of project/community relations is given. In addition, there will be

specific spaces for communication with local actors (Municipalities); as well as key messages to be communicated, according to a business communication strategy, with NGOs and other organizations (association of small producers, among others).

It will ensure that the teams (social, communication, etc.) that are formed for the different jobs and stages, handle the same information related to each program.

Based on the social work carried out in the territory, coordination with key local actors will be important; with whom permanent communication was initiated and maintained (referents from the public and private sectors, civil society, merchants, community leaders, among others). Within this framework, the company began the process of contact with said actors for the socialization of RIMA in each of the municipalities involved.

Finally, in addition to communicating specific issues to the project, Paracel will promote the communication of awareness of the surrounding populations, in order to disseminate specific measures and protocols in the face of the pandemic declared in the initial stage of the project (COVID-19); as well as promoting actions related to the rational use of water, the importance of the previous purification of the water provided by the sanitation boards or commissions, water quality monitoring, among others.

Complementary programs/measures

For this program the following complementary measures apply:

- Program of relations with the community and local development.
- Local workforce recruitment and development program.
- Program for the reception and management of complaints, claims and concerns.
- Road safety program for institutions and communities.
- Social monitoring program.

9.2.5. Complaints, claims and concerns management program

Stage:

Industrial Component: *Preconstruction, construction and operation.*

Forestry component: *Pre-installation, installation, operation and maintenance.*

Objective: Guarantee attention to the complaints, claims and concerns of the population of the project's areas of influence, workers and the general population, establishing permanent communication channels.

Measures/Guidelines

Timely attention to queries, concerns or claims related to the undertaking will be key. From the field work process, as a result of the perception study, potential impacts related to the generation of fears of the local population were identified, in relation to the care of the environment and the possible impact on the way of life; this in the areas covered by both components of the project.

This program considers the principle No. 6 of Equator, Complaints Mechanism, as well as the guidelines of the standards proposed by the World Bank, and the IFC Performance Standard 2, on Labor and working conditions. In these it is proposed:

Preparation and definition of the mechanism for receiving and managing complaints, claims and concerns - implementation manual

For the implementation of the program, it is necessary to formalize an action mechanism that "must be adapted to the risks and impacts of the project, and the affected communities must be its main users". For this, it must contain lines of action that guide the resolution of queries, doubts and concerns promptly, using an understandable and transparent consultation process that is culturally appropriate and easily accessible, without costs, and without any retaliation for those who raised the matter or worry⁹³. The following steps are proposed for them:

- Preparation of a procedures' manual, considering the different actors who will be served (general population, affected population and workers), as well as a scale of the type of claims and response time to these.
- Socialization and validation of the tool with all the teams involved.
- Training for its use.
- Activation and dissemination of the mechanism in spaces for participation generated, within the framework of this or other PGS programs, will inform the affected communities about the mechanism during the process of stakeholder participation.
- Monitoring the resolution and closure of claims.

Currently the company has an elaborate procedure that describes the system for the effective attention, treatment and closure of complaints, suggestions and queries; and the channels enabled (website, email, specific number for attention, mailbox for complaints, suggestions and queries) located in the Paracel establishment.

Enabling spaces to offer the population and workers answers to their doubts and concerns

Generate a direct and continuous channel of communication between the project and the population; in order to receive and facilitate the resolution of the concerns and complaints received, also detecting their expectations and inconveniences regarding the execution of the works; and the expected benefits. Guidance posts/offices will be installed for citizens and/or workers⁹⁴ who come to express concerns/complaints. Installation should be planned in the areas of influence of the work, with the presence of qualified professionals for this purpose,

93 Principle N° 6 of Equator, Complaints Mechanism. Page 8

94 The company must establish a complaint handling mechanism so that "workers (and their organizations, where they exist) can raise their concerns regarding the workplace." The client will inform the workers about the complaints handling mechanism at the time of being hired and will give them easy access to it. IFC. Performance standards on environmental and social sustainability, Performance Standard 2 Work and working conditions. Item 20. Complaints handling mechanism. Page 20.

they will treat the demands from the request to their resolution, response and registration within a period stipulated in advance by the company and the responsible team.

Complementary programs/measures

For this program the following complementary measures apply:

- Program of relations with the community and local development.
- Dissemination and communication program.
- Local workforce recruitment and development program.
- Social monitoring programs.

9.2.6. Road safety program for institutions and communities of the ADA and AID

Stage:

Industrial Component: *Construction and operation.*

Forestry component: *Installation, operation and maintenance*

Objective: To reduce the probability of occurrence of road accidents; and the impact on the way of life of the communities surrounding the plant and the properties for forest plantations, originated in the increase in traffic.

Measures/Guidelines

The measures mentioned here are complementary and must be coordinated with the guidelines or road safety program set out in the Environmental Management Plan; and which are related to the fulfillment of traffic and signage requirements and regulations (allowed circulation hours, speed regulations, avoiding driving in the vicinity of sensitive areas, installation of signage and signage, etc.). According to the field trips, a deficient signaling of the existing roads has been visualized, proposing that these be reinforced with the support of the enterprise, but through inter-institutional coordination with local governments and/or with the MOPC; this in the case of the roads linked to both components.

To address these impacts from the social sphere, awareness-raising and information dissemination actions should be planned, in coordination with the other related programs.

Awareness and dissemination of information to neighboring communities and public institutions

In addition to the community relations and communication program, specific information should be shared with the communities and public institutions in the areas about:

- Stages of the project and changes in the dynamics of vehicular traffic.
- Traffic management plan.
- Installation of regulatory and preventive signs (clear and easy to interpret signs).

- Details of the service offices installed by the company; and the consultation and complaints mechanism.

This socialization may be accompanied by training articulated with the competent regulatory institutions or by distributing materials (posters, leaflets, others) to educational centers, health centers and USF in the areas involved.

Training and awareness for drivers and workers related to transportation

Within the framework of the development of training or induction processes for contracted personnel linked to the transport area, and suppliers in general, information will be provided related to the characteristics of the communities and their dynamics of use of access roads, location of the zone's sensitive areas such as schools or health centers, among others. These trainings will be complementary to the trainings that the company will give about basic traffic rules, signage, schedules, etc.

For this program the following complementary measures apply:

- Program of relations with the community and interested parties.
- Dissemination and communication program.
- Program for the reception and management of complaints, claims and concerns.
- Awareness program to monitor contractors and workers on compliance with regulations.

9.2.7. Awareness and monitoring program for contractors and workers on compliance with regulations

Stage:

Industrial Component: *Construction and operation.*

Forestry component: *Installation, operation and maintenance.*

Objective: Accompany and monitor contractors and workers to ensure compliance with international regulations and national legislation.

Measures/Guidelines

Contractors and workers in the framework of subcontracts with Paracel are not considered third parties for the purposes of international regulations. They act on behalf of Paracel, and must be under the direct control of the company.

The trainings, workshops or meetings that the company dictates to its own workers or operators must also be extended to subcontractors and their workers; in order to optimize the programmed spaces and to promote a greater sense of belonging to the project by everyone.

It is important, therefore, that all related workers are aware of the scope of the project in general, of the code of conduct, of the environmental and social management programs that

will be implemented in all stages, and that they handle clear information; so that it can be relayed to the community, when it requires it.

Paracel will ensure compliance by all contractors with the Human Resources Policy; and the principles and regulations that they must comply with such as: Principle of equal opportunities and fair treatment, priority of hiring local labor, working conditions, health and safety at work, principles of non-discrimination, preventive measures against COVID-19, among others. These requirements will be explicit in the bids and contracts to be signed. In addition, IFC Performance Standard 2, on Work and Working Conditions, will be complied with, as well as the World Bank Group guidelines on environment, health and safety, social management and coexistence in temporary accommodation.

In the framework of the construction of the plant (industrial component) and use of the accommodation to be built by Paracel; part of the personnel linked to the undertaking will temporarily live in the area. In this regard, standards of conduct will be established especially linked to minimizing the impact on the ADA communities, as well as reducing the impact on the uses and customs of the communities.

Induction in SSO and follow-up

Although this will be addressed by specific programs, it is important to note that to minimize the impact on health and occupational safety, inductions will be made to workers in the current safety regulations (Decree 14,390; General Technical Regulation of Safety, Hygiene and Medicine at Work); as well as the IFC performance standard and its general guidelines on environment, health and safety. Furthermore, considering that Paracel will require contractors to have occupational health and safety technicians as established by local labor legislation. The inductions will make the provisions on informing specific protocols in cases of accidents, incidents, emergencies, informing about the specific areas of the company that address these issues (SSO Technician, Emergency Brigades and Risk Management, others).

In addition, in response to the pandemic declared by the WHO, specific protocols will be established to prevent the spread of the virus both in Paracel staff and in the communities surrounding the industrial plant and forest fields. Other diseases of hydric origin, transmitted by water, as well as diseases by vectors will also be addressed in the inductions, mentioning specific measures for their prevention and eventually, reducing the risk of their spread.

The proper management of solid waste is also related to OHS (many times a generator of vector diseases), as well as the handling and special disposal of hazardous waste, so inductions to staff will include these topics.

The monitoring of the implementation of the standards in OHS will be attended by specialists in OHS from Paracel, registered and authorized in the Ministry of Labor for this purpose.

Complementary programs/measures

The following complementary measures apply for this Program:

- Local workforce recruitment and development program.
- Dissemination and communication program.
- Program for the reception and management of complaints, claims and concerns.

9.2.8. Program for the protection and enhancement of cultural heritage

Stage:

Industrial Component: *Construction and operation in the ADA.*

Forestry component: *Installation, operation and maintenance in the AID.*

Objective: To ensure a sustainable management of heritage, promoting the enhancement of Concepción's heritage value.

Measures/Guidelines

Although the social significance of impacts on heritage is low in both components, it is also expected to promote actions that help achieve a visible presence of tangible heritage; and, eventually, minimize its impact, as well as respect the intangible heritage, present in the way of life and culture of the population settled in the study areas.

In order to ensure a sustainable management of the undertaking, and to take into consideration eventual findings –which, although they were not confirmed in the LBS field work–, construction contractors will be required to implement management protocols in case of eventual findings. Said protocols must foresee the participation of the National Secretariat of Culture, as well as that of local governments, as the case may be.

In order for the project to promote the revaluation and enhancement of the tangible and intangible heritage of Concepción -Villa Real de Concepción-; as well as its cultural identity, Paracel will promote actions with local and national cultural authorities, thus helping to safeguard them.

As already mentioned in the first version of this PGS; this is achieved through simple measures, such as, for example; support cultural centers or museums with graphic and printed material; As well as, in the event that during the works (industrial component) or in the installation of forest fields, the participation of archaeologist specialists is required, they can document the findings, and the results be made available to local actors and institutions linked.

In the case of the forestry component, the largest number of activities planned will be small-scale facilities that would not affect materials of archaeological value that could be found in the subsoil; also anticipating the request of specific protocols to subcontractors related to the adaptation of internal roads (roads, drains, others) and soil preparation. Likewise, the project expects to comply with the principles of IFC Performance Standard 8 for Cultural Heritage and current national regulations.

9.2.9. Community Health and Safety Program

Stage:

Industrial Component: *Construction and operation.*

Forestry component: *Installation and operation/maintenance.*

Objective: To implement an efficient program to care for the hygiene, safety and health of the population, with emphasis on the prevention of diseases of hydric origin, transmitted by water and others that could be related to the increase in the flow of workers.

Measures/Guidelines

In addition to the specific preventive signage measures mentioned in the road safety program for institutions and communities of the ADA and AID, as well as the planned training, Paracel will establish specific alliances with local health institutions (USF, health centers) identified in the AID/ADA, in order to contribute to the management and monitoring of information related to water-borne diseases, vector diseases, respiratory diseases, sexually transmitted diseases, pregnancy, drug use, alcohol, among others.

In response to the pandemic declared by the WHO, special attention will be paid to supporting and disseminating the MSPyBS campaigns, both in measures against COVID-19, and other vector diseases that may occur.

Disease awareness campaigns

Paracel will support health campaigns in the AID communities, promoted by the MSPyBS, as well as in the distribution of awareness materials on sexually transmitted diseases, protocols against COVID-19, preventive measures against dengue and other vector diseases. Likewise, specific campaigns will be carried out to prevent diseases of water origin (with emphasis on children and women), considering the low quality of the water and the lack of treatment systems in certain areas; as well as the dissemination of water quality results in the AID water courses (Paraguay River, Aquidabán River, others).

Other diseases can occur due to the inappropriate use of solid waste (many times generators of vectors) or due to poor disposal of packages of chemical products used, as could be seen in previous chapters; especially in the forestry component, which is why specific campaigns will also be carried out on the proper management and disposal of solid waste, as well as on the management of hazardous waste.

The information related to the attended campaigns, the number of people who receive the materials, the talks given by Paracel staff will be recorded; as well as possible claims related to illnesses that may be attributable to project personnel and/or activities, among others.

Disease baseline studies

Paracel will help carry out specific studies to systematize information from the USF; and then deliver them to the MSPyBS, as well as to the Municipalities, in order to contribute in establishing the bases to have reliable statistical data in the area; moreover, taking into account

the recent breakdown of some districts, of which there is no baseline data for subsequent monitoring.

In addition, a record will be kept of the illnesses associated with the work personnel; and related to these issues, in order to prevent the spread of diseases to communities. According to the results, specific awareness campaigns will be carried out with Paracel staff, always promoting the norms of conduct with the communities.

Health impact monitoring

Specific studies will be carried out in order to monitor the health data of the community; and those that may be attributable to the project (accidents, sexually transmitted diseases, by vectors).

In addition, third-party health and safety impacts will be monitored, as mentioned in the impact assessment chapter; in order to document possible cases related to diseases related to water (of water origin or transmitted by it).

Complementary programs/measures

For this program the following complementary measures apply:

- Program of relations with the community and interested parties.
- Awareness program to monitor contractors and workers on compliance with regulations.
- Road safety program for institutions and communities of the ADA and AID.
- Social monitoring program.
- Environmental education program of the PGA.

9.2.10. Prevention and management of social contingencies program

Stage:

Industrial Component: *Construction and operation.*

Forestry component: *Installation, operation and maintenance.*

Objective: To prevent and give a prompt response to social contingencies; both in the construction and operational stages of the project in its industrial component, as well as in the installation, operation and maintenance stages of the forestry component of the project.

Measures/Guidelines

In the event of an environmental or social contingency, the communication route to be used, whether it be Paracel personnel, contractors or a person outside the company, must follow the procedures described in the environmental contingency program in order to unify the procedure and communication channels.

As presented the guidelines related to risk analysis for both components of the project, below; those considered of relevance are cited:

- Effects on communication programs and permanent community support are minimized.
- In the event of demonstrations by the community and/or third parties, Paracel spokespersons authorized to mediate must also be established.
- Risks related to road safety or increased discomfort and uneasiness, could lead to "VERY HIGH RISK". In the event of a fatality, specific protocols must be established for said situation. Paracel foresees high safety standards, and these will be extrapolated to all activities that generate HIGH risk to the surrounding community.
- Through specific protocols with suppliers and/or carriers, which, in the event of accidents, must be immediately communicated to Paracel; and through the company, direct contacts with the families of those affected.

Paracel must establish specific spokespersons in the event that prompt communication with those affected is required; in the event of any social contingencies that may arise. These must be registered in the complaints and claims service program, and monitored until their resolution.

Complementary programs/measures

For this program the following complementary measures apply:

- Program of relations with the community and local development.
- Dissemination and communication program.
- Program for the reception and management of complaints, claims and concerns.
- Awareness program to monitor contractors and workers on compliance with regulations.

9.2.11. Internal management protocols due to land involvement (easement) and risks from external agents

Stage:

Industrial Component: *Construction and operation.*

Forestry component: *Installation and operation/maintenance.*

Objective: To prevent conflicts with third parties (owners of properties used as easements) and outline internal protocols to guarantee the safety of Paracel personnel.

Measures/Guidelines

The LBS has confirmed the use of private property, as easement for access/exit from the forest fields to the industrial plant. Paracel will make specific agreements with the owners of said properties; in order to guarantee the permanent use of these roads at all times, explicitly agreeing on their maintenance responsibilities and/or possible compensation. Likewise, the

non-involvement of roads in the area of indigenous communities or on lands under their control will be guaranteed, in order to safeguard the principles established in section 2.1. Project synthesis and related regulatory framework.

With regard to external agents identified in the AID (armed groups, people linked to illegal plantations, etc.); Paracel will establish security policies through the Human Talent area in order to protect the integrity of the personnel, direct and outsourced. Likewise, it will have permanent security professionals both in the industrial plant and in the forestry fields.

Complementary programs/measures

The following complementary measures apply for this Program:

- Awareness program to monitor contractors and workers on compliance with regulations.
- Social contingency program.

9.2.12. Social monitoring program

Stage:

Industrial Component: *Pre-construction, construction and operation.*

Forestry component: *Installation, operation and maintenance.*

Objective: To monitor the implementation of the measures and programs established in the PGS through the definition and monitoring of performance indicators; so that inconveniences in the fulfillment of the established objectives can be identified in time, and allow corrective actions to be taken in a timely manner. This program also contains a sub-component for monitoring social perception, through which it will be possible to have updated information regarding opinions and expectations of the local population on aspects related to the project in its different stages.

Measures/Guidelines

Taking into account both the baseline drawn up for each component, as well as the possible impacts identified, the programs and measures were generated with a range of activities to be developed during the different stages of the project, these will have compliance indicators that will be defined taking into account each one of them counts. For the definition of the indicators, lines established in the Equator Principles, IFC and FSC Standards will be taken into account.

The company has developed verifiable measurement instruments for the implementation of constant socio-environmental monitoring and control activities of the process. Minutes of meetings, report of specific activities of each program, field visit reports, among others.

Spaces for the review of the indicators will be established by Paracel (Social Team/Management of Communication and Social Sustainability) to ensure the correct execution and

implementation of corrective actions as necessary. Each of these spaces will be formally registered, which may be in meetings and/or visits to the territory on a regular basis, keeping a systematic record of the actions. Likewise, interviews, focus groups, workshops, etc. may be carried out with the affected people to obtain complementary information based on each mentioned indicator.

The monitoring tools may contain the following lines:

- Detailed information on the progress in the implementation of the programmed activities.
- Quantitative data on the results obtained.
- Qualitative information at the results level.
- If any, information on challenges/problems encountered during implementation, which delayed or could delay implementation.
- Proposals to solve problems/challenges.
- Sources of verification.

Information will be processed in function of the following aspects:

Mitigation measure/Indicator	Goal	Means of verification	Made in the term	Accumulated
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Example of indicators to be defined by each program (Period: Semiannual):

- Construction of a database with identification of interest groups and number of updates every six months.
- Number of people in the community who have received some type of information about the project and the total population in the community.
- Number of people summoned to the activities compared to the number of people attending the activities.
- Number of concerns, complaints and/or claims received (define period) given the number of responses granted and number of cases resolved.
- Number of activities programmed in the communication project for participation/number of activities actually executed.

Subcomponent

Monitoring of social perception

- For the development of monitoring, the baseline studies carried out will be taken into account, both with regard to the socioeconomic characteristics of the project's areas of influence (secondary and primary sources); as well as the results of the survey work of the social perception in the territory, districts and communities, and the changes perceived by the population with the implementation of the project; for which the same techniques of the first approach to the population may be used.
- Regarding methodological aspects, participatory spaces can be generated with key institutional actors (government, municipal, business associations, NGOs); as

community members who share their perception already in a stage of progress of the project, this both individually and in groups. The results of these studies may anticipate possible negative perceptions, and thus promote mitigation and/or contingency measures.

- All the resulting information will also serve as input for dissemination and communication programs, prevention and management of social contingencies, accordingly; as well as eventual updates to these, in order to adapt them as the project progresses.

Complementary programs/measures

For this program the following complementary measures apply:

- Program for relations with the community and local development.
- Dissemination and communication program.
- Program for the reception and management of complaints, claims and concerns.
- Awareness program to monitor contractors and workers on compliance with regulations.

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For a complete and finished reading of this document refer to the annexes:

ANNEX 1 Tools used to collect information

ANNEX 2 Register of main activities for social studies - forestry component

ANNEX 3 Complementary District Information - Characterization of each AID district


ANNEX 4 Identified community files

ANNEX 5 Inventory of programs and projects

ANNEX 6 Supplemental Heritage Baseline Study (March, 2021)

ANEXO 1: Herramientas utilizadas para el relevamiento de información

- Entrevista a referentes de Estancias
- Encuesta de Percepción Social
- Entrevista grupal
- Entrevista a informantes claves

PROYECTO DE CONSTRUCCIÓN Y OPERACIÓN DE LA PLANTA DE CELULOSA EN EL DEPARTAMENTO DE CONCEPCIÓN Entrevista a referentes de Estancias	

Con el objetivo de acceder a información necesaria para estudios sociales previos a la implementación del proyecto *"Construcción y Operación de una Planta de Celulosa en Concepción"*; resulta de especial interés conocer algunos elementos para la caracterización de la zona de influencia y la percepción con respecto al proyecto. Para el efecto se realizan entrevistas a actores claves a nivel comunitario e institucional como ser: referentes de salud, educación, organizaciones sociales, comités productivos y a responsables o encargados de los establecimientos que serán destinados a las plantaciones forestales.

En este sentido, agradecemos su participación y garantizamos la privacidad de los datos aportados.

1. DATOS DE LOS ENTREVISTADOS

Nombre y Apellido	
Edad	
Cargo	
Tiempo que lleva trabajando en la estancia	
Número de Teléfono	

2. DATOS DEL ESTABLECIMIENTO

2.1 Nombre de la Estancia

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2.2 ¿Podría señalar cuáles son los rubros principales a los que se dedican en el establecimiento? Ej. Ganadería, agricultura, otros.

2.3 ¿Son propietarios o arrendatarios?

2.4 ¿Cantidad de hectáreas que posee la propiedad?

2.5 En caso de ser arrendatario especificar ¿cuántas hectáreas son utilizadas?

2.6 ¿Desde hace cuántos años que están en el lugar?

2.7 ¿Cuántas personas son empleadas de forma en la estancia? Además, ¿Podría especificar la cantidad de mujeres y varones?

Total de empleados	
Total de empleados Varones	
Total de Empleadas Mujeres	

2.7.1 ¿A qué se dedican principalmente estas personas? Ej. Capataces, tractoristas, veterinarios, otros.

2.7.2 ¿De qué distritos o localidades provienen principalmente?

2.8 Podría estimar en términos de un año ¿cuántas personas son contratadas para trabajos puntuales en la estancia? Es decir, cuántos no son empleados fijos.

2.8.1 ¿A qué se dedican principalmente las personas que no son empleados fijos de la estancia?

2.8.2 ¿De qué distritos o localidades provienen principalmente?


3. PERCEPCION SOCIAL RESPECTO AL PROYECTO

3.1 ¿Usted tiene conocimiento sobre la posible instalación de una planta de celulosa en Concepción?

3.2 ¿Considera que este emprendimiento es positivo a nivel departamental, distrital y local? Sí / No

3.2.1 Por qué:

3.3 Algunas sugerencias o recomendaciones para el proyecto

PROYECTO DE CONSTRUCCIÓN Y OPERACIÓN DE LA PLANTA DE CELULOSA EN EL DEPARTAMENTO DE CONCEPCIÓN Encuesta de Percepción Social	

Con el objetivo de acceder a información necesaria para estudios sociales previos a la implementación del proyecto *“Construcción y Operación de una Planta de Celulosa en Concepción”*; resulta de especial interés conocer su percepción respecto los ítems que contienen esta encuesta. Agradecemos su participación y garantizamos la privacidad de los datos aportados.

1. INFORMACIÓN BÁSICA

Departamento:	Nº de Encuesta: <input style="width: 100px;" type="text"/>	Fecha: <input style="width: 40px;" type="text"/> <input style="width: 40px;" type="text"/> <input style="width: 40px;" type="text"/>																
Distrito :	Nombre y Apellido:																	
	Edad:	Sexo:																
Localidad:	Institución:	Cargo:																
	Número de Teléfono:	Grupo de interés:																
Ocupación		Organización																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Trabaja</td><td><input type="checkbox"/></td></tr> <tr><td>Estudia</td><td><input type="checkbox"/></td></tr> <tr><td>Jubilado</td><td><input type="checkbox"/></td></tr> <tr><td>Inactivo</td><td><input type="checkbox"/></td></tr> </table>	Trabaja	<input type="checkbox"/>	Estudia	<input type="checkbox"/>	Jubilado	<input type="checkbox"/>	Inactivo	<input type="checkbox"/>	Si trabaja, especificar sector <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Agricultura-Ganadería</td><td><input type="checkbox"/></td></tr> <tr><td>Servicios</td><td><input type="checkbox"/></td></tr> <tr><td>Industria y comercio</td><td><input type="checkbox"/></td></tr> <tr><td>Público</td><td><input type="checkbox"/></td></tr> </table>	Agricultura-Ganadería	<input type="checkbox"/>	Servicios	<input type="checkbox"/>	Industria y comercio	<input type="checkbox"/>	Público	<input type="checkbox"/>	¿Es miembro de alguna asociación/organización? Sí <input type="checkbox"/> No <input type="checkbox"/> En caso de pertenecer realizar las siguientes preguntas. Nombre: _____ Integrantes: Hombres ___ Mujeres ___
Trabaja	<input type="checkbox"/>																	
Estudia	<input type="checkbox"/>																	
Jubilado	<input type="checkbox"/>																	
Inactivo	<input type="checkbox"/>																	
Agricultura-Ganadería	<input type="checkbox"/>																	
Servicios	<input type="checkbox"/>																	
Industria y comercio	<input type="checkbox"/>																	
Público	<input type="checkbox"/>																	
	Especificar actividad que realiza	Objetivos:																
Nivel de Escolarización		Problemas frecuentes para el cumplimiento de los objetivos:																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Primario</td><td><input type="checkbox"/></td></tr> <tr><td>Secundario</td><td><input type="checkbox"/></td></tr> <tr><td>Terciario</td><td><input type="checkbox"/></td></tr> <tr><td>Ninguno</td><td><input type="checkbox"/></td></tr> </table> Especificar Especialidad:			Primario	<input type="checkbox"/>	Secundario	<input type="checkbox"/>	Terciario	<input type="checkbox"/>	Ninguno	<input type="checkbox"/>								
Primario	<input type="checkbox"/>																	
Secundario	<input type="checkbox"/>																	
Terciario	<input type="checkbox"/>																	
Ninguno	<input type="checkbox"/>																	

2- ASPECTOS SOBRE PERCEPCION SOCIAL

2.1 ¿Usted tiene conocimiento sobre la posible instalación de una planta de celulosa en Concepción?

Sí No

2.1.1 ¿Qué conocen o escucharon y por qué medios se enteraron?

2.4 ¿Cuáles considera que deberían ser los principales aspectos a tener en cuenta para la implementación del proyecto?

Generación de empleos a nivel local	Sí <input type="checkbox"/>	No <input type="checkbox"/>
Cuidado y protección del medio ambiente	Sí <input type="checkbox"/>	No <input type="checkbox"/>
Conservación de cuencas hidrográficas	Sí <input type="checkbox"/>	No <input type="checkbox"/>
Protección del patrimonio cultural de la zona	Sí <input type="checkbox"/>	No <input type="checkbox"/>
Acciones para el desarrollo local	Sí <input type="checkbox"/>	No <input type="checkbox"/>
Otros: _____		


2.2 ¿Considera que este emprendimiento es positivo a nivel departamental, distrital y local?

Sí No

2.2.1 Por qué:

2.3 Expectativas con relación al proyecto

2.5 Algunas sugerencias o recomendaciones para el proyecto

PROYECTO DE CONSTRUCCIÓN Y OPERACIÓN DE LA PLANTA DE CELULOSA EN EL DEPARTAMENTO DE CONCEPCIÓN Entrevista grupal	

3.1 Cuestionario para relevamiento de información

Entrevista Grupal (actores comunitarios)


1. Información Básica

Departamento:	Distrito:	Localidad:	Fecha:
Sede			
Cantidad de participantes	Hombres:	Mujeres:	Total:
Breve descripción del Grupo	Lugares-Referentes		

2. Elementos para tener en cuenta

Realizar una breve introducción dando el marco de realización del grupo focal, resaltando la importancia de acceder a información respecto a características de la zona involucrada y la percepción de los presentes sobre el proyecto.

- Presentación del Proyecto.
 - Espacio de preguntas aclaratorias.
 - Antes de la finalización del grupo focal se entrega encuestas a cada participante
 - Guía de preguntas claves relacionadas a aspectos socioeconómicos relevantes respecto a la zona:
3. ¿Cuáles son las principales actividades económicas de la zona?
 4. ¿Qué aspectos positivos pueden mencionar de la zona?
 5. ¿Qué problemas de índole social, económico y cultural pueden mencionar de la zona?
 6. ¿Cuáles son los aspectos que consideran necesarios de ser trabajados en su distrito/departamento para un mayor desarrollo?
 7. ¿Qué planes y proyectos de desarrollo existen y son importantes de considerar?
 8. ¿Qué medios/espacios de comunicación/participación son los más utilizados para compartir información en el distrito/localidad?
 9. ¿Existen organizaciones, asociaciones, etc.? tipo (ejemplo: comisiones vecinales, comités productivos, nucleaciones juveniles, gremiales, religiosas, etc.)
 10. ¿Qué tipo eventos existen en la zona? (tormentas, granizadas, incendios, inundaciones, etc.)

PROYECTO DE CONSTRUCCIÓN Y OPERACIÓN DE LA PLANTA DE CELULOSA EN EL DEPARTAMENTO DE CONCEPCIÓN Entrevista a informantes claves	

3.2 Cuestionario para relevamiento de información

Entrevista a informantes claves

Realizar una breve introducción dando el marco de realización de la entrevista, resaltando la importancia de acceder a información respecto a características de la zona involucrada del proyecto.

1. Información Básica

Departamento:	Distrito:	Localidad:	Fecha:
Nombre y Apellido:			

2. Aspectos históricos de la comunidad

- 2.1 Fecha de fundación:
- 2.2 Historia de la comunidad: (nombre, conformación)
- 2.3 Primeros Pobladores (migración de origen)
- 2.4 Cantidad actual de habitantes:
- 2.5 ¿Existen comunidades indígenas en la zona?

Nombre

Cantidad de Habitantes

2.6 División del territorio (localidades zona urbana y rural):

2.6.1 Límites con otras localidades

3. Aspectos socioeconómicos relevantes de la zona

- 3.1 ¿Cuáles son las principales actividades económicas de la zona?
 - 3.1.2 Situación de empleo
- 3.2 ¿Cuáles son las actividades recreativas, sociales y culturales (incluyendo fiestas tradicionales) por lo general? De niño/as, jóvenes, adultos y adultos mayores?
- 3.3 ¿Qué aspectos positivos tiene para usted vivir en esta zona? (al menos tres)
- 3.4 ¿Puede citar los principales problemas de índole económico/social/cultural que existen en la zona? (solicitar que se mencionen 3 como máximo)

Problemática	1	2	3
Económica			
Social			
Cultural			

3.5 ¿Cuáles son los aspectos que considera necesarios de ser trabajados en su comunidad para un mayor desarrollo? (al menos tres)

3.6 ¿Qué planes y proyectos de desarrollo existen y son importantes de considerar?

3.7 ¿Podría mencionar cuáles son los principales medios de comunicación?

3.8 ¿Cuáles son las principales vías de acceso a la ciudad/localidad?

3.9 Actores claves de la zona que deben ser considerados (instituciones/ organizaciones/referentes comunitarios)

3.10 Principales instituciones existentes en la comunidad

3.10.1 Salud	La comunidad cuenta con	Servicios que presta a la comunidad	Lugar de procedencia de las personas que acuden a la institución	Problemática particular (necesidades existentes antes y (contexto COVID-19)
	Centro de salud Nombre Cantidad de profesionales			
	USF Nombre Cantidad de profesionales			
	Puesto de Salud Nombre Cantidad de profesionales			
	Si no se cuenta en la comunidad dónde acuden y distancia recorrida			
3.10.2 Educación	La comunidad cuenta con	Nombre	Lugar de procedencia de las personas que acuden a la institución	Problemática particular (necesidades existentes antes y (contexto COVID-19)
	Escuela/Nivel Desde: Hasta: Cantidad			
	Colegio/Nivel Desde Hasta Cantidad			
	Universidad Desde Hasta Cantidad			
	Otras			

Si no se cuenta en la comunidad dónde acuden y distancia recorrida					
Institución	Localidad	Nombre	Cantidad de Estudiantes		
			Total	Sexo	
Escuela					
Colegio					
Universidad					
Otras					

Porcentaje de Deserción por año (por sexo)			
Institución	Total	Sexo	
Escuela			
Colegio			
Universidad			
Otras			

Otras instituciones o empresas existentes en la zona:

3.11 ¿Existen organizaciones, asociaciones en la zona? (ejemplo: comisiones vecinales, comités productivos, nucleaciones juveniles, gremiales, religiosas, etc.)



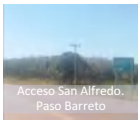
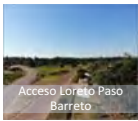
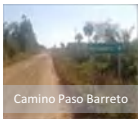
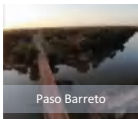


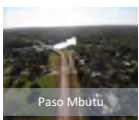
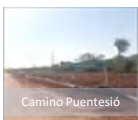
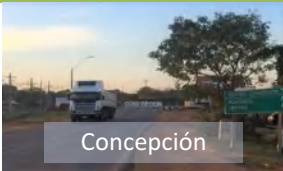
3.12 ¿Qué tipo eventos existen en la zona? (tormentas, granizadas, incendios, inundaciones, etc.)




Consultar sobre:

3.10	Red de agua potable	si ()	No ()	¿De dónde proviene principalmente el agua que utilizan en la comunidad?
	3.10.1 Usos principales del agua en la zona			ESSAP () Junta de saneamiento () Prestador Privado () Pozo () Tajamar () Aljibe () Manantial () Agua de lluvia () Agua Embotellada () Agua superficial (río, arroyo, lago, estanque) () Otros () Especificar _____
3.11	Red de desagüe	si ()	No ()	Tipo de desagüe

				Sanitario/cloacal () Pluvial/lluvia ()		
3.11.1	Pozo séptico/Letrina/Otro	si ()	No ()	Especificar:		
3.12.	Teléfono	si ()	No ()	¿Tiene conexión a internet?	Sí ()	No ()
3.13	Transporte público	si ()	No ()	Tipo de transporte público		
				Intraurbano () Larga distancia ()		
3.13.1	Principal medio de transporte					
3.14	Tratamiento de la basura	Quema () Recolección pública () Recolección privada () Tira en hoyo () ¿Tira en el patio, baldío, zanja o calle? () ¿Tira en el vertedero municipal? () ¿Tira en la chacra? () ¿Tira en el arroyo, río o laguna? () Otros Especificar _____				
3.15	Energía Eléctrica					

ANEXO 2: Registro de actividades principales para los estudios sociales- componente forestal




Fecha/ Actividad	Responsables/ Asistentes	Distritos/ Localidad involucradas	Objetivos de la Actividad	Principales resultados	Registro fotográfico referencial / Fuente de verificación
Martes 22 al viernes 24 de Julio 2020 "Primer recorrido en terreno"	Equipo Social: Caren Kremer, Yrene Díaz, Ana Segovia.	-Horqueta -Loreto -Paso Barreto -Sargento José Félix López	-Realizar un recorrido en las zonas donde se encuentran prospectados los campos forestales del proyecto. -Identificar principales vías de acceso a las plantaciones forestales prospectadas y las comunidades existentes en las zonas.	Se han identificado tres accesos principales y 16 comunidades. Acceso Loreto, Paso Barreto: Por esta vía se encuentran las comunidades de Virgen del Camino, Santísima Trinidad Hugua Po'i, Jhugua Guasu, Islería, Laguna Cristo Rey, Anderi, Paso Barreto e Isla Hermosa. Acceso San Alfredo, Paso Barreto: Hasta llegar al cruce se identifican estancias a ambos lados del camino. Acceso Calle 15, Sargento José Félix López: Esta vía conecta con las comunidades de Calle 15 Norte, Domínguez Nigó, Paso Mbutu, Estribo de Plata, Colonia Jorge Sebastián Miranda, Ayala Cue, Sargento José Félix López (Puentesíño).	         
Viernes 24 de Julio 2020 "Reunión con representantes Primera Región Sanitaria".	Representantes Primera Región Sanitaria: Cristian Cabrera, Claudia Araujo. Equipo social: Caren Kremer, Ana Segovia.	Primera Región Región Sanitaria, Concepción	-Presentación del emprendimiento, los trabajos a realizarse en el marco de la elaboración de los estudios sociales correspondientes al componente forestal y el equipo responsable de campo.	Las personas de la institución solicitaron el envío de una nota de pedido dirigida al Director de la Primera Región Sanitaria; especificando la información requerida	 -Registro de Reunión.



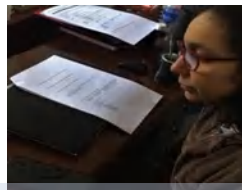
Fecha/ Actividad	Responsables/ Asistentes	Distritos/ Localidad involucradas	Objetivos de la Actividad	Principales resultados	Registro fotográfico referencial / Fuente de verificación
<p>Viernes 31 de Julio</p> <p>Solicitud de información: Primera Región Sanitaria (2)</p>	<p>Equipo Social: Caren Kremer</p>		<p>Solicitud de información estadística y nómina de referentes de USF existentes en los distritos de Loreto, Horqueta, Paso Barreto, Arroyito, y de las localidades de Virgen del Camino, Jhugua Po'i, Jhugua Guazu, Laguna Cristo rey, Anderi, Isla Hermosa, Colonia Jorge Sebastián Miranda, Paso Mbutu, Estribo de Plata y Calle 15.</p>	<p>Se recibió un listado con referentes claves de las USF existentes en las zonas involucradas.</p> <p>Se facilitó información sobre la población total existente en el área de estudio.</p>	 <p>Solicitud de Información</p>
<p>13 de Agosto</p> <p>"Reunión con representantes de gobiernos locales"</p>	<p>Representantes del Municipio: Laude Morel (Intendenta Municipal) David Morel (Secretario General) Israel Florenciano (Jefe de Catastro)</p> <p>Representantes de Paracel: Latifi Chelala (Gerente de Comunicación y Sustentabilidad Social) Diana Liesegang (coordinadora de comunicación visual).</p>	<p>Municipalidad de Sargento José Félix López</p>	<p>-Presentación del emprendimiento, los trabajos a realizarse en el marco de la elaboración de los estudios sociales correspondientes al componente forestal y el equipo responsable de campo.</p>	<p>La Intendente manifiesta apertura y disposición para acompañar las acciones que se realicen en el marco de la elaboración de los estudios sociales para el componente forestal del proyecto; y designa a: David Morel (Secretario General) e Israel Florenciano (Jefe de Catastro) y como enlaces técnicos a nivel local.</p> <p>Menciona que el distrito tiene bastantes necesidades; sobre todo en materia de salud y educación.</p> <p>Asimismo, señala que en la zona existen radios comunitarias tales como Itaky FM-88.9, Radio Más-98.5, y Radio Activa-103.5. Señala la importancia de utilizar esos canales de información a fin de socializar el proyecto con más pobladores y</p>	 <p>Municipalidad de Sargento José Félix López</p>  <p>-Registro de Reunión</p>

	Equipo Social: Caren Kremer Ana Segovia			aclarar algunas dudas en materia de producción de eucalipto a gran escala.	
Lunes 17-08-20 "Aplicación de entrevistas, encuestas"	Equipo Social: Ana Segovia Yrene Díaz	Loreto: Virgen del Camino, Hugua Po'i	-Realizar entrevistas a referentes comunitarios e institucionales. -Registro fotográfico de la comunidad y georreferenciación de instituciones identificadas.	-Aplicación de instrumentos de entrevista y encuesta a referente de organización y directores de Instituciones Educativas. -Se realizó un registro fotográfico de las instituciones y sitios de interés de las comunidades involucradas.	
Martes 18-08-2020 "Reunión con representantes de Gobiernos Locales"	Intendente Municipalidad Paso Barreto: Lic. Bruno Carlos Piccinini Soerensen Representantes de Parcel: Latifi Chelala (Gerente de Comunicación y Sustentabilidad Social) Diana Liesegang (coordinadora de comunicación visual) Equipo Social: Caren Kremer	Asunción	-Presentación del emprendimiento, los trabajos a realizarse en el marco de la elaboración de los estudios sociales correspondientes al componente forestal y el equipo responsable de campo. - Solicitar la designación de referentes técnicos institucionales	El Intendente menciona la importancia del emprendimiento a nivel local y para el país. Manifiesta su acompañamiento y disposición para facilitar acciones en el marco de la elaboración de los estudios sociales para el componente forestal del proyecto, y designa a la Sra. Dominica Luscich (Secretaria General).	 -Registro de Reunión
Martes 18-08-20	Equipo Social: Ana Segovia Yrene Díaz	Loreto: Hugua Po'i	-Realizar entrevistas a referentes institucionales.	-Aplicación de instrumentos de entrevista y encuesta a referentes de organización y de la Unidad de Salud Familiar – USF.	

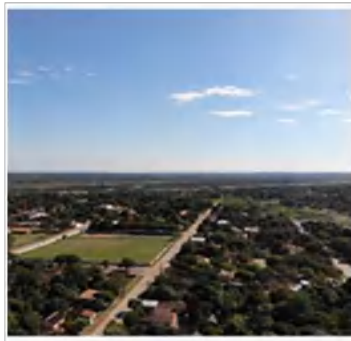
<p>“Aplicación de entrevistas, encuestas”</p>			<p>-Registro fotográfico de la comunidad y georreferenciación de instituciones identificadas.</p>	<p>-Se realizó un registro fotográfico de las instituciones y sitios de interés de las comunidades involucradas.</p>	 <p>Reunión con responsable de la USF</p>
<p>Viernes 19-08-20</p> <p>Solicitud de información: MAG, DGEEC e INFONA</p>	<p>Equipo social: Caren Kremer</p> <p>Responsable Parcel: Latifi Chelala</p>	<p>Asunción</p>	<p>Solicitud de información tanto a nivel departamental como distrital; datos estadísticos de población, acceso a servicios básicos, pobreza, NBI, uso de suelo, recursos forestales, entre otros</p>	<p>Se recibió información actual referente a los temas solicitados, esto por parte de las tres instituciones a las que se envió la solicitud.</p>	 <p>Solicitud de Información</p>
<p>Miércoles 19-08-20</p> <p>“Aplicación de entrevistas, encuestas”</p>	<p>Equipo Social: Ana Segovia Yrene Díaz</p>	<p>Loreto: Jhugua Guazú, Laguna Cristo Rey</p>	<p>-Realizar entrevistas a referentes institucionales.</p> <p>-Registro fotográfico de la comunidad y georreferenciación de instituciones identificadas.</p>	<p>-Aplicación de instrumentos de entrevista y encuesta a referentes de educación y de la Unidad de Salud Familiar – USF.</p> <p>-Se realizó un registro fotográfico de la comunidad de Laguna Cristo Rey y se concertaron próximas reuniones.</p>	 <p>Registro fotográfico de la comunidad</p>
<p>Jueves 20-08-20</p> <p>“Aplicación de entrevistas, encuestas”</p>	<p>Equipo Social: Ana Segovia Yrene Díaz</p>	<p>Paso Barreto: Isla Hermosa Loreto: Laguna Cristo Rey</p>	<p>-Realizar entrevistas a referentes institucionales.</p> <p>-Registro fotográfico de la comunidad y georreferenciación de instituciones.</p>	<p>-Aplicación de instrumentos de entrevista y encuesta a responsables de la Unidad de Salud Familiar – USF de Paso Barreto, del Puesto de Salud de Isla Hermosa, de las Instituciones Educativas de Isla Hermosa y la localidad de Laguna Cristo Rey.</p> <p>-Se realizó un registro fotográfico de las instituciones y sitios de interés de las comunidades involucradas.</p>	 <p>Visita a la USF de Paso Barreto</p>

Fecha/ Actividad	Responsables/ Asistentes	Distritos/ Localidad involucradas	Objetivos de la Actividad	Principales resultados	Registro fotográfico referencial / Fuente de verificación
<p>Viernes 21-08-20</p> <p>“Aplicación de entrevistas, encuestas”</p>	<p>Equipo Social: Ana Segovia Yrene Díaz</p>	<p>Horqueta: Paso Mbutu</p>	<p>-Realizar entrevistas a referentes comunitarios y de instituciones de la zona.</p> <p>-Registro fotográfico de la comunidad y georreferenciación de instituciones.</p>	<p>-Aplicación de instrumentos de entrevista y encuesta a referente de la institución educativa, referente de organización y de la Unidad de Salud Familiar – USF.</p> <p>-Se realizó un registro fotográfico de las instituciones y sitios de interés de la comunidad.</p>	
<p>Martes 08-09-2020</p> <p>“Aplicación de entrevistas, encuestas”</p>	<p>Equipo Social: Caren Kremer Ana Segovia Yrene Díaz</p>	<p>Sargento José Félix López - Puentesíño</p>	<p>-Realizar entrevistas concertadas con referentes institucionales y de estancias.</p> <p>- Registro fotográfico de la comunidad y georreferenciación de instituciones.</p>	<p>-Aplicación de instrumentos de entrevista y encuesta a referentes de la Municipalidad, Unidad de Salud Familiar, Dirección de Extensión Agraria, Supervisión Educativa, y a referentes de estancias de la zona.</p> <p>-Se realizó un registro fotográfico de las instituciones y sitios de interés de la comunidad.</p>	
<p>Miércoles 09-09-20</p> <p>“Aplicación de entrevistas grupales, encuestas”</p>	<p>Equipo Social: Caren Kremer Ana Segovia Yrene Díaz</p>	<p>Sargento José Félix López - Puentesíño</p>	<p>-Realizar entrevistas grupales con la participación de referentes comunitarios y productores locales.</p> <p>- Registro fotográfico de la comunidad y georreferenciación de instituciones.</p>	<p>- Se realizaron en total dos reuniones a fin de aplicar el instrumento de entrevista grupal y de encuesta a representantes del Consejo de Salud, organizaciones y productores locales.</p> <p>-Se realizó un registro fotográfico de las instituciones y sitios de interés existentes en la zona.</p>	

Fecha/ Actividad	Responsables/ Asistentes	Distritos/ Localidad involucradas	Objetivos de la Actividad	Principales resultados	Registro fotográfico referencial / Fuente de verificación
Viernes 11-09-20 "Aplicación de entrevistas, encuestas"	Equipo Social: Ana Segovia Yrene Díaz	Paso Barreto	-Realizar entrevistas concertadas con referentes institucionales. - Registro fotográfico de la comunidad y georreferenciación de instituciones.	-Aplicación de instrumentos de entrevista y encuesta a referentes de la Municipalidad local y de la Supervisión Educativa. -Se realizó un registro fotográfico de las instituciones y sitios de interés existentes en la zona.	 Entrevista con funcionarios de la Municipalidad
Sábado 12-09-20 Lunes 14-09-20 "Aplicación de entrevistas, encuestas"	Equipo Social: Ana Segovia Yrene Díaz	Loreto: Anderí, Hugua Po'i, Virgen del Camino Paso Barreto	-Realizar entrevistas concertadas con referentes institucionales. - Registro fotográfico de la comunidad y georreferenciación de instituciones.	-Aplicación de instrumentos de encuesta y entrevista con referente de la comisión vecinal de la localidad Anderí, registro fotográfico de las comunidades de Virgen del Camino, Jhugua Po'i y la ciudad de Paso Barreto.	 Registro fotográfico de instituciones
Martes 15-09-20 "Aplicación de entrevista grupal, encuestas"	Equipo Social: Ana Segovia Yrene Díaz	Horqueta: Paso Mbutú Estribo de Plata	-Realizar entrevista grupal con referentes comunitarios. -Registro fotográfico de la comunidad y georreferenciación de instituciones.	-Aplicación de instrumentos de entrevista y encuesta durante la reunión llevada a cabo con representantes la comunidad: pescadores, sombrereros, comerciantes, y referentes de la comisión de agua y la USF. -Se realizó un registro fotográfico de las instituciones y sitios de interés existentes en la zona.	 Reunión con referentes de la localidad

Fecha/ Actividad	Responsables/ Asistentes	Distritos/ Localidad involucradas	Objetivos de la Actividad	Principales resultados	Registro fotográfico referencial / Fuente de verificación
Miércoles 16-09-20 Jueves 17-09-20 "Aplicación de entrevistas, encuestas"	Equipo Social: Ana Segovia Yrene Díaz	Arroyito - Horqueta: Calle 15 Loreto: Santísima Trinidad	-Realizar una entrevista con referentes comunitarios e institucionales. - Registro fotográfico de la comunidad y georreferenciación de instituciones.	-Aplicación de instrumentos de entrevista y encuesta con referente de Institución Educativa de Calle 15 y con representantes de la Comisión Vecinal de la localidad de Santísima Trinidad. -Se realizó un registro fotográfico de las instituciones y sitios de interés existentes en la zona.	 Entrevista con la representante institucional
Viernes 18-09-20 "Aplicación de grupo focal y encuestas"	Equipo Social: Ana Segovia Yrene Díaz	Paso Barreto	-Realizar entrevista grupal con referentes comunitarios e institucionales. - Registro fotográfico de la comunidad y georreferenciación de instituciones.	-Aplicación de instrumentos de entrevista y encuesta, se contó con la participación de representantes de: comisión de vivienda, comisión vecinal, USF, concejal distrital y funcionarios de la Municipalidad. -Se realizó un registro fotográfico de las instituciones y sitios de interés existentes en la zona.	 Reunión con representantes del distrito
Lunes 19-09-20 al Miércoles 21-09-20 "Aplicación de entrevistas, encuestas virtuales"	Equipo Social: Ana Segovia Yrene Díaz	Paso Barreto: Colonia Jorge Sebastián Miranda Bella Vista: Ayala Cue Horqueta: Domínguez Nigó	-Realizar entrevistas con referentes comunitarios e institucionales, a través de plataformas virtuales.	-Aplicación de instrumentos de entrevista y encuesta a representantes de Instituciones Educativas y comunitarios de la Colonia Jorge Sebastián, Domínguez Nigó y la comunidad Ayala Cue por medio de reuniones virtuales.	 Reuniones en línea

Anexo 3: Información Distrital complementaria – Caracterización de cada distrito del AID



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Caracterización de cada Distrito AID

Para la elaboración de la presente sección se acudió a fuentes oficiales, tanto a nivel nacional como local respecto a las características sociales, demográficas, económicas y culturales de cada uno de los distritos que conforman el AID del proyecto en su componente forestal. Asimismo, y al no contar con información de esta índole a nivel de localidades, se utilizaron datos cualitativos resultantes del relevamiento en campo (fuentes primarias).

La información fue organizada en subcapítulos por temas de interés, agrupada por distritos y a fin de presentar los datos resultantes del trabajo de campo, fueron elaboradas fichas descriptivas de las localidades involucradas al relevamiento; estas se encuentran en el anexo nro. 4.

Para contar con fuentes actuales, se procedió a la búsqueda y solicitud de datos oficiales a instituciones del nivel nacional, responsables de dicha información, por lo cual, la caracterización aquí presentada está basada en su totalidad en datos de:

- Información oficial proveída por instituciones nacionales como la DGEEC, MAG e INFONA, así como información resultante de la búsqueda en fuentes generadas por el MEC, MOPC, MSPyBS, entre otros.
- Información de nivel local identificada en planes locales de salud y planes municipales de desarrollo.

En cuanto a los datos estadísticos utilizados, se debe considerar que:

- Si bien cierto tipo de información solo pudo ser obtenida de los diferentes Censos realizados: Censo Nacional (2012), Censo Agropecuario (2008), Censo Económico (2011), a través de la Encuesta Permanente de Hogares pudo complementarse dicha información.
- El departamento de Concepción ha pasado por varios desmembramientos en los últimos años, por lo cual cierto tipo de información podría mostrar variaciones según el periodo de elaboración del mismo, sobre todo en el caso de los distritos de Horqueta y San Alfredo.
- En términos de proyecciones de población y datos relacionados, se priorizó la utilización de la información facilitada por la DGEEC correspondiente al periodo 2020-2025.

Para la lectura e interpretación de los datos facilitados por la DGEEC, se realizan las siguientes aclaraciones:

- El Censo Nacional de Población y Viviendas 2012 tuvo una cobertura poblacional aproximada del 74,4% a nivel país; que resulta de comparar la población censada con la población estimada para 2012.
- El departamento de Concepción tuvo una cobertura de 80,8%; y sus distritos: Horqueta 80,6%; Loreto 80,4%; Sargento José Félix López 80,6%; San Alfredo 68,4% y Paso Barreto 95,2%.
- En términos de viviendas, la cobertura fue del 87,1% a nivel nacional; que resulta de la relación de la cantidad de viviendas censadas en el 2012 respecto a la cantidad de viviendas pre-censadas (1.223.165 y 1.404.121 viviendas, respectivamente). El departamento de Concepción tuvo una cobertura de 93,3%; y sus distritos: Horqueta 92,5%; Loreto 92,5% y Sargento José Félix López 89,5%.

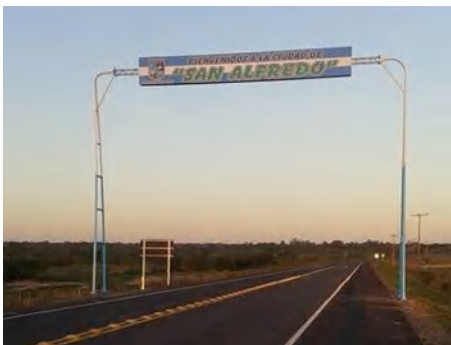
En cuanto a Necesidades Básicas Insatisfechas (NBI) se presentan las siguientes explicaciones:

- **NBI en calidad de la vivienda:** 1. *El material utilizado en la construcción es:* Área urbana: Piso de tierra y pared de madera, estaqueo, adobe, tronco de palma, cartón, hule, madera de embalaje, otros, o no tiene pared, y techo de paja, tronco de palma, cartón, hule, madera de embalaje u otro. Área rural: Piso de tierra y pared de estaqueo, adobe, tronco de palma, cartón, hule, madera de embalaje, otros, o no tiene pared, y techo de paja, tronco de palma, cartón, hule, madera de embalaje u otro. 2. *Hacinamiento:* Si registran más de 3 personas por dormitorio.
- **NBI en infraestructura sanitaria:** 3. *Disponibilidad de agua:* Área urbana: Si el agua proviene de ESSAP (ex CORPOSANA), Junta de saneamiento (SENASA), red comunitaria, red privada, pozo artesiano o pozo con brocal y tapa, y llega a la vivienda a través de canilla pública, vecino, aguatero móvil u otros medios, o si proviene de pozo sin brocal y/o tapa, manantial/ycuá, aljibe, aguatero móvil, agua superficial (río, represa, lago, estanque, arroyo, tajamar, canal, etc.) u otra fuente. Área rural: Si el agua proviene de ESSAP (ex CORPOSANA), Junta de saneamiento (SENASA), red comunitaria, red privada, pozo artesiano o pozo con brocal y tapa, y llega a la vivienda a través de canilla pública, vecino, aguatero móvil u otros medios, o si proviene de pozo sin brocal y/o tapa, manantial/ycuá, aljibe, aguatero móvil, agua superficial (río, represa, lago, estanque, arroyo, tajamar, canal, etc.) u otra fuente. 4. *Eliminación de excretas:* Área urbana: Si posee letrina común, desagüe de baño en la superficie de la tierra, arroyo, río, etc., o no tiene servicio sanitario. Área rural: Si posee baño con desagüe en la superficie de la tierra, arroyo, río, etc., o no tiene servicio sanitario.
- **NBI acceso a la educación:** 5. *Asistencia escolar de niños:* Si existe algún niño de 6 a 14 años, emparentado con el jefe de hogar, que no asiste a un establecimiento educativo (se excluye al servicio doméstico y /o los familiares de éstos). 6. *Analfabetismo:* Si existe alguna persona analfabeta (de 15 años o más que en el momento del Censo 2012 no tenía el segundo grado aprobado) emparentada con el jefe de hogar (se excluye al servicio doméstico y / o los familiares de éstos).
- **NBI en capacidad de subsistencia:** 7. *Capacidad de Subsistencia:* Si carece de perceptor (persona ocupada, jubilada, pensionada o rentista) o si el jefe cuenta con una educación inferior a 3 años de educación primaria, y con más de 3 personas en promedio por cada perceptor.

1. Distrito de San Alfredo

1.1 Características generales

San Alfredo es un municipio del departamento de Concepción, ubicado a 494 km de la capital del país y a 78 km al norte de la capital departamental. Tiene una extensión de 2392 km². Limita al norte con el distrito de San Lázaro, al sur con el distrito de Concepción, al este con los distritos Paso Barreto y San Carlos; y al Oeste con el Departamento de Presidente Hayes de la Región Occidental (Chaco). Su distritación data del año 2013, anteriormente formaba parte del distrito de Concepción y era denominada como “Colonia San Alfredo”.



*Acceso a San Alfredo a través de la ruta asfaltada a San Lázaro (Vallemí)
Fuente: Radio Regional 660 AM (2019).¹*

En el Plan Local de Salud se expone que pobladores antiguos comentaron que 100 años atrás el territorio estaba conformado solo por establecimientos ganaderos pertenecientes al Estado y establecimientos privados de explotación forestal cuyos productos eran trasladados a Argentina por el río Paraguay. En cuanto a los primeros pobladores, se sostiene que ocuparon una fracción de la Estancia San Fernando, siendo posteriormente desalojados, lo que les obligó a vivir en chozas provisorias de dicha zona (monte fiscal), creando luego la Colonia San Alfredo, con lotes de 7 hasta 22 hectáreas.

En ese entonces, en San Alfredo se dedicaban a la producción de maíz, mandioca, almidón, tabaco, cítricos, cebolla, locote, tártago y caña de azúcar. “Estos productos eran trasladados en carros y comercializados en el distrito de Concepción; con el ingreso adquirirían vestimentas y herramientas de trabajo”².

Otros datos presentados en la fuente de consulta respecto a su historia son:

- En el año 1936 se construyó la primera escuela con la colaboración de los pobladores.
- Las primeras autoridades fueron denominadas Sargentos de Compañía, designados por la Delegación de Gobierno del Departamento de Concepción. En 1968 se construyó la Comisaría Local.
- En 1980 comenzó la construcción de la actual Escuela Laguna Ybycua y posteriormente el Colegio del mismo nombre.

¹ Disponible en: <https://www.regional660.com/cementera-sera-instalada-en-san-alfredo-y-dara-mas-de-400-puestos-de-trabajo>

² MSPBS-CIRD. (2015) Plan Local de Salud de San Alfredo. Período 2015-2018. Disponible en: <https://www.cird.org.py/institucional/documentos/Plan%20Local%20de%20Salud%20San%20Alfredo.pdf>

1.2. Datos de Población

Según datos de la Dirección General de Estadística, Encuestas y Censo (DGEEC), la población total del departamento de Concepción es de 254.976 habitantes, perteneciendo al Distrito de San Alfredo 5.799 habitantes. Esta totalidad representa el 2,27% del departamento. San Alfredo está conformado por 3.275 hombres y 2.524 mujeres (Proyección 2020)³. Como se puede observar en la siguiente tabla, en su mayoría, es decir, el 56,48% de la población del distrito está conformada por hombres y el 43.52% por mujeres.

Tabla 1. Proyección de la población total por sexo, según distrito. Año 2020

Distrito San Alfredo	Población	Porcentajes
Hombres	3.275	56,48
Mujeres	2.524	43,52
Total (ambos sexos)	5.799	100
% Población Total del Distrito según total del departamento.	254.976	2,27

Fuente: Elaboración propia en base a datos de la DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

Como puede observarse en la siguiente tabla sobre proyecciones de evolución / crecimiento de la población, la diferencia en la relación cantidad hombres /mujeres (mayoría hombres) se ha mantenido en los últimos en 5 años.

Tabla 2-a. Evolución de la población en los últimos 5 años (2016-2020)

Distrito San Alfredo Población por sexo	Año				
	2016	2017	2018	2019	2020
Hombres	2.918	3.005	3.093	3.183	3.275
Mujeres	2.361	2.401	2.441	2.482	2.524
Población total	5.279	5.405	5.534	5.665	5.799

Fuente: DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

Los siguientes datos de proyección de la población fueron proveídos por la DGEEC, en el marco de elaboración del presente informe. Se debe hacer la salvedad de que existe variación respecto a los datos publicados, debido a las distritaciones que fueron llevadas a cabo de manera posterior a la realización del censo. Como se puede observar en la siguiente tabla, existe una disminución de la población para el Distrito de San Alfredo en relación a lo proyectado en la tabla anterior para el año 2020.

Tabla 3-b. Evolución de la población en los siguientes 5 años (2020-2025)

Departamento y distrito	Año					
	2020	2021	2022	2023	2024	2025
Dpto. Concepción	254.976	258.653	62.360	266.072	269.805	273.579
San Alfredo	4.989	5.070	5.151	5.233	5.315	5.398

Fuente: STP/DGEEC. Paraguay. Proyección de la población por sexo y edad, según distrito, 2000-2025. Revisión 2015

El distrito de San Alfredo, según datos señalados en el Plan Local de Salud, se divide de la siguiente manera:

³ DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

- **Zona urbana** que incluye a 10 barrios como: Centro Norte, Costa Florida, Santa Teresita, Chaco í, Mangoty, La Amistad, San Ramón, Centro Sur, María Auxiliadora y Santa Lucía; y
- **Zona rural**, conformada por 6 compañías tales como: Tres Cerros, Itakua, Puerto Fonciere, Guyrati, Peña Hermosa e Itapucumí.

En la Compañía Guyrati se encuentra una **comunidad indígena** perteneciente al Pueblo Originario Anga'ite, integrada por 13 familias y 2 asentamientos (8 de Noviembre y Paz y Alegría).



Escuela de Guyrati - San Alfredo
Fuente: Radio Regional 660 AM (2020).

Hogares, vivienda

Con relación a la condición de propiedad de la vivienda, según datos brindados por la DGEEC⁴, en el distrito de San Alfredo, el mayor porcentaje corresponde a viviendas propias, dándose en menor proporción otras condiciones de propiedad como “alquilada”, “en condominio”, “prestada”, entre otras. Esto se señala en la siguiente tabla.

Tabla 4. Condición de propiedad de la vivienda

Condición de propiedad de la vivienda	Departamento de Concepción	Distrito de San Alfredo
Viviendas particulares ocupadas con personas presentes	42.402	966
% Es propia	85,2	82,0
% La están pagando en cuotas	0,9	-
% Es en condominio	0,4	0,4
% Es alquilada	5,1	1,7
% Es prestada, la cuidan	7,5	15,3
% Es ocupada de hecho	0,8	0,5
% No informado	0,1	0,1

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Necesidades Básicas Insatisfechas (NBI)

En cuanto a las NBI en la zona de influencia Directa del proyecto, se accedió a información proveída por la DGEEC⁵, referente al distrito de San Alfredo en relación a la situación tanto a nivel país como

⁴ Datos solicitados y proveídos por la DGEEC. Sep. 2020.

⁵ DGEEC. Necesidades Básicas Insatisfechas (NBI) 2012 PARAGUAY. Disponible en: <https://www.dgeec.gov.py/Publicaciones/Biblioteca/investigacion%20tematica/Triptico-de-necesidades-insatisfechas-NBI-2012.pdf> y

del departamento, indicando que en el 49,1% de los hogares del mismo se tiene al menos una NBI, el 24,5% corresponde a Hogares con NBI en acceso a la educación, el 21,5% a hogares con NBI en infraestructura sanitaria, el 19,0% a hogares con NBI en calidad de la vivienda y el 12,5% a los Hogares con NBI en capacidad de subsistencia, como puede observarse en la tabla 5.

Tabla 5. Hogares con NBI, según departamento y distrito

Indicadores de Necesidades Básicas Insatisfechas (NBI) (%)	Total País	Departamento de Concepción	Distrito de San Alfredo
Hogares particulares ocupados con personas presentes	1.232.496	42.638	967
% Hogares con al menos una NBI	43,0	56,2	49,1
% Hogares con NBI en calidad de la vivienda	12,6	19,0	19,0
% Hogares con NBI en infraestructura sanitaria	20,8	29,7	21,5
% Hogares con NBI en acceso a la educación	15,7	20,3	24,5
% Hogares con NBI en capacidad de subsistencia	14,9	19,8	12,5

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012 y Tríptico Necesidades Básicas Insatisfechas (NBI) 2012. Paraguay en base a STP-DGEEC. Censo Nacional de Población y Viviendas 2012.

1.3. Economía

Los datos del Plan Local de Salud con relación a la economía exponen que se basa eminentemente en la explotación forestal, agrícola y ganadera. Sus habitantes se dedican también a la explotación minera y calera, y al comercio. Las fuentes de empleo constituyen además las instituciones públicas y privadas, estancias, aserraderos, entre otros. Los pobladores que viven en las zonas ribereñas como Itakua, Guyrati, Itapukumi se dedican a la caza y a la pesca⁶.

Actividades económicas

Según los datos proveídos por la DGEEC⁷, en el Distrito de San Alfredo predominan las actividades productivas vinculadas al sector primario, posteriormente las del sector secundario y en menor proporción las vinculadas al sector terciario. La siguiente tabla incluye los porcentajes de cada sector en el distrito y a nivel departamental.

Tabla 6. Población ocupada por sector económico

Datos de Población	Departamento de Concepción	Distrito de San Alfredo
Sector económico de la población ocupada ⁸	226.585	4.800
% Primario	40,9	48,9
% Secundario	15,7	30,1
% Terciario	42,2	18,9
% No informado	1,2	2,1

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Datos actualizados (setiembre 2020) facilitados por la DEGEEC ante la solicitud escrita de la empresa Parcel.S.A. en el marco de elaboración del presente estudio.

⁶ Plan Local de Salud de San Alfredo. 2015/2018

⁷ Datos solicitados y proveídos por la DGEEC. Sep.2020.

⁸ Sector Económico de la población ocupada (de 12 años y más de edad que pertenece a una rama de actividad específica), donde el sector primario comprende a la agricultura, ganadería, caza y pesca; el sector secundario abarca las industrias manufactureras, construcción, minas y canteras; el sector terciario agrupa a electricidad, gas y agua, comercio, restaurantes y hoteles, transporte, almacenamiento y comunicaciones, finanzas, seguros, inmuebles, servicios comunales, sociales y personales; y no informado

1.4. Acceso a servicios

En este apartado se presenta contenido relacionado al acceso a servicios en el AID del Proyecto. Se logró contar con información distrital actualizada sobre servicios básicos, educación, formación profesional y técnica, salud, tecnologías de la información y medios de comunicación (TICs) y bienes de confort en cada uno de los distritos involucrados y desde la percepción de los pobladores consultados.

Acceso a Servicios básicos

Según los datos proveídos por la DGEEC, en cuanto a energía eléctrica se puede observar que el 92,3% de las viviendas acceden a este servicio; en relación con el acceso al agua corriente, el 78,7% de las viviendas cuentan con este servicio; el 33,1% se trata de viviendas con saneamiento mejorado. Como puede observarse en la siguiente tabla, es baja o nula la cantidad de viviendas que cuentan con el servicio de recolección de basura. Todos estos datos en la siguiente tabla.

Tabla 7. Viviendas con Acceso a Servicios Básicos

Datos de viviendas particulares Servicios básicos	Departamento de Concepción	Distrito de San Alfredo
Viviendas particulares ocupadas	42.402	966
% Viviendas con energía eléctrica	93,1	92,3
% Viviendas con agua corriente ⁹	74,4	78,7
% Viviendas con desagüe cloacal ¹⁰	6,3	-
% Viviendas con recolección de basura	22,8	0,7
% Viviendas con saneamiento mejorado	46,9	33,1

Fuente: STP/DGEEC. *Censo Nacional de Población y Viviendas, 2012.*

En cuanto a la disposición de residuos sólidos según datos del Plan Local de Salud de San Alfredo, la Municipalidad carece de un vertedero para la disposición y el tratamiento de los residuos sólidos. Los medios de eliminación frecuentemente utilizados por la población son la quema y entierro¹¹.

En relación a los servicios sanitarios, según se indica en la misma fuente, se estima que el 20% de la población del área urbana posee baño moderno, mientras que en el área rural predomina la utilización de letrinas sanitarias.

Educación

Sobre el acceso a la educación en el distrito, los datos del Plan Local de Salud y documentación oficial del Ministerio de Educación y Ciencias indican que los niños y las niñas en su mayoría acceden a los servicios de educación escolar básica, igualmente existen instituciones de educación media, no así instituciones de enseñanza superior.

⁹ Incluye: ESSAP, SENASA, red comunitaria, red privada, y pozo artesiano, con cañería fuera de la vivienda pero dentro del terreno o con cañería hasta la cocina y/o baño.

¹⁰ Incluye: Desagüe por red pública, pozo ciego con y sin cámara séptica.

¹¹ Plan Local de Salud de San Alfredo 2015/2018

Según los datos actualizados del MEC¹², en el distrito se encuentran 12 instituciones educativas, de las cuales 1 se encuentra en el área urbana y 11 en el área rural. Estas imparten enseñanza de nivel inicial, escolar básica y nivel medio como se expone a continuación.

Tabla 8. Nivel educativo por zona

Nivel de enseñanza	Zona		
	Total	Urbana	Rural
Educación inicial	6	1	5
Escolar Básica	8	1	7
Escolar Básica Abierta	1	-	1
Educación media	4	1	3
Total	19	3	16

Fuente: Elaboración en base a datos actualizados del MEC - Datos abiertos, Establecimientos escolares 2019

Es importante aclarar que existen establecimientos que tienen más de una institución y que en las instituciones podrían impartirse más de una modalidad.

De los materiales de consulta también se pudo extraer información relacionada a los servicios con que cuentan las instituciones, como ser el caso de dos escuelas que cuentan con almuerzo escolar durante el año lectivo, a través del apoyo de la Municipalidad; mientras que alumnos de otra institución reciben este mismo servicio a través de la Gobernación de Concepción.

En cuanto al acceso a energía eléctrica, la totalidad cuenta con este servicio por parte de la ANDE y figuran diferentes medios por los cuales estas instituciones cuentan con agua (SENASA, pozo artesiano, pozo común y en su mayoría río).

En términos de problemáticas vinculadas a la educación, se menciona que la población joven no culmina los estudios del nivel medio, debido a que la gran mayoría necesita realizar trabajos remunerados para contribuir al sustento familiar; así como se identifica un bajo acceso a estudios universitarios, teniendo en cuenta además que quienes pueden se trasladan al distrito de Concepción donde se cuenta con universidades, esto con el apoyo de la Municipalidad que facilita el traslado de los jóvenes al centro urbano de Concepción en un minibús. Se dan casos también en que migran a otras ciudades del país en busca de servicios educativos y fuentes de trabajo. La mayoría de la población adulta sabe leer y escribir, existiendo sin embargo personas sin alfabetización¹³.

A continuación, se presenta cada institución educativa y sus características:

Tabla 9. Instituciones Educativas Distrito de San Alfredo por zona, modalidad, acceso a agua y energía

Instituciones Educativas Distrito de San Alfredo	Localidad/Barrio	Zona	Nivel educativo	Agua	Energía
Escuela Básica N° 1731 San Alfredo y Colegio Nacional Laguna Ybycua	San Alfredo	Urbana	E.I., E.E.B., E.M.	SENASA	ANDE
Escuela Básica N° 7149 San Ramón	Asentamiento 8 de Noviembre	Rural	E.I., E.E.B.	Pozo Artesiano	ANDE

¹² MEC - Datos abiertos, Establecimientos escolares – 2019.

¹³ Plan Local de Salud San Alfredo 2015/2018

Escuela Básica N° 1458 Tte. 1° Florencio Fernández	Isla Peña Hermosa	Rural	E.E.B.	Río	ANDE
Escuela Básica N° 520 Fortín Boquerón y Colegio Nacional Puerto Fonciere	Puerto Fonciere	Rural	E.I., E.E.B., E.M.	Río	ANDE
Escuela Básica N° 6688 Santa María	Santa María	Rural	E.E.B.	Pozo Común	ANDE
Escuela Básica N° 2744 Caleria Guyrati y Colegio Nacional Guyrati	Caleria Guyrati	Rural	E.I., E.E.B., E.M.	Río	ANDE
Escuela Básica N° 1983 y Colegio Nacional Itacua	Itakua	Rural	E.I., E.E.B., E.M.	Río	ANDE
Escuela Básica N° 6923 8 de Noviembre	Asentamiento 8 de Noviembre	Rural	E.I., E.E.B., E.B.A.	Pozo artesiano	ANDE
Escuela Básica N° 1461 8 de Diciembre	Itapucumi	Rural	E. I., E.E.B.	Río	ANDE

Fuente: Elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

Salud

En el Plan Local de Salud se hace referencia a que en la zona son frecuentes las enfermedades respiratorias, trastornos por hipertensión arterial, diabetes, enfermedades pulmonares, tabaquismo, parasitosis, entre otros y se cuenta con los siguientes centros asistenciales en el distrito:

- Unidad de Salud de la Familia (USF) de San Alfredo y
- Unidad de Salud de la Familia (USF) de Itakua/ Calería Ita Cua.
- Asimismo, fueron habilitados dos dispensarios médicos para la adquisición de medicamentos¹⁴.



USF San Alfredo- Fuente: Concepción al Día¹⁵

A través de las USFs, la población accede a los servicios de consultorio clínico, odontológico, provisión de leche a embarazadas y niños/as con bajo peso, control pre natal, test para recién nacidos, detección temprana de ITS, control de enfermedades infecto contagiosas en general, entre otras. En cuanto al acceso a vacunaciones, se presta asistencia solo en la USF de San Alfredo.

¹⁴ Plan Local de Salud de San Alfredo 2015/2018

¹⁵ Disponible en: <http://www.concepcionaldia.com/nuevos-distritos-sin-ambulancia/>

En el Plan se hace alusión, además, al hecho de que los pobladores ante necesidades de asistencia, acuden inicialmente a médicos naturalistas y parteras empíricas (una práctica arraigada en la zona) y si no encuentran mejoría acuden posteriormente a ser atendidos por los profesionales de salud. En la comunidad se cuenta con 6 médicos naturalistas, 3 parteras empíricas y los profesionales que conforman la USF de San Alfredo: 1 médico, 1 licenciada en Enfermería, 1 licenciada en Obstetricia, 1 Odontóloga que presta servicios en forma voluntaria, 2 auxiliares en enfermería, 3 agentes comunitarios y 1 personal de servicio (pagado por los funcionarios de la unidad); en la USF de Itakua cuentan con 1 médico, 1 licenciada en obstetricia, 1 licenciada en enfermería, 1 auxiliar técnica y 1 personal de servicio (pagado por el Consejo de Salud).

Acceso a Tecnologías de información y medios de comunicación (TIC) y bienes de confort

A través de los datos facilitados por la DGEEC, en relación al acceso de la población a las TICs puede afirmarse que en la gran mayoría de viviendas en el Distrito de San Alfredo se cuenta con radio, igualmente teléfonos celulares y televisor; no ocurre lo mismo con las antenas parabólicas, las computadoras, tv cable, internet y teléfono fijo, que como puede observarse en la siguiente tabla, obtuvieron porcentajes mucho menores a las tecnologías citadas inicialmente.

Tabla 10. Equipos domésticos y TICs

Acceso a TIC	Departamento de Concepción	Distrito de San Alfredo
Viviendas particulares ocupadas	42.402	966
% Viviendas con radio	80,6	90,4
% Viviendas con televisor	79,8	81,3
% Viviendas con teléfono fijo	8,0	0,8
% Viviendas con teléfono celular	83,3	86,2
% Viviendas con computadora	11,9	2,2
% Viviendas con computadora conectada a internet	9,2	1,2
% Viviendas con antena parabólica	10,8	9,0
% Viviendas con TV cable	13,4	1,6

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

La DGEEC facilitó igualmente información sobre el acceso de la población del distrito de San Alfredo a los bienes de confort en las viviendas, exponiendo que la gran mayoría cuenta con motocicletas, seguido de viviendas que cuentan con heladera y lavarropas. Finalmente, y con mucha diferencia, viviendas que cuentan con video/DVD; horno microondas, automóvil, ducha eléctrica y termo-calefón.

Tabla 11. Equipos domésticos y Bienes de confort

Bienes de confort	Departamento de Concepción	Distrito de San Alfredo
Viviendas particulares ocupadas	42.402	966
% Viviendas con heladera	68,1	65,0
% Viviendas con lavarropas	50,9	30,1
% Viviendas con video/DVD	21,2	15,0
% Viviendas con termo-calefón	4,0	1,4

Bienes de confort	Departamento de Concepción	Distrito de San Alfredo
% Viviendas con ducha eléctrica	25,7	3,6
% Viviendas con acondicionador de aire	15,2	3,7
% Viviendas con horno microondas	14,4	6,9
% Viviendas con automóvil/camioneta	9,9	4,1
% Viviendas con moto	74,3	74,2

Fuente: STP/DGEEC. *Censo Nacional de Población y Viviendas, 2012*

2. Distrito de Sargento José Félix López

2.1. Características generales



El camino que une a la comunidad con el km 70 de la ruta 5 Bernardino Caballero tiene una longitud de 120 km. Concepción Noticias (2017)¹⁶

Según los datos del Plan de Desarrollo Sustentable, el municipio Sargento José Félix López fue conformado oficialmente el 7 de setiembre de 2011 por Ley N°4.418, separándose su territorio del distrito de Concepción. Abarca la superficie de 224.428 hectáreas, con 8.544 metros cuadrados. Se encuentra ubicado al noreste, a 200 km de la capital departamental y a 700 km al norte de la ciudad de Asunción. Al norte limita con Brasil, teniendo como frontera al Río Apa, que se encuentra a 20 km; al este limita con el distrito de Bella Vista norte

del departamento de Amambay, a aproximadamente 75 km; al oeste limita con el distrito de San Carlos del Apa, a unos 50 km.

El acceso al municipio se realiza por vía terrestre por la Ruta V hasta el km. 70, para luego seguir por el tramo-calle 15 hasta la Colonia Jorge Sebastián Miranda (Hugua Ñandu), del distrito de Paso Barreto, y se debe recorrer unos 70 km. más por camino enripiado hasta llegar al área urbana del distrito. Los caminos de tierra suelen permanecer en mal estado durante los días de lluvia.

Las personas entrevistadas durante el trabajo de campo resaltaron que “hay tranquilidad”, que la gente “es solidaria y se conocen entre todos en la comunidad”, que hay mucha naturaleza y bosques nativos en la zona, que no existe contaminación, se cuenta con un arroyo llamado Amambay. Asimismo, que se trata de una zona en la que hay producción agrícola para autoconsumo y que cuentan con lo necesario para el consumo local.

Las festividades tradicionales en Sargento José Félix López, mencionadas durante el relevamiento de información en campo son las fiestas patronales (junio), fiesta de aniversario de la distritación, desfile estudiantil, festivales, entre ellos el principal denominado “Paso Bravo” (edición decimocuarta) que generalmente cuenta con la participación de artistas de otras ciudades. En cuanto a actividades recreativas y de esparcimiento, fueron nombradas carrera de caballo y jineteada, ferias de comidas, campeonatos de fútbol tanto masculino como femenino, y otros deportes, actividades de la parroquia organizadas por jóvenes de la zona.

Asimismo, en las escuelas se organizan campeonatos deportivos, olimpiadas educativas, e intercambios inter-escolares. Desde la USF se realizan charlas con adultos mayores, club de embarazadas y de padres.

¹⁶ Disponible en: <http://www.concepcion-py.com/2017/07/mal-estado-vial-entorpece-el-desarrollo.html>

2. Datos de Población

Para este apartado, los datos fueron obtenidos de la DGEEC, el Plan Local de Salud y el Plan de Desarrollo Sustentable Municipal; estos últimos elaborados por la Municipalidad de Sargento José Félix López.



Desfile Aniversario de Distritación- Fuente: Última Hora (2019)¹⁷

Según datos de la DGEEC, la población del Departamento de Concepción es de 254.976 habitantes, de los cuales 7.242 habitantes pertenecen al Distrito de Sargento José Félix López, es decir, el 2,84% de dicha población.

Como puede observarse en la siguiente tabla, la población está conformada por 3.784 hombres (52,25%) y 3.459 mujeres (47,76%) (Proyección 2020)¹⁸, cantidad que corresponde al 2.84% de la población del departamento de Concepción.

Tabla 12. Proyección de la población del Distrito de Sargento José Félix López por sexo. Año 2020

Sargento José Félix López	Población	Porcentajes
Hombres	3.784	52,25
Mujeres	3.459	47,76
Total (ambos sexos)	7.242	100
% Población Total del Departamento	254.976	2,84

Fuente: Elaboración propia en base a datos de la DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

Igualmente, atendiendo a las cifras respecto a la evolución/crecimiento de la población, puede notarse que la diferencia en la relación cantidad hombres/mujeres se mantiene y que en los últimos 5 años no hubo una variación muy importante en términos de crecimiento poblacional en el distrito, según las proyecciones elaboradas por la DGEEC.

¹⁷ Disponible en: <https://www.ultimahora.com/puentesino-celebra-ochos-anos-distritacion-un-desfile-n2842715.html>

¹⁸ DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025.

Tabla 13. Evolución de la población de Sargento José Félix López en los últimos 5 años (2016-2020)

Evolución de la Población Distrital por sexo	2016	2017	2018	2019	2020
Hombres	3.665	3.695	3.725	3.755	3.784
Mujeres	3.259	3.308	3.358	3.408	3.459
Población total	6.924	7.003	7.083	7.163	7.242

Fuente: DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

En la siguiente tabla puede observarse que existe una disminución de la población del Distrito de Sargento José Félix López en relación a lo proyectado en la tabla anterior para el año 2020 (según datos suministrados por la DGEEC).

Tabla 14. Evolución de la población en los siguientes 5 años (2020-2025)

Departamento y distrito	Año					
	2020	2021	2022	2023	2024	2025
Dpto. Concepción	254.976	258.653	62.360	266.072	269.805	273.579
Sargento José Félix López	7.087	7.144	7.202	7.258	7.314	7.369

Fuente: STP/DGEEC. Paraguay. Proyección de la población por sexo y edad, según distrito, 2000-2025. Revisión 2015

Por su parte, el documento del Plan Local de Salud indica que la población total es de aproximadamente de 10.000 habitantes según los registros de la Municipalidad, con una densidad poblacional de 22 personas por hectárea; el 30% de la población reside en la zona urbana y el 70% reside en la zona rural¹⁹.

Tabla 15. Población por zona Urbana y Rural

Sargento José Félix López	Población	Porcentaje
Área urbana	3.000	30%
Área rural	7.000	70%
Total	10.000	100%

Fuente: Elaboración propia con datos del Plan Local de Salud 2015/2018.

El territorio distrital cuenta con 9 barrios en la **zona urbana**: Santa Ana, San Clemente, La Suerte, Piri Poty, Unión, Yvype, Porvenir, Ara Poty, Loma Pyta y 4 asentamientos en la **zona rural**, que a su vez se divide en barrios, calles, líneas, y zonas. Los Asentamientos son: Norte Pyahú (que se divide nuevamente en los siguientes barrios: Cerrito, Hermosa, Vya Renda, Kurusu Eva, Calle 1, Calle 13 y Calle 14), Yvy Maraney (dividido en San Francisco, San Antonio, 3 Lomas, San Roque, San Cayetano), 29 de Junio (se divide en Calles: Calle 2, 3, 4, 6, 7, 8, 11, 12; Sótano, 1ª Línea, 2ª Línea, 3ª Línea, Ruta San Carlos, Arroyo Mborevikua) y Calle 4 (se divide en 1ª Zona, 2ª Zona y Curupayty)²⁰.

Población Indígena

En el distrito de Sargento José Félix López, según datos de la DGEEC, obtenidos en el III Censo Nacional de Población y Viviendas para pueblos Indígenas 2012, existe 1 comunidad indígena llamada Takuarita, perteneciente al Pueblo Mbya Guaraní, conformada por 142 habitantes, 72

¹⁹ CIRD y MSPyBS. Plan Local de Salud de Sargento José Félix López. 2015-2018.

²⁰ CIRD y MSPyBS. Plan Local de Salud de Sargento José Félix López. 2015-2018.

hombres y 70 mujeres, distribuidos en 30 viviendas particulares y colectivas, en el área rural²¹. De la totalidad de la población del distrito (7242), el 1,96% corresponde a la mencionada comunidad indígena, siendo en su mayoría, hombres con el 50,70% y mujeres con el 49,30%.

Tabla 16. Población indígena de Sargento José Félix López, por sexo. Año 2012

Distrito de Sargento José Félix López	Población Indígena	Porcentajes
Hombres	72	50,70
Mujeres	70	49,30
Total (ambos sexos)	142	1,96
% Población del Distrito	7.242	2,84
% Población Total del Departamento	254.976	100

Fuente: Elaboración propia en base a datos de la DGEEC. III Censo Nacional de Población y Viviendas para pueblos Indígenas por Departamento 2012.

Hogares, vivienda

Otros datos proveídos por la DGEEC en relación a la condición de propiedad de la vivienda en el distrito indican que en este existen 1.221 viviendas particulares ocupadas precensadas, resultando ampliamente mayoritaria la población que cuenta con vivienda propia, seguida de la condición de “prestada” o quienes las habitan como “encargados”²², y en menor cantidad, viviendas alquiladas, condición de ocupación de hecho o en condominio. Los porcentajes pueden observarse en la siguiente tabla.

Tabla 17. Condición de propiedad de la vivienda

Condición de propiedad de la vivienda	Departamento de Concepción	Distrito de Sargento José Félix López
Viviendas particulares ocupadas con personas presentes	42.402	1.221
% Es propia	85,2	82,0
% La están pagando en cuotas	0,9	-
% Es en condominio	0,4	0,4
% Es alquilada	5,1	1,7
% Es prestada, la cuidan	7,5	15,3
% Es ocupada de hecho	0,8	0,5
% No informado	0,1	0,1

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Necesidades Básicas Insatisfechas (NBI)

En el Distrito de Sargento Félix López, según datos de la DGEEC, tanto en el tríptico sobre NBI²³ como en los datos proveídos por ésta en el marco de elaboración del presente estudio²⁴ sobre

²¹ [DGEEC. Concepción: Población indígena por sexo y cantidad de viviendas particulares y colectivas según área, distrito, comunidad, aldea o barrio y núcleo de familia y pueblo, 2012.](https://www.dgeec.gov.py/default.php?publicacion=33) Disponible en: <https://www.dgeec.gov.py/default.php?publicacion=33>

²² DGEEC. Censo 2012 disponible en <https://www.dgeec.gov.py/vt/Indicadores-distritales.php>

²³ DGEEC. Necesidades Básicas Insatisfechas (NBI) 2012 PARAGUAY. Disponible en: <https://www.dgeec.gov.py/Publicaciones/Biblioteca/investigacion%20tematica/Triptico-de-necesidades-insatisfechas-NBI-2012.pdf>

²⁴ Datos solicitados y proveídos por la DEGECC, Sep. 2020.

Medición de las NBI a partir del Censo Nacional de Población y Viviendas 2012, se indica que el 89,4% de los hogares del distritos tienen al menos una NBI; siendo en el AID el distrito con mayor porcentaje en dicho tema, como puede observarse en la siguiente tabla, sobre todo en lo referente a los hogares con NBI en infraestructura sanitaria, en capacidad de subsistencia, en acceso a la educación y en calidad de la vivienda.

Tabla 18. Hogares con NBI, según departamento y distrito

Indicadores de Necesidades Básicas Insatisfechas (NBI) (%)	Total hogares	Departamento de Concepción	Distrito Sargento Félix López
Hogares particulares ocupados con personas presentes	1.232.496	42.638	1.221
% Hogares con al menos una NBI	43,0	56,2	89,4
% Hogares con NBI en calidad de la vivienda	12,6	19,0	24,5
% Hogares con NBI en infraestructura sanitaria	20,8	29,7	82,9
% Hogares con NBI en acceso a la educación	15,7	20,3	26,3
% Hogares con NBI en capacidad de subsistencia	14,9	19,8	37,5

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012 y Tríptico Necesidades Básicas Insatisfechas (NBI) 2012. Paraguay en base a STP-DGEEC. Censo Nacional de Población y Viviendas 2012.

2.3. Economía

Actividades económicas

En cuanto a las actividades económicas, se afirma que el distrito es eminentemente ganadero y que existen numerosos establecimientos ganaderos en dicha zona. Asimismo, sus habitantes se dedican a la explotación forestal y agrícola, esta última en menor escala debido a la falta de caminos y al bajo precio de los productos en el mercado local y regional, aspectos que limitan la producción a gran escala o para comercialización. Actualmente puede decirse que la agricultura es más que nada para autoconsumo. La población también se dedica a las actividades comerciales y a la prestación de servicios profesionales en instituciones públicas y privadas, aserraderos y las estancias²⁵.



Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020.

En cuanto a la comunidad indígena de Takuarita, podría decirse que las actividades de subsistencia están basadas en la recolección, caza y pesca²⁶.

²⁵ Plan Local de Salud de Sargento José Félix López (Puentesíño) periodo 2015-2018

²⁶ Atlas Comunidades Indígenas del Paraguay año 2012.

Tabla 19. Actividades económicas por sector

Actividades económicas	Sargento José Félix López		
	Primario	Secundario	Terciario
	Ganadería, Explotación forestal, Agrícola Aserraderos Caza y Pesa (comunidad indígena)	Actividades comerciales	Prestación de servicios profesionales en instituciones públicas y privadas

Fuente: Elaboración propia con datos de la Municipalidad 2020 y el Plan Local de Salud de Sargento José Félix López. 2015/2018.

Durante el trabajo de campo las personas entrevistadas comentaron respecto a las principales actividades económicas del distrito mencionando las siguientes:

- Trabajo en estancias como mensuales y jornaleros.
- Hay personas que se dedican a changas, realizan actividades de manera esporádica, por día o por trabajo específico.
- Producción ganadera de pequeña y gran escala.
- En cuanto a comercio, se cuenta con despensas, ferretería, talleres de vehículos (con muchos vehículos abandonados por la facilidad de compra sin documentación legal), comedores, lugares de alojamiento, también aserraderos (madera para exportar) y carpintería.
- En la producción agrícola, los rubros de renta son el maíz y sésamo (1 cosecha al año), el maíz tupi pytã se vende a una estancia de la zona para alimento de animales. Hay además producción de maní, zapallo, mandioca, batata, éstos son comercializados en la Ciudad de Puentesíño principalmente.
- Actualmente hay empresas que trabajan en obras viales.
- Empleados del Estado.

Como puede observarse en la siguiente tabla con información proveída por la DGEEC²⁷, respecto a los sectores económicos, en el Distrito de Sargento José Félix López predomina el sector primario, seguido por el sector terciario y en menor proporción el secundario.

Tabla 20. Población ocupada por sector económico

Datos de Población	Departamento de Concepción	Distrito de Sargento José Félix López
Sector económico de la población ocupada ²⁸	226.585	6.610
% Primario	40,9	72,9
% Secundario	15,7	9,8
% Terciario	42,2	16,3
% No informado	1,2	0,9

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

²⁷ Datos solicitados y proveídos por la DGEEC. Sep. 2020.

²⁸ **Sector Económico de la población ocupada:** Población ocupada de 12 años y más de edad que pertenece a una rama de actividad específica, donde el *sector primario* comprende a la agricultura, ganadería, caza y pesca; el *sector secundario* abarca las industrias manufactureras, construcción, minas y canteras; el *sector terciario* agrupa a electricidad, gas y agua, comercio, restaurantes y hoteles, transporte, almacenamiento y comunicaciones, finanzas, seguros, inmuebles, servicios comunales, sociales y personales; y no informado.

2.4. Acceso a servicios

Servicios Básicos

En lo referente a acceso a servicios básicos, en el Distrito de Sargento José Félix López, según los datos proveídos por la DGEEC²⁹, se cuenta con energía eléctrica, agua corriente y saneamiento mejorado. A continuación, se presenta la información en porcentajes, y su vinculación con las cifras de nivel departamental.



ANDE Puentesiño

Sistema de Agua Centro Puentesiño

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -Septiembre 2020

Tabla 21. Viviendas con Acceso a Servicios Básicos

Datos de viviendas particulares Servicios básicos	Departamento de Concepción	Distrito de Sargento José Félix López
Viviendas particulares ocupadas	42.402	1.221
% Viviendas con energía eléctrica	93,1	73,1
% Viviendas con agua corriente ³⁰	74,4	59,9
% Viviendas con desagüe cloacal ³¹	6,3	-
% Viviendas con recolección de basura	22,8	0,1
% Viviendas con saneamiento mejorado	46,9	6,8

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

En el Plan Local de Salud del distrito se menciona que se tiene acceso a servicios básicos, gran parte de la zona urbana y rural cuenta con el servicio de energía eléctrica, excepto las comunidades de: 29 de Junio, Sótano, 1ª Zona, 2ª Zona y Curupayty, que esperan la ampliación del tendido eléctrico. En las compañías, la mayoría de la población accede al servicio de agua potable, otras utilizan agua de pozo (La mayoría de los pobladores utiliza agua de pozo artesiano), arroyos y tajamares para su abastecimiento³².

²⁹ Datos solicitados y proveídos por la DEGEEC. Sep. 2020.

³⁰ Incluye: ESSAP, SENASA, red comunitaria, red privada, y pozo artesiano, con cañería fuera de la vivienda pero dentro del terreno o con cañería hasta la cocina y/o baño.

³¹ Incluye: Desagüe por red pública, pozo ciego con y sin cámara séptica.

³² CIRD y MSPyBS. Plan Local de Salud Sargento José Félix López (Puentesiño) periodo 2015-2018

Las Juntas de Saneamiento se encuentran funcionando en las comunidades de La Suerte, San Clemente, Unión, Loma Pyta, Yvype Santa Ana, Yvy Maraney, Sótano, Calle 4, Calle 3, 29 de Junio y Norte Pyahú. Las personas entrevistadas en el marco del presente estudio afirmaron que se cuenta con sistemas de agua vía SENASA, también se utilizan tajamares, el arroyo, pozos comunes e incluso agua de lluvia. Se comentó además, sobre zonas donde no hay agua, como en el caso de calle 7, Norte Pyahu y calle 3, “se cavaron tres pozos con más de 100 metros y no se encontró agua”. Asimismo, hablaron de la existencia de por lo menos 10 juntas de agua y saneamiento en la zona.

Por su parte, en la comunidad Indígena de Takuarita no cuentan con el servicio de luz eléctrica, utilizan lámparas, velas y candiles como las formas más comunes de alumbrar por las noches³³.

En cuanto a la disposición de residuos sólidos, la Municipalidad ha dispuesto un lugar para el depósito de los mismos, pero todavía no se cuenta con el servicio de recolección. Los pobladores queman o entierran actualmente sus desechos domiciliarios.

Otro aspecto importante para la salud es la utilización de sanitarios. La mayoría de las viviendas dispone de letrinas sanitarias, por tanto, pocas cuentan con baño moderno.

Educación

En cuanto al tema de acceso a la educación, en el Plan Local de Salud del distrito se plantea que en la población en edad escolar se registra alta matriculación, la mayoría de los/as niños/as accede a la educación escolar básica, reciben almuerzo y merienda escolar en sus respectivas escuelas³⁴.

Según datos del Ministerio de Educación y Ciencias³⁵, en el Distrito Sargento José Félix López existen 27 instituciones educativas, de las cuales, 19 se encuentran en el área rural (1 en la Estancia Buenaventura, privada subvencionada y 1 en la Comunidad Indígena Takurita), y 8 en el área urbana, una es la sede de la Supervisión Administrativa y Pedagógica Región en la cual también se imparte enseñanza. De la totalidad de instituciones en el área rural, todas tienen modalidad de Educación Escolar Básica y en el área urbana 7 son con modalidad de Educación Escolar Básica y 3 con Modalidad de Educación Media.



Escuela N° 1800 Puentesño

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020.

³³ Atlas Comunidades Indígenas del Paraguay año 2012.

³⁴ Plan Local de Salud Sargento José Félix López (Puentesño) periodo 2015-2018.

³⁵ MEC. Disponible en: https://datos.mec.gov.py/data/establecimientos_escolares_priorizados_elegibles_fonacide

Tabla 22. Nivel educativo según zona de ubicación

Nivel de enseñanza	Total	Zona	
		Urbana	Rural
Escolar Básica	26	7	19
Educación media	3	3	-
Total	29	10	19

Fuente: Elaboración en base a datos actualizados del MEC - Datos abiertos, Establecimientos escolares 2019

Es importante aclarar que existen establecimientos que tienen más de una institución y que en las instituciones podrían impartirse más de una modalidad.

En cuanto a acceso a servicios básicos de estas instituciones, 17 de ellas cuentan con energía eléctrica a través de la ANDE y 14 acceden al servicio de agua por parte de SENASA, 4 a través de un tajarar y 2 se abastecen desde arroyos.

En relación a la educación superior, en el distrito no se cuenta con universidades, sin embargo, para algunos jóvenes se hace posible asistir a éstas, a través de la Municipalidad de Sargento José Félix López que les otorga becas de estudio.

A continuación, se presenta cada institución educativa y sus características.

Tabla 23. Instituciones educativas de Sgto. José Félix López por zona, modalidad, acceso a agua y energía

Instituciones Educativas de Sgto. José Félix López	Localidad/Barrio	Zona	Asentamiento o Colonia	Modalidad	Agua	Energía
Escuela Básica N° 1800 Gral Bernardino Caballero	B° San Clemente	Urbana	Puentesíño	E.E.B.	SENASA	ANDE
Colegio Nacional San Clemente María	B° San Clemente	Urbana	Puentesíño	E.E.B. y E.M.	SENASA	ANDE
Supervisión Administrativa y Pedagógica Región 7	B° San Clemente	Urbana	Puentesíño	E.E.B. y E.M.	-	-
Escuela Básica N° 8049 Hilario Sánchez	B° La Suerte	Urbana	Puentesíño	E.E.B.	SENASA	ANDE
Escuela Básica N° 2322 Mcal. Francisco Solano López	B° Loma Pyta	Urbana	Puentesíño	E.E.B.	SENASA	ANDE
Escuela Básica N° 2321 San Miguel	B° Piri Poty	Urbana	Puentesíño	E.E.B.	SENASA	ANDE
Escuela Básica N° 2320 Independencia Nacional y Colegio Nacional Independencia Nacional	B° Yvype	Urbana	Puentesíño	E.E.B. y E.M.	SENASA	ANDE
Escuela Básica N° 7203 Héroes de Acosta Ñu	Asentamiento	Rural	Calle 3	E.E.B.	SENASA	ANDE
Escuela Básica N° 7200 Mártires de Acosta Ñu	Asentamiento	Rural	Marane y Jevika	E.E.B.	Tajarar	ANDE
Escuela Básica N° 7201 Guavirami	Asentamiento	Rural	Marane y	E.E.B.	Tajarar	ANDE
Escuela Básica N° 4667 San Francisco	Asentamiento	Rural	Marane y	E.E.B.	Tajarar	ANDE
Escuela Básica N° 4666 Río Apa	Asentamiento	Rural	Norte Pyahu	E.E.B.	SENASA	ANDE

Instituciones Educativas de Sgto. José Félix López	Localidad/Barrio	Zona	Asentamiento o Colonia	Modalidad	Agua	Energía
Escuela Básica N° 4665 15 De Agosto	Asentamiento	Rural	Norte Pyahu	E.E.B.	SENASA	ANDE
Escuela Básica N° 7202 Niño Jesús	Asentamiento	Rural	B° Hermosa	E.E.B.	SENASA	ANDE
Escuela Básica N° 6844 Itaky	Asentamiento	Rural	Calle 2	E.E.B.	Arroyo	No
Escuela Básica N° 7199 13 de diciembre	Asentamiento	Rural	Vy a Renda	E.E.B.	SENASA	No
Escuela Básica N° 6880 San Miguel	Asentamiento	Rural	Calle 6	E.E.B.	SENASA	ANDE
Escuela Básica N° 4662 Arroyo Ita	Asentamiento	Rural	Calle 7	E.E.B.	Arroyo	ANDE
Escuela Básica N° 8204 San Rafael	Asentamiento	Rural	San Rafael	E.E.B.	SENASA	ANDE
Escuela Básica N° 6843 Kurusu Eva	Asentamiento	Rural	Kurusu Eva	-	-	-
Escuela Básica N° 4663 Sotano	Asentamiento	Rural	Sotano	-	-	-
Escuela Básica N° 4664 13 de enero	Asentamiento	Rural	Calle 3	-	-	-
Escuela Básica N° 6842 San Juan	Asentamiento	Rural	Calle 8	-	-	-
Escuela Básica N° 6840 Santa Ana	B° Santa Ana	Rural	Puentesíño	E.E.B.	SENASA	ANDE
Escuela Básica N° 6292 Takuarita	Takuarita	Rural	Takuarita	E.E.B.	Tajamar	No
Escuela Básica N° 6839 Humberto Camperchioli	Puentesíño	Rural	Estancia	-	-	-

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

Formación profesional y técnica

La municipalidad de Sargento José Félix López, según se indica en las fuentes consultadas, también pone a disposición de la población capacitaciones en oficios, tales como carpintería, albañilería, electricidad, plomería, fontanería, cocina, peluquería, entre otros, a fin de mejorar los ingresos y la calidad de vida de sus familias³⁶.

Según esta fuente, los adultos en su mayoría saben leer y escribir. Funcionan en el distrito centros de alfabetización de adultos. Algunos son beneficiados con la pensión no contributiva que ofrece el Ministerio de Hacienda³⁷.

Según publicaciones del Servicio Nacional de Promoción Profesional (SNPP), en Sgto. José Félix López, más de 100 jóvenes y adultos del distrito concluyeron su formación en Electricidad domiciliaria (60) y Ayudante Albañilería (50) en el Asentamiento Norte Pyahu, mediante una

³⁶ MEC. Disponible en: https://datos.mec.gov.py/data/establecimientos_escolares_priorizados_elegibles_fonacide

³⁷ ídem

de sus aulas móviles, con el respaldo de la Secretaría Nacional de la Vivienda y el Hábitat (SENAVITAT).³⁸

Salud

En lo relacionado a aspectos vinculados al acceso a la salud, inicialmente se hace referencia a las enfermedades más frecuentes en la zona. En el Plan Local de Salud de Sargento José Félix López se citan a enfermedades respiratorias, gastrointestinales y dermatológicas, parasitosis, enfermedades crónicas no transmisibles (diabetes, hipertensión, tumores, arteriosclerosis) y problemas bucodentales³⁹.

Asimismo, se hace alusión a que tanto la Municipalidad como la USF apoyan a técnicos del Servicio Nacional de Erradicación del Paludismo (SENEPA) para llevar a cabo trabajos en las comunidades, consistentes en visitas casa por casa y difusión radial de informaciones, fumigación, búsqueda y eliminación de criaderos, identificación de síntomas relacionados a la vigilancia de chagas, dengue y leishmaniasis y campañas de prevención.



USF Puentesíño

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020.

Igualmente, se desarrollan otras actividades a nivel comunitario: charlas educativas en escuelas y colegios, difusión de informaciones a través de programas radiales, visitas domiciliarias para vacunación y seguimiento a embarazadas, adultos mayores, personas con diabetes, entre otros grupos que requieren cuidados específicos.

Las instituciones de servicio público de salud existentes en el municipio, según los datos del plan Local de Salud⁴⁰ son las mencionadas a continuación, se cuenta, además, con 2 farmacias privadas.

- ✓ USF de Puentesíño
- ✓ Puesto Satélite Yvype
- ✓ Puesto Satélite Yvy Maraney
- ✓ Puesto Satélite 29 de Junio y
- ✓ Puesto Satélite Norte Pyahu

En la comunidad indígena de Takuarita no cuentan con instituciones de servicios de salud⁴¹.

En cuanto a los profesionales con quienes se cuenta, según el Plan Local de Salud, la USF de Puentesíño (establecimiento de cabecera del distrito) ofrece asistencia a través de: 1 médico (Director), 3 licenciadas en enfermería, 1 auxiliar, 2 personales administrativos y 1 personal de servicio (limpiadora), no cuenta con laboratorio, el centro de referencia es el Hospital Regional de Concepción⁴².

³⁸ SNPP (2017). Disponible en: <https://www.snpp.edu.py/noticias-snpp/12035-pobladores-de-ex-puentesio-c3%B1o-aprendieron-oficios-a-trav%C3%A9s-del-snpp.html>

³⁹ MSPyBS –CIRD (2015). Plan Local de Salud Sargento José Félix López (Puentesíño) periodo 2015-2018.

⁴⁰ MSPyBS –CIRD (2015). Plan Local de Salud Sargento José Félix López (Puentesíño) periodo 2015-2018.

⁴¹ DGEEC. III Censo Nacional de Población y Viviendas para Pueblos Indígenas 2012.

⁴² MSPyBS –CIRD (2015). Plan Local de Salud Sargento José Félix López (Puentesíño) periodo 2015-2018.

Acceso a Tecnologías de información y medios de comunicación (TIC) y bienes de confort

En relación al acceso a las TICs, según los datos facilitados por la DGEEC, en el Distrito de Sargento José Félix López, una gran mayoría de viviendas cuenta con radio; seguido de teléfonos celulares y televisor; y en menor proporción, viviendas que cuentan con antenas parabólicas, tv cable, computadora, teléfono fijo e internet. Los porcentajes se presentan en la siguiente tabla, relacionando éstos con los del nivel departamental.

Tabla 24. Equipos domésticos y TIC

Acceso a TIC	Departamento de Concepción	Distrito de Sargento José Félix López
Viviendas particulares ocupadas con personas presentes	42.402	1.221
% Viviendas con radio	80,6	86,2
% Viviendas con televisor	79,8	48,2
% Viviendas con teléfono fijo	8,0	1,1
% Viviendas con teléfono celular	83,3	79,4
% Viviendas con computadora	11,9	1,2
% Viviendas con computadora conectada a internet	9,2	0,6
% Viviendas con antena parabólica	10,8	11,8
% Viviendas con TV cable	13,4	2,4

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Igualmente, en terreno, las personas comentaron respecto a la existencia de emisoras radiales; radios evangélicas, radios comunitarias (Radio Itaky FM 98.8, Radio Activa y Radio Más), canales de televisión, canales por cable, internet (mala conexión en algunos casos) y celulares.

En relación a los bienes de confort, según datos proveídos por la DGEEC en el marco del presente estudio, puede afirmarse que en la mayoría de las viviendas se cuenta con motocicletas, igualmente, pero en menor proporción, heladeras, lavarropas y video/DVD. Con porcentajes bajos en acceso, viviendas con ducha eléctrica, automóvil/camioneta, horno microondas, aire acondicionado y termo-calefón. Las cifras vinculadas se presentan en la siguiente matriz, así como porcentajes de acceso a dichos bienes a nivel departamental.

Tabla 25. Equipos domésticos y Bienes de confort

Bienes de confort	Departamento de Concepción	Distrito de Sargento José Félix López
Viviendas particulares ocupadas con personas presentes	42.402	1.221
% Viviendas con heladera	68,1	48,2
% Viviendas con lavarropas	50,9	29,6
% Viviendas con video/DVD	21,2	10,8
% Viviendas con termo calefón	4,0	1,1
% Viviendas con ducha eléctrica	25,7	4,2
% Viviendas con acondicionador de aire	15,2	2,0
% Viviendas con horno microondas	14,4	3,2
% Viviendas con automóvil/camioneta	9,9	4,4

Bienes de confort	Departamento de Concepción	Distrito de Sargento José Félix López
% Viviendas con moto	74,3	80,7

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

3. Distrito de Bella Vista Norte

3.1. Características generales



Río Apa Bella Vista Norte- Fuente: Bienvenido Paraguay⁴³

El Distrito de Bella Vista Norte posee una extensión de 3.901 Km, se encuentra ubicado al extremo noreste de la Región Oriental, a 469 km de Asunción y 150 km de Pedro Juan Caballero, su principal acceso es la Ruta Nacional N°3 Gral. Elizardo Aquino. Al norte y este limita con la República Federativa del Brasil, separado por el Río Apa y la Cordillera de Amambay; linda al sur con Canindeyú y al oeste con Concepción y San Pedro⁴⁴.

Según los datos del Plan de Desarrollo Municipal (2016)⁴⁵, en el año 1.851 se fundó la localidad de Villa Bella. Desde el año 1.860 la zona donde hoy se asienta comenzó a poblarse y durante el gobierno de Héctor Carvalho, tomó como nombre Bella Vista Norte y fue elevada a la categoría de Municipio. Pero recién en 1.901 fue creado el municipio de Bella Vista Norte, en virtud de un decreto del presidente Emilio Aceval. Según historiadores, la misma sería la localidad más antigua del Departamento.

Además, el nombre de Bella Vista tiene su origen en un paso de ganado que existía sobre el Río Apa, que por su gran belleza natural llamaba la atención, cabe mencionar que también se le llama Bella Vista Norte, como una forma de diferenciarla de la otra Bella Vista que se encuentra ubicada en el sur del país⁴⁶.

3.2. Datos de Población

Según datos de la Dirección General de Estadística, Encuestas y Censo (DGEEC), la población total del Departamento de Amambay es de 172.169, perteneciendo al Distrito de Bella Vista 17.765 habitantes. Esta totalidad representa al 10,32% de la población del departamento. Bella Vista está

⁴³ Disponible en: <https://www.bienvenidoaparaguay.com/showdata.php?xmlcity=208&xmldestino=297>

⁴⁴ Ídem

⁴⁵ Municipalidad de Bella Vista. (2016) Plan de Desarrollo Municipal. Período 2016-2021.

⁴⁶ Ídem

conformado por 8.982 hombres y 8.783 mujeres (Proyección 2020). Como puede observarse en la siguiente tabla, en su mayoría, es decir, el 50,56% de la población del distrito está conformada por hombres y el 49,44% por mujeres.

Tabla 26. Población total de Bella Vista por sexo. Año 2020

Bella Vista	Población	Porcentajes
Hombres	8.982	50,56%
Mujeres	8.783	49,44%
Total (ambos sexos)	17.765	100
% Población Total del Distrito según total del Departamento.	172.169	10,32

Fuente: *Elaboración propia en base a datos de la DGEEC. Dpto. Amambay. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025*

Asimismo, en la siguiente tabla se presentan las cifras sobre población estimada y proyectada del Distrito de Bella Vista, la diferencia en la relación cantidad hombres /mujeres (mayoría hombres) se ha mantenido en los últimos 5 años.

Tabla 27. Evolución de la población de Bella Vista en los últimos 5 años (2016-2020)

Distrito Bella Vista	2016	2017	2018	2019	2020
Hombres	8.077	8.300	8.525	8.752	8.982
Mujeres	7.895	8.113	8.334	8.557	8.783
Población total	15.972	16.413	16.859	17.309	17.765

Fuente: *DGEEC. Dpto. Amambay. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025*

Así mismo, la DGEEC, presenta datos sobre la proyección de la población de Bella Vista en los siguientes 5 años, desde el 2020 al 2025, en la tabla 28 se observa que la cantidad de habitantes aumenta paulatinamente.

Tabla 28. Tabla 2. Proyección de la población en los siguientes 5 años (2020-2025)

Departamento y distrito	Año					
	2020	2021	2022	2023	2024	2025
Dpto. Amambay	172.169	174.721	177.252	179.773	182.281	184.772
Bella Vista Norte	17.765	18.226	18.690	19.160	19.634	20.111

Fuente: *DGEEC. Dpto. Amambay. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025*

En el Plan de Desarrollo Municipal se presenta la división territorial del Distrito de Bella Vista, afirmando que se encuentra dividido en:

- 8 barrios (Inmaculada Concepción, San Antonio, Aviación, Yvy Pyta, María Auxiliadora, Perpetuo Socorro, en Obrero y Apa) y,
- 11 colonias como Sargento Dure, San Isidro, Santa Ana del Apa, Nueva Esperanza, Rinconada, Mandyju Poty, Casualidad, Ayala Cue, Colonias Unidas, San Roque y Agropastoril San Pedro, con sus respectivas particularidades diarias que forman parte del entorno social cotidiano e histórico la comunidad⁴⁷.

⁴⁷Municipalidad de Bella Vista. (2016) Plan de Desarrollo Municipal. Período 2016-2021.

Población Indígena

Con respecto a la población indígena, según datos de la DGEEC: del III Censo Nacional de Población y Viviendas para pueblos Indígenas por Departamento 2012, en el distrito de Bella Vista, existen 9 comunidades indígenas, conformadas por 1818 habitantes, de los cuales, 949 son hombres y 869 son mujeres, correspondientes a 3 pueblos indígenas (Paĩ Tavyterã, Maká y Ava Guaraní) ⁴⁸, distribuidos en 442 viviendas particulares y colectivas, todas asentadas en el área rural del distrito.

Tabla 29. Distribución de la Población Indígena de Bella Vista. Año 2012

Distrito	Comunidad, aldea o barrio y núcleo familiar	Pueblo	Cantidad de viviendas particulares y colectivas	Población		
				Total	Varones	Mujeres
Bella Vista	Apyka Jegua	Paĩ Tavyterã	18	65	35	30
Bella Vista	Cerro Akãngue	Paĩ Tavyterã / Maká	88	421	224	197
Bella Vista	Ita Jeguaka	Paĩ Tavyterã / Ava Guaraní	126	574	296	278
Bella Vista	Apyka Rendy'i	Paĩ Tavyterã	6	32	20	12
Bella Vista	Yvyty Rovi Cerro Amambay	Paĩ Tavyterã	46	167	85	82
Bella Vista	Guyra Ñe'ëngatu Amba	Paĩ Tavyterã	25	123	66	57
Bella Vista	Satĩ	Paĩ Tavyterã	32	109	51	58
Bella Vista	Arroyo Ka'a	Paĩ Tavyterã	46	176	92	84
Bella Vista	Yvy Oka	Paĩ Tavyterã	35	151	80	71
Total	9	3	422	1818	949	869

Fuente: DGEEC: III Censo Nacional de Población y Viviendas para pueblos Indígenas por Departamento 2012

Se especifica que, de la totalidad de la población del distrito de Bella Vista, el 10,23% corresponde a las comunidades indígenas, conformadas en su mayoría por hombres con el 52,20% y en menor proporción por mujeres con el 47,80%, como se puede observar en la siguiente tabla.

Tabla 30. Población indígena de Bella Vista, por sexo. Año 2012

Distrito de Bella Vista	Población Indígena	Porcentajes
Hombres	949	52,20
Mujeres	869	47,80
Total (ambos sexos)	1818	100
% Población del Distrito	17.765	10,23
% Población Total del Departamento	172.169	1,06

Hogares, vivienda

En relación a este tema, según datos extraídos de la DGEEC-Censo 2012, el 75,51% de la población total del distrito de Bella Vista cuenta con vivienda propia.⁴⁹

⁴⁸ DGEEC. Población indígena por sexo y cantidad de viviendas particulares y colectivas según área, distrito, comunidad, aldea o barrio y núcleo de familia y pueblo, 2012. Disponible en: <https://www.dgeec.gov.py/default.php?publicacion=33>

⁴⁹ DGEEC. Censo 2012 disponible en <https://www.dgeec.gov.py/vt/Indicadores-distritales.php>

Necesidades Básicas Insatisfechas (NBI)

Teniendo en cuenta los datos de la DGEEC sobre Necesidades Básicas Insatisfechas (NBI)⁵⁰ en el distrito de Bella Vista, indican que el 64% de los hogares de este distrito cuentan con al menos una NBI; el 46,5% de hogares con NBI en infraestructura sanitaria; el 32,2% de los Hogares con NBI en acceso a la educación; el 23,5% de los hogares con NBI en calidad de la vivienda y el 16,2% de los Hogares con NBI en capacidad de subsistencia. Los datos se señalan en la siguiente tabla.

Tabla 31. Hogares con NBI, según departamento y distrito (a partir de acá se modifica el nro de tablas)

Indicadores de Necesidades Básicas Insatisfechas (NBI) (%)	Total País	Departamento de Amambay	Distrito de Bella Vista
Hogares particulares ocupados con personas presentes	1.232.496	27.047	2.675
% Hogares con al menos una NBI	43,0	48,3	64,0
% Hogares con NBI en calidad de la vivienda	12,6	18,6	23,5
% Hogares con NBI en infraestructura sanitaria	20,8	26,5	46,5
% Hogares con NBI en acceso a la educación	15,7	25,9	32,2
% Hogares con NBI en capacidad de subsistencia	14,9	14,7	16,2

Fuente: DGEEC. *Triptico Necesidades Básicas Insatisfechas (NBI) 2012. Paraguay en base a STP-DGEEC. Censo Nacional de Población y Viviendas 2012.*

3.3. Economía

Actividades económicas

Según información de la Municipalidad de Bella Vista, la economía del distrito se basa predominantemente en producción agrícola y ganadera; se destaca además el comercio fronterizo por encontrarse frente a la ciudad brasileña del mismo nombre (Bela Vista). Es importante mencionar aquí la gran oportunidad con la que cuentan de explotar turísticamente la zona gracias a sus atractivos naturales.

Asimismo, en Bella Vista se encuentran asentados pobladores pertenecientes a Pueblos Originarios, cuyas actividades económicas se centran en la caza, pesca, recolección de alimentos y también en menor medida la venta de artesanías⁵¹.

3.4. Acceso a servicios

Acceso a servicios básicos

Según datos extraídos del Plan de Desarrollo Municipal los pobladores del distrito de Bella Vista acceden a servicios básicos como; sistema de eliminación de basura; desechos cloacales (pozos ciegos absorbentes), el acceso a agua corriente en zona rural lo hacen por medio de juntas de saneamiento y en la zona urbana a través de la ESSAP.

50 DGEEC. Necesidades Básicas Insatisfechas (NBI) 2012 PARAGUAY. Disponible en: <https://www.dgeec.gov.py/Publicaciones/Biblioteca/investigacion%20tematica/Triptico-de-necesidades-insatisfechas-NBI-2012.pdf>

⁵¹ Municipalidad de Bella Vista. (2016) Plan de Desarrollo Municipal. Período 2016-2021.

En esta línea, según indicadores distritales del censo 2012 de la DEGEEC, en el distrito de Bella Vista, el 78,62 % de la población tiene acceso a luz eléctrica; el 61,76% de la población tiene acceso a agua corriente; el 20,34% accede a la disposición de residuos sólidos.

Según el Plan de Desarrollo Municipal, los servicios sociales disponibles en Bella Vista Norte son:

- Asistencia a la primera infancia a través de la guardería de ALMA GUARANI, reforma, ampliación, equipamiento, funcionamiento y mantención de la misma mediante las gestiones paralelas de la municipalidad y los padres de los beneficiarios de dicho servicio.
- Servicio de asistencia a personas de escasos recursos mediante la provisión de medicamentos, estudios médicos, y traslado de enfermo.
- Apoyo constante a instituciones educativas.
- Apoyo Universitario con beca y gestiones para usufructo de beca universitario con ITAIPU, Secretaria Nacional de la Juventud y Consejo Nacional de Becas.
- Campaña de recolección y distribución de abrigos en épocas de frío.
- Acompañamiento y ayuda a las familias afectadas por las inundaciones.
- Apoyo económico a las Instituciones Educativas más necesitadas.
- Transporte escolar para los alumnos de las Escuelas de Santa Ana y San Isidro.
- Apoyo mediante el programa de gobierno de la Secretaría de la Acción Social. específicamente con Tekoporã.

Educación

En relación al acceso a la educación, según datos del Ministerio de Educación y Ciencias (MEC), en el Distrito de Bella Vista se encuentran 30 instituciones educativas, de las cuales 8 están ubicadas en el área urbana y 22 en el área rural. De la totalidad, de instituciones, 13 tienen Modalidad de Educación Inicial (4 en el área urbana y 9 en el área rural); 27 instituciones con Modalidad de Educación Escolar Básica (5 en el área urbana y 22 en el área rural); 3 instituciones con Modalidad de Educación Media (2 en el área urbana y 1 en el área rural); 2 instituciones con Modalidad de Educación Permanente, ambas en el área urbana. Los datos se señalan en la siguiente tabla.

Tabla 32. Nivel educativo según zona de ubicación

Nivel educativo	Zona		
	Total	Urbana	Rural
Distrito Horqueta			
Educación inicial	13	4	9
Escolar Básica	27	5	22
Educación media	3	2	1
Educación Permanente	2	2	-
Total	45	13	32

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

A continuación, se presenta cada institución educativa y sus características:

Tabla 33. Instituciones educativas del Distrito de Bella Vista por zona, modalidad, acceso a agua y energía

Instituciones Educativas Distrito de Bella Vista	Localidad/Barrío	Zona	Asentamiento	Comunidad Indígena	Modalidad	Agua	Energía
En 1 Establecimiento: Centro N° 13 -18 y 49 y Escuela Bás. N° 188 Bella Vista	Obrero	Urbana	-	-	EI, EEB y EP	ESSAP	ANDE
Colegio Nac. Ntra. Sra. del Perpetuo Socorro.	Obrero	Urbana	-	-	EEB y EM	ESSAP	ANDE
Escuela Bás. N° 1145 Parroq. Priv. Subv. San José.	Inmaculada	Urbana	-	-	EI, EEB y EM	-	-
Escuela Bás. N° 1957 Gral. Marcial Samaniego.	San Antonio	Urbana	-	-	EI, EEB y EP	ESSAP	ANDE
Escuela Bás. N° 6828 Ma. Auxiliadora.	Inmaculada	Urbana	-	-	EI y EEB	ESSAP	ANDE
Escuela Bás. N° 2324 Ma. Auxiliadora.	-	Rural	Ruta III Altura 180	-	EEB	No	No
Escuela Bás. N° 14275 Tranquerita.	-	Rural	Las Mercedes	-	EEB	Pozo común	No
Escuela Bás. N° 1958 San Roque.	San Roque	Rural	-	-	EEB	-	-
Escuela Bás. N° 2008 Mandyju Poty.	-	Rural	-	-	EEB	Pozo artesiano	ANDE
Escuela Bás. N° 2323 Excombatientes del Chaco.	-	Rural	Casualidad	-	EEB	Pozo común	ANDE
Escuela Bás. N° 2324 Ma. Auxiliadora	-	Rural	Ruta III Altura 180	-	EEB	Pozo artesiano	No
Escuela Bás. N° 3990 Santa Teresa.	-	Rural	Estancia Santa Teresa	-	EI y EEB	Pozo artesiano	ANDE
Escuela Bás. N° 3994 Juan Carlos Wasmosy.	-	Rural	-	-	EEB	Pozo común	ANDE
Escuela Bás. N° 4668 San Isidro.	-	Rural	San Isidro	-	EI y EEB	Pozo artesiano	ANDE
Escuela Bás. N° 4773 Rinconada.	-	Rural	Rinconada	-	EEB	Pozo artesiano	ANDE
Escuela Bás. N° 6507 Cerro Akangue	-	Rural	-	Cerro Akangue	EI-EEB	Pozo común	Panel Solar
Escuela Bás. N° 6508 Itajeguaka	-	Rural	-	Itajeguaka	EI EEB EM	Pozo común	Panel Solar
Escuela Bás. N° 7102 Colonias Unidas.	-	Rural	Colonia Unidas	-	EI EEB	SENASA	ANDE

Instituciones Educativas Distrito de Bella Vista	Localidad/B arrio	Zona	Asentamiento	Comunidad Indígena	Modalidad	Agua	Energía
Escuela Bás. N° 7103 San Luis	-	Rural	Rinconada	-	EEB	Pozo artesiano	ANDE
Escuela Bás. N° 7665 Arroyo Ka'a	-	Rural	-	Arroyo Ka'a	El y EEB	pozo común	No
Escuela Bás. N° 7668 Kuña Poty`i	-	Rural	-	Kuña Poty`i	El y EEB	Pozo común	ANDE
Escuela Bás. N° 8028 Santa Ana del Apa.	-	Rural	Santa Ana	-	EEB	Pozo artesiano	ANDE
Escuela Bás. N° 8094 Nueva Esperanza.	-	Rural	Nueva Esperanza	-	EEB	Pozo artesiano	ANDE
Escuela Bás. S/N° La Cascada.	-	Rural	-	-	EEB	Privado	ANDE
Escuela Básica N° 15149. Sanguina Cue	Sanguina Cue - San Juan	Rural	-	-	El y EEB	-	-
Liceo Nacional Santa Teresa	Santa Teresa	Rural	-	-	EEB	-	-
Escuela Bás. N° 7853 S/N		Rural	-	-	El y EEB	Pozo común	No

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

Salud

Según datos del Ministerios de Salud Pública y Bienestar Social, los pobladores del Distrito de Bella Vista cuentan con 1 Hospital Regional; 3 Unidades de Salud Familiar (USF Urbano Bella Vista, USF San Isidro y USF San Roque) y 1 Centro de Salud (CS San Isidro)⁵².

⁵² MSPyBS. Disponible en <https://www.mspbs.gov.py/donde-consulto.php>

4. Distrito de Paso Barreto

4.1. Características generales

El 31 de mayo del año 2013 la Ciudad de Paso Barreto fue distritada por Ley N° 4.926, ubicada a 56 km de distancia de la capital de Concepción, unido por un camino de tierra enripiada. El distrito tiene una extensión de 215.824 hectáreas⁵³. La distancia de Paso Barreto a la capital del País es de 445 km por Ruta Horqueta.

Limita al Norte con Sargento José Félix López, al Este con Yby Yau, al Sur con Horqueta y Loreto, al Sur Oeste con Concepción y al Oeste con San Alfredo.

Desde lo señalado por referentes del municipio⁵⁴, se desconoce la fecha exacta de la fundación de la Ciudad de Paso Barreto, aunque aseguran tiene origen fundacional muy antiguo, mediados de 1.800 (aproximadamente) según los primeros pobladores. Se sabe que el nombre guarda relación con un hombre de apellido Barreto que radicaba en la zona desempeñándose como pasero en balsa por el Río Aquidabán, éste era reconocido por su carácter amable y hospitalario.

Así mismo, en el Plan Local de Salud de Paso Barreto se señala que la población era muy reducida en aquel entonces, aproximadamente 15 viviendas. Las primeras familias que poblaron fueron de apellidos De León, Ferreira y Blanco. En el año 1870, el 9 o 10 de febrero, pasó por el lugar el ejército para captura y muerte del Mariscal Francisco Solano López en Cerro Cora, y el 3 o 4 de marzo del mismo año estuvo como prisionera de guerra Alicia Elisa Lynch, la esposa del Mariscal López.

En la consulta realizada en campo, los pobladores del distrito (Localidad de Paso Barreto, Isla Hermosa, Estribo del Plata y Jorge Sebastián Miranda), han manifestado que se destacan “la buena convivencia”, que son “comunidades muy tranquilas”, que hay “unidad entre los pobladores”, con “personas con ganas de trabajar y sobresalir”, con “mucho naturaleza y bajo nivel de contaminación”.

También, han comentado que las actividades festivas importantes para la zona están relacionadas al ámbito religioso y fundacional (distritación), durante los meses de junio, agosto, septiembre y diciembre.

Asimismo, se realizan actividades como karu guazú (comida compartida/comunitaria), bingos y torneos de inter-barrio; actividades deportivas, lacedadas, pesca y visitas al Río Aquidabán; igualmente, actividades por el día del niño y de la juventud, con campeonatos intercolegiales, festivales, entre otros.



Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -Septiembre 2020.

⁵³MSPBS-CIRD. (2015) Plan Local de Salud de Paso Barreto. Período 2015-2018. Disponible en: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Paso_Barreto.pdf

⁵⁴ Municipalidad de Paso Barreto. Disponible en: <https://www.municipalidadpasobarreto.gov.py/>

En las Actividades de las USF destacan caminatas con adultos mayores, diabéticos e hipertensos donde también acompañan los niños, charlas y juegos, actividades con el club de madres y embarazadas, entre otras.

4.2. Datos de Población

Según datos de la Dirección General de Estadística, Encuestas y Censo (DGEEC)⁵⁵, la proyección de la población del Departamento de Concepción es de 254.976, perteneciendo al Distrito de Paso Barreto 4.185 habitantes. Esta totalidad representa 1,64% de la población del departamento. Paso Barreto está conformado por 1.944 hombres y 2.241 mujeres (Proyección 2020). Como se puede observar en la siguiente tabla en su mayoría, es decir, el 53,55% de la población del distrito está conformada por mujeres y el 46,45% por hombres.

Tabla 34. Población estimada y proyectada de Paso Barreto, por sexo. Año 2020

Paso Barreto	Población	Porcentajes
Hombres	1.944	46,45
Mujeres	2.241	53,55
Total (ambos sexos)	4.185	100
% Población Total del Departamento	254.976	1,64

Fuente: Elaboración propia en base a datos de la DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

Con respecto a los datos de proyección de la DGEEC⁵⁶ para el Distrito de Paso Barreto, se puede observar en la siguiente tabla, que la población total en los últimos 5 años ha aumentado lentamente, considerando que la cantidad de hombres disminuye y la de mujeres aumenta.

Tabla 35. Evolución de la población en los últimos 5 años (2016-2020)

Distrito Paso Barreto	2016	2017	2018	2019	2020
Hombres	1.990	1.979	1.967	1.956	1.944
Mujeres	2.146	2.169	2.193	2.217	2.241
Población total	4.136	4.148	4.161	4.173	4.185

Fuente: DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025.

Según esta misma fuente, los datos proyectados para los siguientes 5 años a partir del 2020 muestran una pequeña disminución de la población en el distrito de Paso Barreto, como se puede ver en la siguiente tabla.

Tabla 36. Proyección de la población en los siguientes 6 años (2020-2025)

Departamento y distrito	Año					
	2020	2021	2022	2023	2024	2025
Dpto. Concepción	254.976	258.653	262.360	266.072	269.805	273.579
Paso Barreto	3.885	3.858	3.831	3.803	3.775	3.747

Fuente: STP/DGEEC. Paraguay. Proyección de la población por sexo y edad, según distrito, 2000-2025. Revisión 2015.

⁵⁵Paraguay. Proyección de la población por sexo y edad, según distrito, 2000-2025. Revisión 2015. Disponible en: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

⁵⁶ Ídem.

Seguidamente se presentan los datos oficiales del municipio⁵⁷ que, como puede observarse en la siguiente tabla, muestran variaciones en las cifras de población, siendo la totalidad 4.830 habitantes.

Tabla 37. Población total del distrito Paso Barreto Año 2020

Distrito Paso Barreto	Población
Paso Barreto	2.600
Colonia Jorge S. Miranda	1.250
Isla Tuyú	550
Jaguareté Potrero	40
Estribo de Plata	50
Colonias Indígenas (Boquerón y Jeguahaty)	340
Población Total del Distrito	4.830

Fuente: Elaboración propia con datos de población de la Municipalidad de Paso Barreto 2020.

Según el Consejo de Salud de Paso Barreto, el territorio se encuentra dividido en 6 barrios (San Salvador, María Auxiliadora, Inmaculada Concepción, 6 de Agosto, Santo Domingo y Carbonería); la zona rural en 6 compañías (Isla Tuyu, Cañada, Jaguarete, Peguahó, Colonia Jorge S. Miranda y Estribo de Plata) y 3 comunidades Indígenas (asentadas en terrenos ubicados hacia Hugua Ñandu y Puentesño)⁵⁸.

Tabla 38. Distribución de la población de Paso Barreto

P O B L A C I Ó N	Paso Barreto		
	Barrios	Compañías	Población indígena
	San Salvador	Isla Tuyu	Jeguahaty
	María Auxiliadora	Cañada	Vy'arenda
	Inmaculada Concepción	Jaguarete	Takuarendihu
	6 de Agosto	Peguahó	-
	Santo Domingo	Colonia Jorge S. Miranda (Jhugua Ñandu)	-
	Carbonería	Estribo de Plata	-
Total	6	6	3

Fuente: Elaboración propia con datos del Plan Local de Salud de Paso Barreto 2015/2018.

Hogares, vivienda

En relación a la condición de propiedad de la vivienda, según datos entregados por la DGEEC⁵⁹, en el Distrito de Paso Barreto, existen 838 viviendas particulares ocupadas pre censadas, el mayor porcentaje corresponde a “viviendas propias” y en menor proporción a otras condiciones de propiedad como “prestada o cuidan”, “alquilada”, “lo están pagando a cuotas” y por último “ocupada de hecho”. Los datos en porcentaje se detallan en la tabla siguiente.

⁵⁷ Municipalidad de Paso Barreto. Disponible en: <https://www.municipalidadpasobarreto.gov.py/>

⁵⁸MSPBS-CIRD. (2015) Plan Local de Salud de Paso Barreto. Período 2015-2018. Disponible en: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Paso_Barreto.pdf

⁵⁹ Datos solicitados y proveídos por la DGEEC. Sep. 2020.

Tabla 39. Condición de propiedad de la vivienda

Condición de propiedad de la vivienda	Departamento de Concepción	Distrito Barreto	Paso
Viviendas particulares ocupadas con personas presentes	42.402		838
% Es propia	85,2		87,6
% La están pagando en cuotas	0,9		0,5
% Es en condominio	0,4		-
% Es alquilada	5,1		1,3
% Es prestada, la cuidan	7,5		9,9
% Es ocupada de hecho	0,8		0,2
% No informado	0,1		0,5

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Necesidades Básicas Insatisfechas (NBI)

En el Distrito de Paso Barreto, según datos publicados de la DGEEC sobre Necesidades Básicas Insatisfechas (NBI)⁶⁰ y los datos proveídos por la DGEEC⁶¹ en el marco del presente estudio, sobre Medición de las NBI a partir del Censo Nacional de Población y Viviendas 2012, indican que el 65,1% de los hogares del distrito registra al menos una NBI; el 31,1% de los hogares con NBI en acceso a la educación; el 28,8% de los hogares con NBI en infraestructura sanitaria; el 24,2% de los hogares con NBI en capacidad de subsistencia; por último así como puede observarse en la siguiente tabla, el 22,3% de los hogares con NBI en calidad de la vivienda.

Tabla 40. Hogares con NBI, según departamento y distrito

Indicadores de Necesidades Básicas Insatisfechas (NBI) (%)	Total hogares	Departamento de Concepción	Distrito de Paso Barreto
Hogares particulares ocupados con personas presentes	1.232.496	42.638	839
% Hogares con al menos una NBI	43,0	56,2	65,1
% Hogares con NBI en calidad de la vivienda	12,6	19,0	22,3
% Hogares con NBI en infraestructura sanitaria	20,8	29,7	28,8
% Hogares con NBI en acceso a la educación	15,7	20,3	31,1
% Hogares con NBI en capacidad de subsistencia	14,9	19,8	24,2

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012 y *Triptico Necesidades Básicas Insatisfechas (NBI) 2012. Paraguay en base a STP-DGEEC. Censo Nacional de Población y Viviendas 2012.*

4.3. Economía

Con respecto a los datos publicados por la Municipalidad del distrito de Paso Barreto, las actividades económicas que predominan en el mismo son, primeramente, la ganadería; seguido, de la agricultura y horticultura, aserraderos y estancias; luego se observan instituciones públicas y privadas, locales de servicios, jornaleros y peones; por último, en muy baja proporción se observan actividades comerciales en zona urbana y artesanía. (Esta información se da teniendo en cuenta el sector económico y la tabla de actividades económicas)

⁶⁰ DGEEC. Necesidades Básicas Insatisfechas (NBI) 2012 PARAGUAY. Disponible en: <https://www.dgeec.gov.py/Publicaciones/Biblioteca/investigacion%20tematica/Triptico-de-necesidades-insatisfechas-NBI-2012.pdf>

⁶¹ Datos solicitados y proveídos por la DGEEC, Sep. 2020.



Aserradero - Paso Barrero



Municipalidad de Paso Barreto

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto - septiembre 2020

Actividades económicas

En el Distrito de Paso Barreto predominan las actividades relacionadas el sector primario con el 57,6%, seguido del sector terciario con 23,9% y finalmente con menor porcentaje, el sector secundario con el 17,0%. En la siguiente tabla se señalan los datos por sector económico de la población, tanto a nivel distrital como departamental.

Tabla 41. Población ocupada por sector económico

Datos de Población	Departamento de Concepción	de Distrito de Paso Barreto
Sector económico de la población ocupada	226.585	4.085
% Primario	40,9	57,6
% Secundario	15,7	17,0
% Terciario	42,2	23,9
% No informado	1,2	1,5

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Con respecto a las actividades económicas, los pobladores de las localidades de Paso Barreto, Isla Hermosa, Estribo del Plata y J.S. Miranda, han mencionado que las principales son la agricultura y pequeña ganadería con producción de leche y derivados, en su mayoría para auto consumo y la ganadería a gran escala por las estancias de la zona. Faena de vaca, gallina y ganado menor. Producción y venta de sombreros de karanday. También, pesca con fines comerciales y consumo, aserraderos, carbonerías y frigoríficos.

Asimismo, mencionaron que los pobladores migran por trabajo, los hombres desde temprana edad (a partir de los 12 años, algunos ya no continúan sus estudios), van al Chaco para trabajar en las estancias como jornaleros mediante contratistas; las mujeres, algunas trabajan en las estancias con sus esposos y otras migran a Pedro Juan Caballero, Asunción, Argentina y España.

Otro aspecto señalado radica en que las mujeres, en su mayoría se dedican a tareas del hogar, otras mujeres al comercio, decoración, alquileres, gastronomía en general, peluquería, corte y confección (se cuenta con capacitaciones del SNPP), y en algunos casos, funcionarias del Estado, así como algunos pobladores son funcionarios públicos y otros comerciantes.

4.4. Acceso a servicios

Acceso a Servicios básicos

En relación al acceso a servicios básicos en el distrito de Paso Barreto, se tienen datos proveídos por la DGEEC⁶². En la siguiente tabla se observa que en cuanto a energía eléctrica el 85,2% de las viviendas cuentan con este servicio; el 70,3% de las viviendas tienen acceso a agua corriente; el 22,1% de viviendas con saneamientos mejorados; en menor proporción el 0,1% de las viviendas cuentan con servicio de recolección de basura.

Tabla 42. Viviendas con acceso a servicios básicos

Datos de viviendas particulares Servicios básicos	Departamento de Concepción	Distrito de Paso Barreto
Viviendas particulares ocupadas con personas presentes	42.402	838
% Viviendas con energía eléctrica	93,1	85,2
% Viviendas con agua corriente ⁶³	74,4	70,3
% Viviendas con desagüe cloacal ⁶⁴	6,3	-
% Viviendas con recolección de basura	22,8	0,1
% Viviendas con saneamiento mejorado	46,9	22,1

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Así mismo, según los datos del Plan Local de Salud⁶⁵ en el mismo distrito, se observa que en la zona urbana cuentan con servicio de agua corriente y energía eléctrica. Sin embargo, las comunidades indígenas no acceden a estos servicios, se proveen de agua de arroyos, tajamares, aljibes y pozos.

En cuanto al manejo de residuos sólidos, los datos del Plan Local de Salud de Paso Barreto muestran que la Municipalidad no posee vertedero para la disposición y el tratamiento de estos y la práctica más usual es la quema⁶⁶. En relación al saneamiento básico, la mayoría de la población utiliza letrinas comunes, en menor proporción existen hogares que cuentan con baños modernos⁶⁷.

Pobladores de las localidades que han participado en la consulta para el presente estudio, de Paso Barreto, Isla Hermosa y J.S. Miranda, han mencionado que cuentan con red de agua potable a través de las juntas de saneamiento, algunos por vía de la gobernación, pero el mantenimiento es a través de las comisiones, a excepción de Estribo de Plata que no cuenta con comisión de agua y en su mayoría utilizan pozos.

Las comunidades indígenas de la zona cuentan con tanques, una tiene sistema de agua, otra no porque no tienen energía eléctrica, pero sacan del Río Aquidaban, pozo o de arroyos cercanos.

⁶² Datos solicitados y proveídos por la DEGEEC. Sep. 2020.

⁶³ Incluye: ESSAP, SENASA, red comunitaria, red privada, y pozo artesiano, con cañería fuera de la vivienda pero dentro del terreno o con cañería hasta la cocina y/o baño.

⁶⁴ Incluye: Desagüe por red pública, pozo ciego con y sin cámara séptica.

⁶⁵ MSPBS-CIRD. (2015) Plan Local de Salud de Paso Barreto. Período 2015-2018. Disponible en: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Paso_Barreto.pdf

⁶⁶ Ídem

⁶⁷ Ídem

En relación al acceso a desagüe pluvial, la única localidad que cuenta con este servicio es Paso Barreto y actualmente se encuentran trabajando en un proyecto de alcantarillado sanitario en la ciudad.

Con respecto al uso de Pozo séptico/Letrina/Otro, han mencionado que en Paso Barreto el 40% tiene letrina, debido a la vulnerabilidad y escasos recursos, en la zona urbana se utiliza pozo ciego y cámara séptica. En Isla Hermosa sólo el 2% cuenta con baño moderno, la mayoría dispone de letrina. En Estribo de Plata sólo en 5 viviendas se cuenta con pozo ciego, en su mayoría letrina y en J. S. Miranda la mayoría tiene baño común, menos del 45% tiene baño moderno (beneficiarios del proyecto de vivienda).

También, han mencionado que en el Distrito no cuentan con planta de tratamiento de basura ni con servicio de recolección, aún acuden a la quema o entierro; en la Ciudad de Paso Barreto se quema semanalmente en un sitio específico (en la Municipalidad).



Sistema de Agua Paso Barreto
Fuente: Registro fotográfico de trabajo de campo.
Equipo consultor. Concepción. Agosto -Septiembre 2020.

Así mismo, en las localidades consultadas se confirmó que existen viviendas que no cuentan con conexión de ANDE, como el caso de J.S. Miranda y Estribo de Plata. También mencionaron que tienen cortes muy seguido y que las instalaciones son muy precarias.



Horno para incineración de basura - Fuente:
Registro fotográfico de trabajo de campo. Equipo
Consultor. Concepción. Agosto -septiembre 2020.

Educación

Con respecto al acceso a la educación en el distrito de Paso Barreto, se cuenta con datos del Plan Local de Salud, los cuales reflejan que la mayoría de los niños y niñas accede a la educación escolar básica y un porcentaje muy bajo no acude a centros educativos, existe un gran porcentaje de jóvenes que estudia y practica deportes y al finalizar la educación media migran para estudios universitarios debido a que en el distrito no existe universidades⁶⁸.

⁶⁸ Ídem

Así mismo, datos del Ministerio de Educación y Ciencias (MEC)⁶⁹ revelan que en el Distrito de Paso Barreto, se encuentran 10 instituciones educativas en total, 3 ubicadas en el área urbana y 7 en el área rural, de las cuales 4 están situadas en asentamientos y 2 en comunidades indígenas. Se especifica, además, que, de esta totalidad de instituciones, 7 cuentan con Modalidad Inicial y Educación Escolar Básica (2 en área urbana y 5 en rural), en cuanto a la modalidad Educación Media, existen 2 instituciones (1 en área urbana y 1 en área rural). Los detalles se señalan en la tabla siguiente.

Tabla 43. Nivel educativo en el distrito por zona

Nivel de enseñanza	Total	Zona	
		Urbana	Rural
Educación inicial	7	2	5
Escolar Básica	7	2	5
Educación media	2	1	1
Total	16	5	11

Fuente: Elaboración en base a datos actualizados del MEC - Datos abiertos, Establecimientos escolares 2019



Colegio Gral. Marcial Samaniego



Escuela Isabel Paredes Chávez



Escuela María Auxiliadora

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -Septiembre 2020

Es importante aclarar que existen establecimientos que tienen más de una institución y que en las instituciones podría impartirse más de una modalidad.

A continuación, se presenta cada institución educativa y sus características:

Tabla 44. Instituciones educativas por zona, modalidad, acceso a agua y energía

Instituciones	Distrito de Paso Barreto						
	Localidad	Zona	Asentamiento	Comunidad Indígena	Modalidad	Agua	Energía
Escuela Básica N° 445 Isabel Paredes Chávez	Paso Barreto	Urbana	-	-	E.I. E.E.B.	SENASA	ANDE
Escuela Básica N° 15251 Inmaculada Concepción	Paso Barreto	Urbana	-	-	E.I. E.E.B.	SENASA	ANDE

⁶⁹ Disponible en: https://datos.mec.gov.py/data/establecimientos_escolares_priorizados_elegibles_fonacide

Instituciones	Distrito de Paso Barreto						
	Localidad	Zona	Asentamiento	Comunidad Indígena	Modalidad	Agua	Energía
Colegio Nacional Gral. Marcial Samaniego	Paso Barreto	Urbana	-	-	E.M.	SENASA	ANDE
Escuela Básica N° 15308 Hermes Arámbulo	Isla Tuyu	Rural	-	-	E.I. E.E.B.	SENASA	ANDE
Escuela Básica N° 2076	Isla Tuyu	Rural	-	-	E.I. E.E.B E.B.A.	SENASA	ANDE
Escuela Básica N° 1732 Dominga Ocariz de Samaniego	Col. Jorge Sebastián Miranda	Rural	-	-	E.I. E.E.B. E.M.	SENASA	ANDE
Escuela Básica N° 3229 San Juan Bautista	Col. Jorge Sebastián Miranda	Rural	Jhugua Ñandu	-	E.I. E.E.B.	SENASA	ANDE
Escuela Básica N° 14469 Virgen de las Mercedes	Col. Jorge Sebastián Miranda	Rural	Jhugua Ñandu	-	E.I. E.E.B.	SENASSA	ANDE
Escuela Básica N° 6291 Jeguahaty	Jeguahaty	Rural	Jeguahaty	Jeguahaty	E.E.B.	TAJAMAR	PANEL SOLAR
Escuela Bàsica N° 7577 Vy`a Renda	Vy`a Renda	Rural	Vy`a Renda	Vy`a Renda	E.E.B.	POZO ARTESIANO	ANDE

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

Formación Profesional y Técnica

En lo que refiere al acceso a la formación profesional y técnica, dentro del Departamento de Concepción se observan varias ofertas de enseñanza en instituciones públicas y privadas. Según los datos extraídos de la página oficial de SINAFOCAL, en el distrito de Paso Barreto está planificado impartir cursos de Operación Básica de Computadoras.

Salud

En el Plan Local de Salud de Paso Barreto⁷⁰ se señala que las enfermedades más frecuentes en los adultos son la hipertensión y la diabetes; en los niños y las niñas se observan enfermedades como anemia, parasitosis, afecciones respiratorias y enfermedades bucodentales.

Las actividades del profesional de la salud consisten en realizar visitas domiciliarias, seguimiento a pacientes con enfermedades crónicas, detección temprana de embarazos en la comunidad, desarrollo de charlas educativas, vacunación y prestación de servicios en consultorios móviles. En Paso Barreto se cuenta con:

- 1 Unidad de Salud de la Familia en Paso Barreto
- 1 Unidad de Salud de la Familia en Jorge Sebastián Miranda
- 1 Puesto de Salud Isla Tuyu
- 1 Farmacia privada
- En la Municipalidad funciona un dispensario de medicamentos gratuito
- 2 Parteras empíricas: realizan partos en la comunidad
- 6 Médicos Naturalistas: realizan atenciones y recetan remedios caseros en base a hierbas.



USF Paso Barreto -Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -Septiembre 2020

En cuanto a la disponibilidad de profesionales de la salud y otros, se cuenta con:

- 2 Médicos
- 2 Obstetras
- 3 Licenciadas en Enfermería
- 6 Auxiliares en Enfermería
- 1 Odontóloga
- 1 Chofer de Ambulancia
- 3 Personal de limpieza.

⁷⁰ MSPBS-CIRD. (2015) Plan Local de Salud de Paso Barreto. Período 2015-2018. Disponible en: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Paso_Barreto.pdf

Acceso a Tecnologías de información y medios de comunicación (TIC) y bienes de confort

Según los datos proveídos por la DGEEC, en relación al acceso a TICs, puede identificarse que en la gran mayoría de las viviendas del Distrito de Paso Barreto cuentan con radio, teléfono celular y televisor; en menor porcentaje cuentan con antena parabólica, TV cable, computadoras, entre otros. Los datos se detallan en porcentajes en la siguiente tabla.

Tabla 45. Equipos domésticos y TIC

Acceso a TIC	Departamento de Concepción	Distrito de Paso Barreto
Viviendas particulares ocupadas con personas presentes	42.402	838
% Viviendas con radio	80,6	79,5
% Viviendas con televisor	79,8	70,8
% Viviendas con teléfono fijo	8,0	0,5
% Viviendas con teléfono celular	83,3	77,7
% Viviendas con computadora	11,9	2,0
% Viviendas con computadora conectada a internet	9,2	1,2
% Viviendas con antena parabólica	10,8	19,3
% Viviendas con TV cable	13,4	2,0

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Los datos mencionados coinciden con la información brindada por los habitantes de las localidades consultadas (Paso Barreto, Isla Hermosa, Estribo de Plata y J. S. Miranda), quienes han indicado que los medios de comunicación más utilizados son: Radio, Televisión, Celulares y Redes Sociales.

Asimismo, se nombraron las siguientes emisoras radiales: Radio Regional AM de Concepción, la 89.9 de Horqueta, Radio Aquidabán y Santa Cecilia, Lira FM, Cristal FM 96.5 de Arroyito, Radio Loreto; canales de televisión: Canal 9 SNT, Telefuturo y canales por cable y Celulares con internet: a través de mensajería, llamadas y grupos de whatsapp (en algunas comunidades existe mala conexión a internet), y con la pandemia ha aumentado el uso para las tareas escolares.

Con relación a los bienes de confort en las viviendas, según datos entregados por la DGEEC, señalan que un alto porcentaje de las viviendas cuentan con motocicleta, heladeras y lavarropas, y en menor porcentaje con video/DVD, ducha eléctrica, aire acondicionado, horno microondas, automóvil/camioneta y termo-calefón.

Tabla 46. Equipos domésticos y Bienes de confort

Bienes de confort	Departamento de Concepción	Distrito de Paso Barreto
Viviendas particulares ocupadas con personas presentes	42.402	838
% Viviendas con heladera	68,1	61,8
% Viviendas con lavarropas	50,9	38,4
% Viviendas con video/DVD	21,2	8,9
% Viviendas con termocalefón	4,0	1,4

Bienes de confort	Departamento de Concepción	Distrito de Paso Barreto
% Viviendas con ducha eléctrica	25,7	7,2
% Viviendas con acondicionador de aire	15,2	4,4
% Viviendas con horno microondas	14,4	4,4
% Viviendas con automóvil/camioneta	9,9	3,9
% Viviendas con moto	74,3	80,7

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

5. Distrito de Loreto

5.1 Características generales

La Ciudad de Loreto se encuentra sobre una alta colina en el Departamento de Concepción, a una distancia de 20 km de la Ciudad Capital y a 440 km de Asunción. Limita con los distritos de Horqueta, Belén y Concepción. Se puede acceder a la ciudad por las rutas III Elizardo Aquino, V Bernardino Caballero y Coronel Franco-Chaco. Tiene una superficie de 996 km², organizada en 31 compañías rurales y 4 barrios urbanos⁷¹. Desde el año 1964 al año 1981 se crearon 11 colonias, correspondientes a 1969 lotes y 46.323 hectáreas⁷². El 80% vive en la zona rural.



Ciudad de Loreto. Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020

Según datos del Municipio, Loreto, conocida primeramente como “Paraje Jui’y, después “Capilla Zarza”, para posteriormente llamarse Loreto, en honor a “Nuestra Señora de Loreto”, fue fundada por Jesuitas, los cuales llegaron en 1686, pero tiene fecha de fundación el 10 de diciembre de 1792⁷³.

Desde lo expresado por los habitantes del distrito, de la ciudad de Loreto y localidades, se trata de un lugar con aspectos muy valorados por los mismos; “la tranquilidad, la armonía y la seguridad”, “conocerse entre pobladores”, “solidaridad” y “buena tierra para agricultura y ganadería”.

Asimismo, se comentó respecto de espacios de esparcimiento al aire libre y fiestas tradicionales en el distrito; fiestas patronales⁷⁴, la mayoría relacionadas al ámbito religioso, festivales, juegos tradicionales, laceda mecánica, torneos deportivos, carreras de caballo, bingo, jineteadas, entre otras. En la localidad de Jhugua Po’i, desde la USF se organizan actividades como charlas educativas con el club de embarazadas y el club de adultos mayores y en todas las escuelas se realizan festejos por el día del niño. En la localidad de Virgen del Camino mencionaron a la Asociación Cooperadora

⁷¹ Plan de Desarrollo Municipal de Loreto 2016. Disponible en: <http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>

⁷² Rojas, L. y Areco, A. (2017). Las Colonias Campesinas en el Paraguay.

⁷³ Datos de la Municipalidad de Loreto. Disponible en: <http://www.municipalidadloreto.gov.py/>

⁷⁴ En la ciudad de Loreto celebran esta fiesta en el mes de diciembre y en las demás comunidades consultadas en los meses de junio, octubre y noviembre.

Escolar (ACE) que organiza actividades para recaudar fondos ante necesidades de la institución y de la comunidad.

5.2. Datos de Población

Según datos de la DGEEC3, la población total del departamento de Concepción es de 254.976 habitantes, de los cuales pertenecen al distrito de Loreto 18.879, es decir, el 7,40% del total departamental.

El distrito de Loreto está conformado por 10.034 hombres y 8.846 mujeres (Proyección 2020)⁷⁵ como puede observarse en la siguiente tabla.

Tabla 47. Proyección de la población total por sexo, según distrito. Año 2020

Distrito de Loreto	Población	Porcentajes
Hombres	10.034	53,15
Mujeres	8.846	46,86
Total (ambos sexos)	18.879	100
% Población total del distrito por total departamental	254.976	7,40

Fuente: Elaboración propia en base a datos de la DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

Igualmente se presentan a continuación las cifras proyectadas de evolución de la población del distrito de Loreto en los últimos 5 años, donde se observa que la diferencia en términos de cantidad de hombres y mujeres se ha sostenido en dicho periodo, es decir que hasta el 2020 hay mayor cantidad de hombres en el distrito.

Tabla 48. Evolución de la población de Loreto en los últimos 5 años (2016-2020)

Distrito de Loreto Población por sexo	Año				
	2016	2017	2018	2019	2020
Hombres	9.782	9.847	9.911	9.973	10.034
Mujeres	8.732	8.761	8.790	8.818	8.846
Población total	18.514	18.608	18.701	18.791	18.879

Fuente: DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

Los datos que se presentan a continuación, sobre la proyección de la evolución de la población en los siguientes 5 años, fueron proporcionados por la DGEEC, donde se identifica que existen diferencias en las cifras de proyección de la población al 2020 (tabla anterior), debido a las distritaciones que fueron dándose de manera posterior a la aplicación del censo 2012.

La siguiente tabla señala que para el año 2025 la población de Loreto crecería 1,29%, pasando de 17.312 a 17.538 habitantes.

⁷⁵ DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025. Disponible en: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

Tabla 49. Evolución de la población en los siguientes 5 años (2020-2025)

Departamento y distrito	Año					
	2020	2021	2022	2023	2024	2025
Dpto. Concepción	254.976	258.653	62.360	266.072	269.805	273.579
Loreto	17.312	17.362	17.411	17.456	17.497	17.538

Fuente: STP/DGEEC. Paraguay. Proyección de la población por sexo y edad, según distrito, 2000-2025. Revisión 2015.

Hogares, vivienda

En cuanto a la condición de propiedad de la vivienda, en la zona de influencia directa del proyecto, datos otorgados por la DGEEC⁷⁶ indican que en el Distrito de Loreto existe un total de 3.063 viviendas particulares ocupadas, de esta cantidad, el mayor porcentaje de condición de propiedad pertenece a “viviendas propias”, seguidamente la condición de propiedad “prestada o cuidan”, “alquilada” y por último en menor porcentaje, “pagando en cuotas”, “en condominio” y “ocupada de hecho”. Los datos se detallan en la siguiente tabla.

Tabla 50. Condición de propiedad de la vivienda

Condición de propiedad de la vivienda	Departamento de Concepción	Distrito de Loreto
Viviendas particulares ocupadas con personas presentes	42.402	3.063
% Es propia	85,2	92,0
% La están pagando en cuotas	0,9	0,1
% Es en condominio	0,4	0,2
% Es alquilada	5,1	1,6
% Es prestada, la cuidan	7,5	5,6
% Es ocupada de hecho	0,8	0,5
% No informado	0,1	-

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Según el plan local de Salud de Loreto 2014/2016, el área urbana está integrada por los siguientes Barrios: San Francisco, Santo Domingo, Barrio Centro, Nazareth, San Antonio, Fátima, Conavi. Y el área rural integrado por las siguientes compañías: Costa Florida, Loma Florida, San José mí, Zanja Cue San Miguel, Zanja Cue Virgen de Fátima, Zanja Cue Virgen del Rosario, Ycua Pora, Cañada Lourdes, Cañada La Paz, Villa Don Bosco, Costa Pucu, Costa Ferreira, Torales San Marcos, Torales San Roque, Torales Santo Tomas, Zanja Cue Agaigo, Santísima Trinidad, Virgen del Camino, Jhugua Rivas La Asunción, Jhugua Poi, Jhugua Guazú, Isleria, Laguna Cristo Rey, Anderi, Jhugua Rivas San Pablo, Jhugua Bonete, San Isidro, Boquerón, Virgen del Carmen.

Necesidades Básicas Insatisfechas (NBI)

Con respecto a las NBI, se señala que en el 59,5% de los hogares de Loreto se tiene al menos una NBI, el 33,1% de hogares con NBI en infraestructura sanitaria, seguidamente el 21,3% de los hogares con NBI en calidad de vivienda, el 20,7% corresponde a hogares con NBI en capacidad de

⁷⁶ Datos solicitados y proveídos por la DGEEC. Sep. 2020.

subsistencia y por último el 15,8% a los hogares con NBI en acceso a la educación. Los datos se detallan en la siguiente tabla.

Tabla 51. Hogares con NBI, según departamento y distrito

Indicadores de Necesidades Básicas Insatisfechas (NBI) (%)	Total País	Departamento de Concepción	Distrito de Loreto
Hogares particulares ocupados con personas presentes	1.232.496	42.638	3.063
% Hogares con al menos una NBI	43,0	56,2	59,5
% Hogares con NBI en calidad de la vivienda	12,6	19,0	21,3
% Hogares con NBI en infraestructura sanitaria	20,8	29,7	33,1
% Hogares con NBI en acceso a la educación	15,7	20,3	15,8
% Hogares con NBI en capacidad de subsistencia	14,9	19,8	20,7

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012 y Tríptico Necesidades Básicas Insatisfechas (NBI) 2012. Paraguay en base a STP-DGEEC. Censo Nacional de Población y Viviendas 2012.

5.3. Economía

Según datos proveídos por el Plan de Desarrollo Municipal y el Plan Local de Salud, la economía del Distrito de Loreto se sustenta básicamente de la agricultura y la ganadería. Los pobladores del distrito se dedican a proveer los principales productos para el consumo local; sésamo, sandía, melón, mandioca, entre otros, así como también, cría de aves, porcina, caprina y bovina. Por otro lado, en menor proporción, realizan actividades vinculadas al sector de servicio y comercio, considerando que en el distrito se encuentran instituciones públicas y aserraderos que constituyen fuentes de empleo. Se indica, además, que aún se carece de servicios públicos fundamentales y que la población registra una alta tasa de pobreza, siendo el 70% de la población pobre⁷⁷.

Actividades económicas

En cuanto a las actividades económicas del Distrito de Loreto, la información otorgada por la DGEEC indica la prevalencia de las actividades productivas relacionadas al sector primario, seguidamente las actividades del sector terciario y finalmente, el sector secundario. Los datos se detallan en porcentaje en la siguiente tabla.

Tabla 52. Población ocupada por sector económico

Datos de Población	Departamento de Concepción	de Distrito de Loreto
Sector económico de la población ocupada	226.585	16.817
% Primario	40,9	66,1
% Secundario	15,7	8,0
% Terciario	42,2	25,1
% No informado	1,2	0,8

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

⁷⁷ Plan de Desarrollo Municipal Loreto. 2016. Disponible en: <http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>

En las comunidades consultadas se mencionó que las actividades productivas se encuentran muy vinculadas aún a la agricultura que progresivamente se va convirtiendo en producción solo para autoconsumo. Según comentaron en la localidad de Virgen del Camino no se comercializa a buen precio, razón por la cual el sésamo por ejemplo ya no es rubro rentable.

Se comentó, además, que una actividad importante en la zona es el trabajo realizado en estancias del Chaco, por día o por trabajo (llamado también “por trato”), también en estancias de la zona y de acuerdo con la temporada, se hace limpiezas de campos; asimismo, personas que trabajan en la capital departamental (frigorífico Concepción). En el caso de las mujeres, se mencionó que las mismas al finalizar el colegio migran a Concepción a buscar trabajo, otras se hacen cargo del hogar, trabajan como docentes o trabajadoras domésticas y que numerosos pobladores migraron a países extranjeros (España, Argentina).

La pequeña ganadería también fue mencionada, afirmando que es para consumo y venta, igualmente la producción y venta de lácteos y derivados además de cría de aves. En Jhugua Po'i se mencionó que el 50% de la población masculina de la comunidad trabaja en estancias de la zona (como peones) y en Jhugua Guazú ocurre lo mismo sólo que resaltaron el hecho de que es población joven la que trabaja de este modo. En Isería se mencionó como actividad importante la pesca en los riachos cercanos.

En la localidad de Anderí, un rubro característico de la comunidad es la elaboración y venta de sombreros de karanda'y, toda la familia se dedica se dedica al mismo rubro y la venta es concretada con compradores (patrón) que revenden en Pedro Juan Caballero y Brasil. Como actividad de changa hay motosierristas. En general se mencionó que se cuenta con pequeños comercios y despensas.



Despensa- Huguá Po'i



Ganadería- Virgen del Camino



Comedor -Laguna Cristo rey



Producción Hortícola- Jhugua Guazú

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020

5.4. Acceso a servicios

Acceso a servicios básicos

En el Distrito de Loreto, según los datos proveídos por la DGEEC⁷⁸, en cuanto a energía eléctrica se puede observar que el 91,3% de las viviendas cuenta con este servicio; el 72,2% de las viviendas cuenta con agua corriente; solo el 25,8% de viviendas con saneamiento mejorado; el 9,2% cuenta con servicio de recolección de basura, como pueden verse en la tabla siguiente.

⁷⁸ Datos solicitados y proveídos por la DGEEC. Sep. 2020.

Tabla 53. Viviendas con Acceso a Servicios Básicos

Datos de viviendas particulares Servicios básicos	Departamento de Concepción	Distrito de Loreto
Viviendas particulares ocupadas	42.402	3.063
% Viviendas con energía eléctrica	93,1	91,3
% Viviendas con agua corriente ⁷⁹	74,4	72,2
% Viviendas con desagüe cloacal ⁸⁰	6,3	-
% Viviendas con recolección de basura	22,8	9,2
% Viviendas con saneamiento mejorado	46,9	25,8

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Otros datos extraídos del Plan Local de Salud guardan relación con información respecto al acceso a servicios de agua corriente, se señala que los habitantes del área urbana y rural del distrito de Loreto acceden a este servicio a través de Juntas de Saneamiento.



Sistema de Agua Tercera Zona - Huguá Guazú



Sistema de Agua Huguá Po'í



Sistema de Agua Santísima Trinidad



Sistema de Agua Virgen del Camino

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020.

Con relación al servicio sanitario, se indica que predomina la letrina común en las viviendas del área rural, así como también en algunas zonas del área urbana. Se estima que un bajo porcentaje de viviendas cuentan con baño moderno, sin embargo, no se dispone del desagüe cloacal⁸¹.

En cuanto a eliminación de residuos, algunas viviendas de la zona urbana tienen acceso al servicio de recolección que es proveído por la Municipalidad, mientras que en las zonas rurales la práctica predominante para eliminar los residuos sólidos es la quema.

La mayor parte de la información presentada fue coincidente con lo mencionado por pobladores involucrados al trabajo de campo en el marco de elaboración del presente estudio, de lo cual se mencionan los siguientes aspectos:

- En las localidades vinculadas al trabajo de relevamiento de información se confirmó que se cuenta con conexión de ANDE en su totalidad, no así con servicio de recolección de basura.

⁷⁹ Incluye: ESSAP, SENASA, red comunitaria, red privada, y pozo artesiano, con cañería fuera de la vivienda pero dentro del terreno o con cañería hasta la cocina y/o baño.

⁸⁰ Incluye: Desagüe por red pública, pozo ciego con y sin cámara séptica. [Ver qué decía en el borrador, es importante por q menciona desagüe](#)

⁸¹ MSPBS-CIRD. Plan Local de Salud de Loreto. Periodo 2014-2016. Disponible en: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Loreto.pdf

Los residuos se queman o se tiran en hoyos. En la localidad de Jhugua Guazú, en algunas viviendas clasifican las basuras, ya que tienen chacras y las utilizan para abono.

- En las 7 localidades involucradas se cuenta con internet y teléfonos celulares. En el caso de la comunidad Anderí comentaron que la conexión tiene muchas falencias.
- Ninguna localidad visitada cuenta con desagüe cloacal.
- En la totalidad de las localidades todavía se utiliza letrinas (Anderí, Jhugua Guazú, y Santísima Trinidad), sin embargo, en varias de ellas mencionaron contar ya con baños modernos o semi-modernos, incluyendo la utilización de pozo ciego. Tal es el caso de Laguna Cristo Rey donde el 70% de familias ya utiliza baño moderno/pozo ciego.
- En las localidades mencionaron abastecerse de agua mediante pozos para auto consumo en algunos casos y para uso doméstico (también para consumo animal) en general, en el caso de la localidad Virgen del Camino, 18 familias aproximadamente dependen de 1 pozo. Solo en una localidad se mencionó no contar con comisión o junta de agua y se afirmó no contar con asistencia de SENASA (Islería).

Educación

Con base a los datos extraídos del Plan Local de Salud y de documentación del Ministerio de Educación y Ciencias, en relación al acceso a la educación en el distrito de Loreto, se identifica que la mayoría de los niños, niñas y adolescentes acceden a la educación escolar básica y a la educación media en las instituciones públicas ubicadas en el mismo distrito.

Según datos obtenidos del Ministerio de Educación y Ciencias (MEC)⁸², en el Distrito de Loreto se encuentran 38 establecimientos educativos, de la totalidad, 25 tienen modalidad de Educación Inicial (4 en área urbana y 21 en rural), 33 establecimientos cuentan con modalidad de Educación Escolar Básica (5 en área urbana y 28 en rural), 11 establecimientos con modalidad de Educación Media (2 en área urbana y 9 en el rural) y un establecimiento con modalidad de Educación Media Abierta en el área rural.

Tabla 54. Nivel educativo por zona

Nivel educativo	Zona		
	Total	Urbana	Rural
Educación inicial	25	4	21
Escolar Básica	33	5	28
Educación media	11	2	9
Educación media abierta	1	-	1
Total	70	11	59

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

Es importante aclarar que existen establecimientos que tienen más de una institución y que en las instituciones podría impartirse más de una modalidad.

En lo que refiere a la educación superior, en el Departamento de Concepción existen diversas instituciones que ofrecen formación profesional, pública y privada, con una gran concentración en

⁸² https://datos.mec.gov.py/data/establecimientos_escolares_priorizados_elegibles_fonacide

la capital departamental. La mayoría de las universidades ofrece carreras en humanidades, notándose un déficit en la oferta de carreras de las ciencias exactas.

Por otra parte, cabe señalar que el distrito de Loreto cuenta con un Centro de Alfabetización para jóvenes y adultos que no culminaron la educación primaria. Así también están habilitadas escuelas de danza, guitarra, entre otros.



Escuela Virgen del Rosario-Anderi



Escuela Santísima Trinidad - Santísima Trinidad



Escuela Básica N° 1723 Laguna Cristo Rey



Colegio Nacional Sagrado Corazón de Jesús- Jhugua Guazú

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020.

En cuanto al acceso a servicios básicos como energía eléctrica en los establecimientos educativos, 29 de la totalidad cuentan con este servicio por parte de la ANDE. Existen diferentes medios por los cuales estas instituciones acceden al agua, en su mayoría a través de SENASA, en menor proporción por medio de pozo artesiano, junta de saneamiento, red comunitaria.

Entre las problemáticas en el acceso a la educación se indican, alta deserción en la modalidad escolar básica y media, atendiendo la necesidad económica de los jóvenes de este distrito y la falta de empleo local que genera la migración de los jóvenes a la capital de Concepción u otras ciudades como Asunción. Por otro lado, si bien existen universidades públicas y privadas se cuestiona la calidad educativa de las mismas. Ante esta situación se cuenta con el registro de las carreras acreditadas en el Departamento de Concepción, por la Agencia Nacional de Evaluación y Acreditación de la Educación Superior (ANEAES).

A continuación, se presenta cada institución educativa y sus características:

Tabla 55. Instituciones educativas por zona, modalidad y acceso a servicios básicos.

Instituciones	Distrito de Loreto				
	Localidad	Zona	Modalidad	Agua	Energía
Escuela Básica N° 4919 Virgen de Fátima y Centro 1 -12	B° Fátima	Urbana	E.I., E.E.B.	SENASA	ANDE
Escuela Básica N° 29 Expectación Bernal y Sede Tutorial N° 36	Fátima	Urbana	E.I., E.E.B., E.M.	Junta de Saneamiento	ANDE
Colegio Nacional John F. Kennedy	Fátima	Urbana	E.E.B.,E.M.	SENASA	ANDE
Escuela Básica N° 1312 Vitalina Torres Vda. de Garcete	Centro	Urbana	E.I., E.E.B.	SENASA	ANDE
Centro Integral Educativo Divino Niño Jesús	Centro	Urbana	E.I.	SENASA	ANDE
Colegio Nacional Nuestra Señora de Loreto	Santo Domingo	Urbana	E.E.B.	SENASA	ANDE

Instituciones	Distrito de Loreto				
	Localidad	Zona	Modalidad	Agua	Energía
Escuela Básica N° 4921 Virgen del Rosario	Anderi	Rural	E.E.B.	-	-
Escuela Básica N° 1720 San Roque	Beato Roque	Rural	E.I., E.E.B., E.M.	Red Comunitaria	ANDE
Escuela Básica N° 2092 Prof. María Cantalicia González Vda. de Chamorro	Beato Roque González	Rural	E.E.B.	SENASA	ANDE
Escuela Básica N° 590 Josefina Ojeda Maidana	Cañada La Paz	Rural	E.I., E.E.B.	Pozo Artesiano	ANDE
Colegio Nacional Cañada La Paz	Cañada La Paz	Rural	E.M.	SENASA	ANDE
Escuela Básica N° 2077 Virgen de Lourdes	Cañada Lourdes	Rural	E.I., E.E.B.	SENASA	ANDE
Escuela Básica N° 1729 Santo Domingo Sabio	Costa Pucu	Rural	E.I., E.E.B.	SENASA	ANDE
Escuela Básica N° 4335	Domínguez Nigó	Rural	E.E.B.	-	-
Escuela Básica N° 2669 Intendente Rodolfo Schreiber	Isleria	Rural	E.I., E.E.B.	-	-
Escuela Básica N° 2082 Divino Niño Jesús	Jhugua Bonete	Rural	E.I., E.E.B., E.M.	Pozo Artesiano	ANDE
Colegio Nacional Sagrado Corazón de Jesús	Jhugua Guazu	Rural	E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 1724 Monseñor Alejo del Carmen Obelar	Jhugua Guazu	Rural	E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 4931 María Auxiliadora	Jhugua Guazu	Rural	E.I., E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 1727 San Rafael	Jhugua Po'i	Rural	E.I., E.E.B., E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 2083 Ntra. Sra. de la Asunción	Jhugua Rivas	Rural	E.I., E.E.B., E.M.A	SENASA	ANDE
Escuela Básica N° 1726 San Pablo	Jhugua Rivas San Pablo	Rural	E.I., E.E.B., E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 4934 San Vicente	Jhugua Rivas San Vicente	Rural	E.I., E.E.B.	-	-
Escuela Básica N° 4932 Virgen del Carmen	Jhugua Rivas Virgen del Carmen	Rural	E.I., E.E.B.	-	-
Escuela Básica N° 1723 Lic. Andrés Tadeo Morel C.	Laguna Cristo Rey	Rural	E.I., E.E.B., E.M.	-	-
Escuela Básica N° 6693 María Auxiliadora	Potrero Tacuara	Rural	E.E.B.	-	-
Escuela Básica N° 1728 Loreto Arce	San José mi	Rural	E.I., E.E.B.	SENASA	ANDE
Escuela Básica N° 2078 San Miguel	Sanja Cué	Rural	E.E.B.	SENASA	ANDE
Escuela Básica N° 594 Virgen de Fátima	Sanja Cue, Fatima	Rural	E.I.	SENASA	ANDE
Colegio Nacional Santa Librada y Escuela Básica N° 591 Guillermo Coronel	Sanja Cue Santa Librada	Rural	E.I., E.E.B., E.M.	SENASA	ANDE

Instituciones	Distrito de Loreto					
	Localidad	Zona	Modalidad	Agua	Energía	
Escuela Básica N° 2079 Virgen del Rosario	Sanja Cue del Virgen del Rosario	Rural	E.I., E.E.B.	SENASA	ANDE	
Escuela Básica N° 6970 Santísima Trinidad	Santísima Trinidad	Rural	E.E.B.	Pozo Artesiano	ANDE	
Escuela Básica N° 4926 Pbro. Néstor Echague Galeano	Villa Don Bosco	Rural	E.I., E.E.B.	SENASA	ANDE	
Escuela Básica N° 2084 Virgen del Camino	Virgen del Camino	Rural	E.I., E.E.B.	SENASA	ANDE	
Escuela Básica N° 1725 Virgen de las Mercedes	Ycua Porâ	Rural	E.I., E.E.B.	SENASA	ANDE	
Colegio Nacional Ycuá Porâ	Ycua Porâ	Rural	E.M.	Red Comunitaria	ANDE	
Escuela Básica N° 4927 San Marcos	San Marcos	Rural	E.E.B.	-	-	
Escuela Básica N° 11892 Las Palmas	Las Palmas	Rural	E.I., E.E.B.	-	-	

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

Formación profesional y técnica

En lo que refiere al acceso a la formación profesional y técnica, dentro del Departamento de Concepción se observan varias ofertas de enseñanza, según datos extraídos de la Información complementaria en el marco de los estudios sociales (Componente Industrial-Pág. 18) los cuales se especifican en la siguiente tabla.

Tabla 56. Instituciones de formación de carreras técnicas

Instituciones	Distritos	Carreras técnicas
Infoservice	Concepción Loreto San Pedro del Ykuamandyju	Operador básico Auxiliar informática Administración y finanzas Asistente de supermercado y cajero Diseño gráfico publicitario Marketing digital Excel profesional Word profesional Inglés

Fuente: Información complementaria en el marco de los estudios sociales (Componente Industrial-Pág. 18)

Salud

Según datos publicados por el Ministerio de Salud Pública y Bienestar Social, el distrito de Loreto cuenta con 5 centros asistenciales de salud pública, distribuidos en la zona, los cuales se mencionan a continuación.

- Centro de Salud Loreto
- USF Huguá Guazu
- USF Jhuguá Poi
- USF Zanja Cue

- USF Cañada la Paz



USF-Jhugua Guasu



Dispensario de Salud- Huguá Po'i



USF- Huguá Po'i

El Plan Local de Salud indica que el distrito cuenta además con otros tipos de servicios orientados a la atención en la salud de sus habitantes, como:

- 1 Centro de Salud
- 2 Puestos de Salud: Sanja Cue y Jhugua Guazu
- 1 USF en Jhugua Poi
- 1 Dispensario médico en Huguá Rivas
- 1 Farmacia Social administrado por el Consejo Local de Salud
- 6 Farmacias privadas
- 15 Parteras empíricas

Además, el Plan Local de Salud indica que el Centro de Salud cuenta con 38 funcionarios, 34 corresponden a personal de blanco y 4 administrativos, de los cuales 14 son contratados por el Consejo Local de Salud (41%). Tipo de personal de salud: 3 médicos, 8 licenciadas en enfermería, 5 licenciadas en obstetricia, 2 auxiliares en obstetricia, 10 auxiliares técnicos, 3 técnicos en enfermería, 1 licenciada en Farmacia, 1 técnico en Farmacia, 2 administrativos, 1 peón de patio, 1 electricista, 1 Sereno.

De acuerdo a esta fuente, se desarrollan en el distrito actividades de educación comunitaria con el apoyo del personal de salud, en los centros asistenciales, en los clubes de madres, en capillas y audiciones radiales, esto a fin de fomentar a la población en general acudir a las unidades de salud y llevar una vida saludable.

Según datos brindados por los pobladores de las localidades visitadas en el marco del trabajo de campo se presta actualmente los siguientes servicios:

Todas las consultas de carácter no respiratorio como Hipertensos y pacientes crónicos.

- Urgencias leves y se deriva de acuerdo al caso.
- Control prenatal
- Testeo rápido VIH Sida Hepatitis B, Chagas (de carácter voluntario) pero para las embarazadas y sus parejas son obligatorias.

- Vacunación de niños, ancianos y adultos,
- Consultas domiciliarias
- Test para recién nacidos.

Según indicaron, se realiza atención primaria en la comunidad, buscando que sea una atención integral (“vemos todo, si hay violencia intrafamiliar, los que fuman o los que son alcohólicos”).

Acceso a tecnologías de información y medios de comunicación (TIC) y bienes de confort

Con relación al acceso a TIC, según los datos facilitados por la DGEEC, en el Distrito de Loreto, el 83,2% de las viviendas cuentan con radio; del 80,0% de las viviendas que cuenta con televisor, el 8,2% tiene TV cable; el 4,4% de las viviendas cuentan con teléfono fijo; el 84,1% de las viviendas con teléfono celular; y del 5,4% de viviendas con computadora, el 4,3% tiene conectado a internet; el 5,4% de las viviendas cuenta con antena parabólica.

Tabla 57. Equipos domésticos y TIC

Acceso a TIC	Departamento de Concepción	Distrito de Loreto
Viviendas particulares ocupadas con personas presentes	42.402	3.063
% Viviendas con radio	80,6	83,2
% Viviendas con televisor	79,8	80,0
% Viviendas con teléfono fijo	8,0	4,4
% Viviendas con teléfono celular	83,3	84,1
% Viviendas con computadora	11,9	5,4
% Viviendas con computadora conectada a internet	9,2	4,3
% Viviendas con antena parabólica	10,8	4,8
% Viviendas con TV cable	13,4	8,2

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

A través del trabajo de campo se pudo acceder a información respecto a los siguientes medios de comunicación como:

- Tipo de medios de comunicación utilizados: Radio, Televisión, Celulares, Redes Sociales.
- Emisoras radiales: Radio Cristiana 107.5 Misión de Dios, Tekopyahu de Loreto, Regional AM de Concepción, Ypané de Concepción, Radios de Paso Barreto y Arroyito, la 89.9 de Horqueta, Radio Aquidabán
- Canales de televisión: Canal 9 SNT, Telefuturo y canales por cable y antena satelital.
- Celulares con internet: a través de mensajería, llamadas y grupos de whatsapp (en algunas comunidades se cuenta con mala conexión a internet)

En relación a los bienes de confort en las viviendas del Distrito de Loreto, según datos entregados por la DGEEC, el 64,2% de las viviendas cuentan con heladeras; el 44,8% con lavarropas; el 16,3 % con video/DVD; el 2,2% con termo-calefón; el 16,0% con ducha eléctrica; el 6,4% con aire acondicionado; el 11,7% con horno microondas; el 5,0% con automóvil/camioneta y el 73,8% con moto.

Tabla 58. Equipos domésticos y bienes de confort

Bienes de confort	Departamento de Concepción	Distrito de Loreto
Viviendas particulares ocupadas con personas presentes	42.402	3.063
% Viviendas con heladera	68,1	64,2
% Viviendas con lavarropas	50,9	44,8
% Viviendas con video/DVD	21,2	16,3
% Viviendas con termo-calefón	4,0	2,2
% Viviendas con ducha eléctrica	25,7	16,0
% Viviendas con acondicionador de aire	15,2	6,4
% Viviendas con horno microondas	14,4	11,7
% Viviendas con automóvil/camioneta	9,9	5,0
% Viviendas con moto	74,3	73,8

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

6. Distrito de Arroyito

6.1. Características generales



Municipalidad de Arroyito Fuente: La Nación.⁸³

Arroyito es un distrito ubicado en la zona este del departamento de Concepción, a 78 kilómetros de la capital departamental. El 22 de noviembre del año 2016 fue declarado distrito, separándose de Horqueta, por Ley N° 5.742. Se encuentra al norte de la capital del país, Asunción, a 390 Kilómetros y las principales vías de comunicación terrestre que conectan a ambas ciudades son las rutas 3 “General Elizardo Aquino” y 5 “General Bernardino Caballero”.

Según se indica en una de las fuentes de consulta “Desde el año 2013 su población inició la cruzada para lograr la autonomía distrital alegando el notorio crecimiento poblacional⁸⁴” lo que implicó posteriormente la desafectación de una superficie de aproximadamente 88.000 hectáreas que dependían del distrito de Horqueta (880 km²). En cuanto al gobierno municipal, el intendente y concejales municipales fueron electos en el mes de marzo del 2017, según lo establecido por el Tribunal Superior de Justicia Electoral (TSJE).

6.2. Datos de Población

Según datos de la DGEEC, la proyección de población del Departamento de Concepción es de 254.976, perteneciendo al Distrito de Arroyito 13.181 habitantes. Esta totalidad representa el 5,16% de la población del departamento.

De estos datos publicados, se puede notar un pequeño aumento en la proyección de la población del distrito de Arroyito en los siguientes 5 años, presentados en la siguiente tabla.

Tabla 59. Evolución de la población en los siguientes 5 años (2020-2025)

Departamento y distrito	Año					
	2020	2021	2022	2023	2024	2025
Dpto. Concepción	254.976	258.653	62.360	266.072	269.805	273.579
Arroyito	13.181	13.398	13.617	13.836	14.057	14.280

Fuente: STP/DGEEC. Paraguay. Proyección de la población por sexo y edad, según distrito, 2000-2025. Revisión 2015.

⁸³ Disponible en: <https://www.lanacion.com.py/pais/2020/01/30/exigen-en-arroyito-imputacion-de-intendente-e-intervencion-de-comuna/>

⁸⁴ Diario ABC color. Disponible en: <https://www.abc.com.py/nacionales/arroyito-convertido-en-distrito-1540198.html>

Hogares, vivienda

En relación a la condición de propiedad de la vivienda, según datos entregados por la DGEEC⁸⁵, en el Distrito de Arroyito, existen 2.011 viviendas particulares ocupadas, de las cuales el 91,8% corresponde a condición propia, el 7% a condición de prestada o cuidada, el 0,5% a ocupada de hecho, el 0,5% a alquilada y con el menor porcentaje, el 0,1% a en condominio. Todos estos presentados en la siguiente tabla.

Tabla 60. Condición de propiedad de la vivienda

Condición de propiedad de la vivienda	Departamento de Concepción	Distrito de Arroyito
Viviendas particulares ocupadas con personas presentes	42.402	2.011
% Es propia	85,2	91,8
% La están pagando en cuotas	0,9	0,0
% Es en condominio	0,4	0,1
% Es alquilada	5,1	0,5
% Es prestada, la cuidan	7,5	7,0
% Es ocupada de hecho	0,8	0,5
% No informado	0,1	-

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Según se indica en una de las fuentes consultadas, el sector urbano del distrito se encuentra poco desarrollado. Cuenta con 2 asentamientos campesinos que representan a más de la mitad de su población, como ser el asentamiento Arroyito con sus 6 núcleos (barrios). Este distrito cuenta con las siguientes compañías: Calle 13 Mata Burro, Calle 14-Zona Norte (San Antonio, Zona Sur (San Agustín), Calle 15, Calle 16, Calle 17, Calle 18, Arroyito, Acapitigo, Tacuara, Cuero Fesco, Arroyo de Oro y Primavera.

Necesidades Básicas Insatisfechas (NBI)

Tomando como fuente a la DGEEC, tanto en el tríptico de Necesidades Básicas Insatisfechas (NBI)⁸⁶, como en los datos sobre Medición de las NBI a partir del Censo Nacional de Población y Viviendas 2012⁸⁷, se indica que en el Distrito de Arroyito el 68,6% de los hogares cuenta con al menos una NBI; el 40,5% de hogares con NBI en infraestructura sanitaria; el 33% de los hogares con NBI en acceso a la educación; el 17,5% de los Hogares con NBI en capacidad de subsistencia y el 17,4% de los hogares con NBI en calidad de la vivienda. A continuación, pueden observarse las cifras en la siguiente tabla.

Tabla 61. Hogares con NBI, según departamento y distrito

Indicadores de Necesidades Básicas Insatisfechas (NBI) (%)	Total hogares	Departamento de Concepción	Distrito de Arroyito
Hogares particulares ocupados con personas presentes	1.232.496	42.638	2.012
% Hogares con al menos una NBI	43,0	56,2	68,6

⁸⁵ Datos solicitados y proveídos por la DGEEC, Sep. 2020.

⁸⁶ DGEEC. Necesidades Básicas Insatisfechas (NBI) 2012 PARAGUAY. Disponible en: <https://www.dgeec.gov.py/Publicaciones/Biblioteca/investigacion%20tematica/Triptico-de-necesidades-insatisfechas-NBI-2012.pdf>

⁸⁷ Datos solicitados y proveídos por la DEGECC, Sep. 2020.

Indicadores de Necesidades Básicas Insatisfechas (NBI) (%)	Total hogares	Departamento de Concepción	Distrito de Arroyito
% Hogares con NBI en calidad de la vivienda	12,6	19,0	17,4
% Hogares con NBI en infraestructura sanitaria	20,8	29,7	40,5
% Hogares con NBI en acceso a la educación	15,7	20,3	33,6
% Hogares con NBI en capacidad de subsistencia	14,9	19,8	17,5

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012 y Tríptico Necesidades Básicas Insatisfechas (NBI) 2012. Paraguay en base a STP-DGEEC. Censo Nacional de Población y Viviendas 2012.

6.3. Economía

Actividades económicas

Según los datos proveídos por la DGEEC, en el Distrito de Arroyito predomina el sector primario con porcentaje muy elevado, 80,3%, seguido del sector terciario con 15,5% y finalmente con un porcentaje mucho menor, el sector secundario, con el 4% como se puede observar en la siguiente tabla, en la que además se especifican las cifras en relación con el departamento.

Tabla 62. Población ocupada por sector económico - nivel departamental y distrital

Datos de Población	Departamento de Concepción	Distrito de Arroyito
Sector económico de la población ocupada ⁸⁸	226.585	11.540
% Primario	40,9	80,3
% Secundario	15,7	4,0
% Terciario	42,2	15,5
% No informado	1,2	0,3

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

6.4. Acceso a Servicios

Acceso a servicios básicos

En relación al acceso a servicios básicos, en el Distrito de Arroyito, en la tabla 66 se presentan los datos proveídos por la DGEEC⁸⁹, en la que puede observarse que en la mayoría de las viviendas se cuenta con servicio de energía eléctrica (94,6%); seguido de las viviendas que cuentan con agua corriente (58,2%); y en menor proporción las viviendas con saneamiento mejorado. Apenas el 0,1% cuenta con servicio de recolección de basura.

Tabla 63. Viviendas con Acceso a Servicios Básicos

Datos de viviendas particulares Servicios básicos	Departamento de Concepción	Distrito de Arroyito
Viviendas particulares ocupadas con personas presentes	42.402	2.011
% Viviendas con energía eléctrica	93,1	94,6

⁸⁸ Datos solicitados y proveídos por la DGEEC. Sep. 2020.

⁸⁹ Datos solicitados y proveídos por la DGEEC. Sep. 2020.

Datos de viviendas particulares Servicios básicos	Departamento de Concepción	Distrito de Arroyito
% Viviendas con agua corriente ⁹⁰	74,4	58,2
% Viviendas con desagüe cloacal ⁹¹	6,3	-
% Viviendas con recolección de basura	22,8	0,1
% Viviendas con saneamiento mejorado	46,9	19,0

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Como se indica en el Plan de desarrollo municipal⁹³, en el distrito existen deficiencias relacionadas a la vivienda y el hábitat. Asimismo, altos niveles de pobreza. Según el Mapa de Pobreza por Localidad, publicado por la STP, Arroyito cuenta con un nivel de pobreza superior al 40%, más acentuado principalmente en los Núcleos del 1 al 7.



Escuela Graduada N° 2475 Santa María de Cuero Fresco-
Fuente: Concepción al Día⁹²

Educación

Con respecto al acceso a la educación de la población del distrito de Arroyito, según datos oficiales del MEC, se cuenta con 32 instituciones educativas, de las cuales 24 tienen modalidad de Educación Inicial; 27 instituciones cuentan con modalidad de Educación Escolar Básica, todas ubicadas en el área rural y 6 instituciones con modalidad de Educación Media, de estas instituciones 1 es de especialidad Técnico Agropecuario, las mismas instituciones están asentadas 1 área urbana y 5 área rural. Estos datos se pueden observar en la siguiente tabla.

Tabla 64. Nivel educativo por zona

Nivel educativo	Total	Zona	
		Urbana	Rural
Educación inicial	24	-	24
Escolar Básica	27	-	27
Educación media	6	1	5
Total	57	1	56

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019

Es importante aclarar que existen establecimientos que tienen más de una institución y que en las instituciones podría impartirse más de una modalidad.

A continuación, se presenta cada institución educativa y sus características:

⁹⁰ Incluye: ESSAP, SENASA, red comunitaria, red privada, y pozo artesiano, con cañería fuera de la vivienda pero dentro del terreno o con cañería hasta la cocina y/o baño.

⁹¹ Incluye: Desagüe por red pública, pozo ciego con y sin cámara séptica.

⁹² Disponible en: <https://www.concepcionaldia.com/escuela-de-arroyito-no-tiene-aulas-agua-potable-ni-almuerzo-escolar/>

⁹³ Documento borrador del Plan de Desarrollo Municipal del Distrito de Arroyito 2016-2020.

Tabla 65. Instituciones educativas según ubicación, modalidad y acceso a servicios básicos

Instituciones Arroyito	Localidad	Zona	Asentamiento	Modalidad	Agua	Energía
Colegio Nacional Mayor Julio D. Otaño	Arroyito	Urbana	Colonia Ex - Combatiente	E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 443 Mayor Julio D. Otaño	Arroyito	Rural	Colonia Ex - Combatiente	E.I. y E.E.B.	SENASA	ANDE
Colegio Nacional Pablo Emiliano Quevedo Cordero	Arroyo de Oro	Rural	-	E.M.	SENASA	ANDE
Escuela Básica N° 1704 Pablo Emiliano Quevedo Cordero	Arroyo de Oro	Rural	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 2841	Asentamiento N° 1 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 4601 Defensores de los Derechos del Niño	Asentamiento N° 2 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 4354 Priv. Subv. San Roque González de S. Cruz	Asentamiento N° 2 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 4602 12 de Abril y Colegio Nacional 12 de Abril	Asentamiento N° 3 - Arroyito	Rural	Asentamiento Arroyito	E.E.B. y E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 2840 Priv. Subv. Mons. Anibal Maricevich	Asentamiento N° 3 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	Pozo Artesiano	ANDE
Colegio Técnico Agrop. Augusto Roa Bastos	Asentamiento N° 3 - Arroyito	Rural	Asentamiento Arroyito	E.M.	Privado	ANDE
Escuela Básica N° 4352 Priv. Subv. Santa Catalina	Asentamiento N° 4 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 4950 Mártires de Acosta Ñu	Asentamiento N° 4 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 4790 Mons. Anibal Maricevich Fleitas	Asentamiento N° 5 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 4355 Priv. Subv. Sagrada Familia	Asentamiento N° 5 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 4353 Priv. Subv. Moisés Bertóni	Asentamiento N° 6 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 6456 Prof. Dr. Luis María Argaña	Asentamiento N° 6 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	Pozo Artesiano	ANDE

Instituciones Arroyito	Localidad	Zona	Asentamiento	Modalidad	Agua	Energía
Escuela Básica N° 3213 Héroes del Chaco	Asentamiento N° 7 - Arroyito	Rural	Asentamiento Arroyito	E.I. y E.E.B.	-	-
Escuela Básica N° 4341 San Andrés	Calle 16 - Arroyito	Rural	Colonia Ex - Combatiente	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 4949 Acosta Ñu	Calle 16 - Arroyito	Rural	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 6696 Don Serapio Valenzuela	Calle 18 - Arroyito	Rural	-	E.I. y E.E.B.	Pozo Común	ANDE
Escuela Básica N° 1719 Gral. Bernardino Caballero y Colegio Nacional San Juan	Cañada San Juan	Rural	-	E.I., E.E.B. y E.M.	SENASA	ANDE
Escuela Básica N° 2460 Niño Milagroso	Colonia Choferes del Chaco	Rural	-	E.E.B.	-	-
Escuela Básica N° 2457 Santa María	Cuero Fresco	Rural	-	E.I. y E.E.B.	Pozo Común	ANDE
Escuela Básica N° 3979 Cnel. Panchito López	Cuero Fresco	Rural	-	E.I. y E.E.B.	Pozo Común	ANDE
Escuela Básica N° 4948 Don Alfonso Valiente	Lucero Cue - Arroyito	Rural	-	E.E.B.	-	-
Escuela Básica N° 4935 Adela Speratti	Primavera	Rural	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 4937 San Blas	Primavera	Rural	-	E.I. y E.E.B.	SENASA	ANDE
Colegio Nacional Mcal. Francisco Solano López	Tacuara	Rural	-	E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 1717 Mcal. Francisco Solano López	Tacuara	Rural	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 4146 6 de Enero	Tacuara	Rural	-	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 4943 San Antonio	Tacuara	Rural	-	E.I. y E.E.B.	Pozo Artesiano	ANDE

Fuente: Elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

Formación profesional y técnica

En cuanto a formación profesional y técnica, el SNPP habilitó dos cursos de Capacitación y Formación laboral, Informática y Ayudante Electricista, capacitación para jóvenes y adultos⁹⁴; curso de especialidad de Robótica Pitsco con la intención de promover la Ciencia, Tecnología, Ingeniería y Matemáticas (STEM) en la zona⁹⁵ y cursos de Secretariado ejecutivo, Productor de cultivos de renta,

⁹⁴ SNPP (2017). Disponible en: <https://www.snpp.edu.py/9-noticias/11957-snpp-arroyito-habilita-cursos-de-capacitacion-y-formacion-laboral.html>

⁹⁵ Concepción al día (2020). Disponible en: <https://www.concepcionaldia.com/snpp-habilita-curso-de-robotica-en-arroyito/>

Operador de computadoras, Ayudante de cocina, Cocina básica, Cultivo de mandioca y Cultivo de maíz⁹⁶.

Salud

Según datos extraídos de la página oficial del MSPyBS, el Distrito de Arroyito cuenta con 4 Unidades de Salud de la Familia y 1 Puesto de Salud⁹⁷, se citan a continuación:

- USF - Arroyito (Ruta 5)
- USF - Cuero Fresco
- USF - Asentamiento Arroyito Núcleo 3
- USF - Asentamiento Arroyito Núcleo 6
- Puesto de Salud - Asentamiento Arroyito Núcleo 7

Itaipú Binacional⁹⁸ financió en el distrito de Arroyito la construcción de 1 USF que fue inaugurada en el mes de agosto de 2020. La infraestructura de la misma cuenta con consultorios clínico, pediátrico y ginecológico, sala de parto, sala de rayos x, cocina, comedor y servicios sanitarios totalmente renovados y adecuados a personas con discapacidad, dispone de equipamientos médicos para cirugías menores y curaciones, estufa para esterilización, otoscopio, estetoscopio, oftalmoscopio, camilla ginecológica, balón de oxígeno, entre otros instrumentos y cuenta con un acceso para ambulancias a fin de facilitar el traslado de pacientes a otros centros de mayor complejidad, buscando cubrir la salud preventiva de al menos 5.000 pobladores.

Acceso a Tecnologías de información y medios de comunicación (TIC) y bienes de confort.

En relación al acceso a TICs, los datos facilitados por la DGEEC indican que en el Distrito de Arroyito, en la mayoría de las viviendas cuentan con teléfonos celulares, con radio y con televisor; y en menor proporción cuentan con antenas parabólicas, con computadoras; con internet, TV cable y teléfonos fijos, como se puede observar en la siguiente tabla:

Tabla 66. Equipos domésticos y acceso a TIC

Acceso a TIC	Departamento de Concepción	Distrito de Arroyito
Viviendas particulares ocupadas con personas presentes	42.402	2.011
% Viviendas con radio	80,6	80,3
% Viviendas con televisor	79,8	68,9
% Viviendas con teléfono fijo	8,0	0,7
% Viviendas con teléfono celular	83,3	83,1
% Viviendas con computadora	11,9	2,7
% Viviendas con computadora conectada a internet	9,2	1,1
% Viviendas con antena parabólica	10,8	11,8
% Viviendas con TV cable	13,4	0,9

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

⁹⁶ SNPP (2020). Disponible en: <https://www.facebook.com/snpp.paraguay/posts/1249901715198679/>

⁹⁷ MSPyBS disponible en <https://www.mspbs.gov.py/donde-consulta.php>

⁹⁸ Página Web Itaipu Binacional, Responsabilidad Social. Disponible en : <https://www.itaipu.gov.br/es/sala-de-prensa/noticia/usf-de-arroyito-financiada-por-itaipu-cubrir-la-salud-preventiva-de-5000-per>

Según se indica en el Plan de Desarrollo Municipal (borrador) se cuenta con dos estaciones de radio FM; Cristal FM y Arroyito comunicaciones 102.5.

En cuanto al acceso a bienes de confort en las viviendas del Distrito, la información otorgada por la DGEEC señala que un alto porcentaje de las viviendas cuentan con motocicletas; seguido de heladeras y lavarropas; en menor proporción, se trata de viviendas que cuentan con video/DVD; ducha eléctrica; automóvil/camioneta; horno microondas; y muy pocas viviendas cuentan con aire acondicionado y termo-calefón, como se puede observar en la siguiente tabla.

Tabla 67. Equipos domésticos y Bienes de confort

Bienes de confort	Departamento de Concepción	Distrito de Arroyito
Viviendas particulares ocupadas con personas presentes	42.402	2.011
% Viviendas con heladera	68,1	63,0
% Viviendas con lavarropas	50,9	44,2
% Viviendas con video/DVD	21,2	15,9
% Viviendas con termocalefón	4,0	1,1
% Viviendas con ducha eléctrica	25,7	8,9
% Viviendas con acondicionador de aire	15,2	1,8
% Viviendas con horno microondas	14,4	4,1
% Viviendas con automóvil/camioneta	9,9	4,6
% Viviendas con moto	74,3	76,7

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

7. Distrito de Horqueta

7.1. Características generales



Acceso ciudad de Horqueta⁹⁹

Horqueta se encuentra ubicada a 50 Km de la Ciudad de Concepción y a 434 km¹⁰⁰ de Asunción, a 172Km de Punta Porá (Brasil). Limita al norte con los distritos de Loreto, Concepción y el Río Aquidaban, al sur con el Río Ypané, al este con el distrito de Yby Yaú y al oeste con los distritos de Concepción y Belén. Contaba con una superficie de 2.925 Km² (antes de la distritación de Arroyito), distribuidas en zonas urbanas y rurales¹⁰¹. Desde el año 1917 al año 2001 se crearon 22 colonias, correspondientes a 6.957 lotes y 124.391 hectáreas¹⁰². Actualmente, cuenta con una superficie de 1.386 km².

La mayor parte de la población (75%)¹⁰³ habita en el área rural y el 98% se dedica a la agricultura y ganadería. Existen asentamientos y una comunidad indígena en el distrito y los caminos de acceso a las comunidades en su mayoría son de tierra y se encuentran en mal estado, con grandes distancias para llegar a la zona urbana.

La ciudad de Horqueta fue fundada el 10 de mayo de 1793, por Juan Manuel Gamarra con ayuda del Sacerdote Andrés Salinas.¹⁰⁴

Según datos del municipio¹⁰⁵ la ciudad tuvo su origen como capilla, en el siglo XVIII, fundada oficialmente en el año 1793. Fue la primera ciudad con calle peatonal del país. La ciudad lleva el nombre de Horqueta, porque se encuentra situada en la bifurcación de caminos, de ahí deriva su nombre.

Toponimia: El nombre de la ciudad se debe a que la misma nació del cruce de caminos, llamado "Tape Horqueta", lugar donde acampaban carretas después de largos viajes.

Los habitantes de las localidades de Paso Mbutu, Calle 15 y Domínguez Nigó, dependientes del distrito, que han participado de la consulta, han mencionado que el lugar es muy tranquilo y seguro,

⁹⁹ Disponible en: <https://www.facebook.com/224886260887864/photos/a.224886757554481/1154053567971124/>

¹⁰⁰ Distancia vial, de Asunción por la Ruta Transchaco y la Ruta 5 General Bernardino Caballero

¹⁰¹ Plan de Desarrollo Municipal Horqueta. Departamento de Concepción. 2016. Disponible en <https://www.cird.org.py/institucional/documentos/PDM%20Horqueta.pdf>

¹⁰² Rojas, L. y Areco, A. (2017). Las Colonias Campesinas en el Paraguay.

¹⁰³ MSPBS-CIRD. Plan local de Salud. Horqueta.

¹⁰⁴ Academic-esacademic.com. Disponible en: <https://esacademic.com/dic.nsf/eswiki/582747#Historia>

¹⁰⁵ Municipalidad de horqueta. Disponible en: <http://municipalidadhorqueta.gov.py/datos-de-horqueta/>

que existe unidad y solidaridad y que se conocen entre todos en la zona. Tienen una alta valoración el río y la naturaleza.

Entre las festividades del distrito han mencionado aquellas vinculadas al ámbito religioso, como fiestas patronales, procesiones y misas. Igualmente, fechas fundacionales y fechas específicas como día del niño y de la juventud. Según mencionaron en Paso Mbutú, en temporada de verano, especialmente en navidad y año nuevo el atractivo principal es la Playa. Esta es gestionada y administrada por la comisión vecinal.

Otras actividades son desarrolladas en clubes de personas con diabetes e hipertensión y de madres, organizadas por la USF.

Asimismo, torneos de fútbol femenino y masculino, laceada, carreras de caballero, vóley, llano, conocido comunitariamente como “carrera yvúrupi” (carrera a pie), actividades de la cooperativa escolar para recaudar fondos en el caso de Calle 15 y en Domínguez Nigó se mencionó entre otras actividades de recreación, la pesca en el río Aquidabán.

7.2. Datos de Población

Según datos de la DGEEC, la proyección de población del Departamento de Concepción es de 254.976, perteneciendo al Distrito de Horqueta 62.664 habitantes. Esta totalidad representa el 24,58% de la población del departamento. Horqueta está conformado por 32.477 hombres y 30.187 mujeres (Proyección 2020)¹⁰⁶. Como puede observarse en la siguiente tabla en su mayoría, es decir, el 51,83% de la población del distrito está conformada por hombres y el 48,17 % está conformada por mujeres.

Tabla 68. Proyección estimada de la población de la de Horqueta, por sexo. Año 2020

Distrito de Horqueta	Población	Porcentajes
Hombres	32.477	51,83
Mujeres	30.187	48,17
Total (ambos sexos)	62.664	100
% Población Total del Departamento	254.976	24,58

Fuente: Elaboración propia en base a datos de la DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025

Como se puede observar en la siguiente tabla sobre proyecciones de evolución/crecimiento de la población, la diferencia en la relación cantidad hombres/mujeres, señal que en su mayoría son hombres y se ha mantenido en los últimos 5 años.

Tabla 69. Evolución de la población de Horqueta en los últimos 5 años (2016-2020)

Distrito Horqueta	2016	2017	2018	2019	2020
Hombres	31.157	31.492	31.823	32.152	32.477
Mujeres	28.874	29.199	29.526	29.856	30.187
Población total	60.031	60.691	61.349	62.008	62.664

Fuente: DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025.

¹⁰⁶ DGEEC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025. Disponible en: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

De los datos proveídos por la DEGEEC sobre la proyección de la población del Distrito de Horqueta, se puede observar que existe una variación con los datos publicados debido a las distribuciones que fueron llevadas a cabo de manera posterior a la realización del censo. Como se puede observar en la siguiente tabla, existe una disminución de la población para el Distrito de Horqueta, aunque aumenta paulatinamente por año.

Tabla 70. Evolución de la población en los siguientes 5 años (2020-2025)

Departamento y distrito	Año					
	2020	2021	2022	2023	2024	2025
Dpto. Concepción	254.976	258.653	62.360	266.072	269.805	273.579
Horqueta	50.205	50.738	51.270	51.796	52.320	52.845

Fuente: STP/DGEEC. Paraguay. Proyección de la población por sexo y edad, según distrito, 2000-2025. Revisión 2015.

Población Indígena

Teniendo en cuenta los datos publicados por la DGEEC, en el distrito de Horqueta, existen 4 comunidades indígenas, con un total de 339 habitantes asentados en este distrito. Conformados por 162 hombres y 177 mujeres, los mismos pertenecen a 2 pueblos indígenas, Mbya Guaraní y Tavyterã/Sanapaná¹⁰⁷, se encuentran distribuidos en 75 viviendas particulares y colectivas, todos en el área rural.

Tabla 71. Distribución de la Población Indígena de Horqueta. 2012

Distrito	Comunidad, aldea o barrio y núcleo familiar	Pueblo	Cantidad de viviendas particulares y colectivas	Población		
				Total	Varones	Mujeres
Horqueta	Isla Sakã Yaka'i	Mbya Guaraní	8	33	18	15
Horqueta	Korai Punta Suerte	Mbya Guaraní	31	152	65	87
Horqueta	Ñande Yvy Pavë	Paĩ Tavyterã/Sanapaná	9	32	17	15
Horqueta	Paso Ita	Mbya Guaraní	27	122	62	60
Total	4	2	75	339	162	177

Fuente: DGEEC. Concepción: Población indígena por sexo y cantidad de viviendas particulares y colectivas según área, distrito, comunidad, aldea o barrio y núcleo de familia y pueblo, 2012.

Según se especifica en la tabla siguiente, de la totalidad de la población del Distrito de Horqueta, el 0,54% corresponde a la comunidad indígena, siendo en su mayoría mujeres y en menor porcentaje hombres.

¹⁰⁷ [DGEEC. Concepción: Población indígena por sexo y cantidad de viviendas particulares y colectivas según área, distrito, comunidad, aldea o barrio y núcleo de familia y pueblo, 2012.](https://www.dgeec.gov.py/default.php?publicacion=33) Disponible en: <https://www.dgeec.gov.py/default.php?publicacion=33>

Tabla 72. Población indígena de Horqueta, por sexo. Año 2012

Distrito de Horqueta	Población Indígena	Porcentajes
Hombres	162	47,49
Mujeres	177	52,21
Total (ambos sexos)	339	100
% Población del Distrito	62.664	0,54
% Población Total del Departamento	254.976	0,13

Fuente: Elaboración propia en base a datos de la DGEEC. Concepción: Población indígena por sexo y cantidad de viviendas particulares y colectivas según área, distrito, comunidad, aldea o barrio y núcleo de familia y pueblo, 2012.

Asimismo, según datos del Plan Local de Salud, el Distrito de Horqueta cuenta con 12 barrios y 101 compañías.

Hogares, vivienda

En relación a la condición de propiedad de la vivienda, según datos proveídos por la DEGEEC¹⁰⁸, en el Distrito de Horqueta, existen 8.761 viviendas particulares ocupadas precensadas, no contempla los nuevos desmembramientos que han tenido los distritos; de estas viviendas el mayor porcentaje corresponde a viviendas propias; dándose en menor proporción otras condiciones de propiedad como prestado o cuidan, pagando en cuotas, alquilada, ocupada de hecho y en condominio. Los datos en porcentajes se observan en la siguiente tabla.

Tabla 73. Condición de propiedad de la vivienda

Condición de propiedad de la vivienda	Departamento de Concepción	Distrito de Horqueta
Viviendas particulares ocupadas con personas presentes	42.402	8.761
% Es propia	85,2	88,8
% La están pagando en cuotas	0,9	1,7
% Es en condominio	0,4	0,6
% Es alquilada	5,1	1,6
% Es prestada, la cuidan	7,5	5,9
% Es ocupada de hecho	0,8	1,3
% No informado	0,1	0,1

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Necesidades Básicas Insatisfechas (NBI)

En relación a Necesidades Básicas Insatisfechas (NBI)¹⁰⁹ en el Distrito de Horqueta, según datos otorgados por la DGEEC¹¹⁰ en relación a la situación tanto a nivel país como del departamento, reflejan que; el 58,2% de los hogares del mismo distrito cuentan con al menos una NBI; el 31,3% de hogares con NBI en infraestructura sanitaria; el 21,0% de los Hogares con NBI en capacidad de

¹⁰⁸ Datos solicitados y proveídos por la DGEEC. Sep. 2020.

¹⁰⁹ DGEEC. Necesidades Básicas Insatisfechas (NBI) 2012 PARAGUAY. Disponible en: <https://www.dgeec.gov.py/Publicaciones/Biblioteca/investigacion%20tematica/Triptico-de-necesidades-insatisfechas-NBI-2012.pdf>

¹¹⁰ Datos solicitados y proveídos por la DEGEEC, Sep. 2020.

subsistencia; el 19,5% de los Hogares con NBI en acceso a la educación y el 18,0% de los hogares con NBI en calidad de la vivienda, como puede observarse en la siguiente tabla.

Tabla 74. Hogares con NBI, según departamento y distrito

Indicadores de Necesidades Básicas Insatisfechas (NBI) (%)	Total hogares	Departamento de Concepción	Distrito de Horqueta
Hogares particulares ocupados con personas presentes	1.232.496	42.638	8.772
% Hogares con al menos una NBI	43,0	56,2	58,2
% Hogares con NBI en calidad de la vivienda	12,6	19,0	18,0
% Hogares con NBI en infraestructura sanitaria	20,8	29,7	31,3
% Hogares con NBI en acceso a la educación	15,7	20,3	19,5
% Hogares con NBI en capacidad de subsistencia	14,9	19,8	21,0

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012 y Tríptico Necesidades Básicas Insatisfechas (NBI) 2012. Paraguay en base a STP-DGEEC. Censo Nacional de Población y Viviendas 2012.

7.3. Economía

Según datos expuestos en el Plan Local del Distrito de Horqueta, la economía de este distrito se basa preponderantemente en la agricultura y comercios e industrias. Sus habitantes se dedican a actividades como la plantación de ka'á he'ê, algodón, tártago, poroto, mandioca, maíz, entre otros. Se observa explotación forestal y trabajo en aserraderos, curtiembres, aceiteras, desmontadoras de algodón y productos del agro¹¹¹.

Según los datos proveídos por la DEGEEC, el Sector Económico de la población ocupada es la Población ocupada de 12 años y más de edad que pertenece a una rama de actividad específica, donde el sector primario comprende a la agricultura, ganadería, caza y pesca; el sector secundario abarca las industrias manufactureras, construcción, minas y canteras; el sector terciario agrupa a electricidad, gas y agua, comercio, restaurantes y hoteles, transporte, almacenamiento y comunicaciones, finanzas, seguros, inmuebles, servicios comunales, sociales y personales; y no informado¹¹².

Actividades económicas

Según datos proveídos por la DGEEC, en el Distrito de Horqueta predominan las actividades económicas relacionadas al sector primario con 53,5%, seguidamente la del sector terciario con el 34,7% y finalmente con menor porcentaje el sector secundario con 11,3%, como se puede observar en la siguiente tabla.

Tabla 75. Población ocupada por sector económico

Datos de Población	Departamento de Concepción	Distrito de Horqueta
Sector económico de la población ocupada	226.585	46.029
% Primario	40,9	53,5
% Secundario	15,7	11,3

¹¹¹ Plan Local de Salud de Horqueta. Departamento de Concepción. 2016. Disponible en https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

¹¹² Datos solicitados y proveídos por la DGEEC. Sep. 2020.

Datos de Población	Departamento de Concepción	de Distrito de Horqueta
% Terciario	42,2	34,7
% No informado	1,2	0,6

Fuente: STP/DGEEC. *Censo Nacional de Población y Viviendas, 2012.*

Las personas consultadas de las localidades han señalado que las actividades principales en torno a la economía están centradas en la ganadería, pequeña ganadería y todas las actividades relacionadas a estas por las estancias que están ubicadas en la zona. La modalidad es por jornal o por trato/trabajo (una persona contratada por la empresa/estancia subcontrata personales por un tiempo determinado).

Asimismo, indicaron como actividad productiva, la pesca y el trabajo artesanal en la elaboración de sombreros, redes de pesca y tarrafa a través del comité de producción.

Además, de los pequeños comercios en la comunidad (despensas, copetines, mecánico).

En la Localidad de Calle 15, los pobladores mencionaron como principal actividad económica a la agricultura, cuentan con plantaciones de sésamo, feijao, sandía y piña, para consumo y venta. *Se habían dedicado a la plantación de eucalipto, pero no prosperó.* Otra de las actividades es el trabajo a través de la pequeña ganadería.

En la localidad de Dominguez Nigó, según los habitantes que participaron de la consulta, la actividad económica principal es la producción y venta de sombreros de caranday, se pueden dar tres formas de trabajo con relación a esta, de manera individual, por asociación o trabajando para un patrón. Generalmente el mercado de salida es Pedro Juan Caballero. Otra opción es la albañilería, el trabajo en las estancias, ya sea de capataz o jornalero, pero no es frecuente.

Y la chacra es utilizada para autoconsumo; plantan mandioca, maní y caña de azúcar. La pequeña ganadería y el tambo son opciones para el permute de artículos en las despensas y pequeños comercios.

Otros pobladores se desempeñan como funcionarios públicos en las escuelas y colegios, registro civil, USF y Policía nacional.



Puesto de venta de combustible-Paso Mbutu



Producción de sombreros de Karanda'y -Paso Mbutu



Producción de Carbón-Calle 15



Taller de Moto-Paso Mbutu

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020

7.4. Acceso a servicios

Acceso a servicios básicos

Referente al acceso a servicios básicos en el Distrito de Horqueta, los datos proveídos por la DGEEC reflejan que el 93,0% de las viviendas cuenta con energía eléctrica; el 72% cuenta con agua corriente; el 34,8% de viviendas con saneamientos mejorados; el 10,5% con servicio de recolección de basura y ninguna de las viviendas accede al desagüe cloacal en el distrito, como se puede observar en la siguiente tabla:

Tabla 76. Viviendas con Acceso a Servicios Básicos

Datos de viviendas particulares Servicios básicos	Departamento de Concepción	Distrito de Horqueta
Viviendas particulares ocupadas con personas presentes	42.402	8.761
% Viviendas con energía eléctrica	93,1	93,0
% Viviendas con agua corriente ¹¹³	74,4	72,0
% Viviendas con desagüe cloacal ¹¹⁴	6,3	-
% Viviendas con recolección de basura	22,8	10,5
% Viviendas con saneamiento mejorado	46,9	34,8

Fuente: STP/DGEEC. *Censo Nacional de Población y Viviendas, 2012.*

En cuanto a la disposición de residuos sólidos, el Plan Local de Salud de Horqueta señala que el distrito cuenta con un vertedero municipal para la disposición y el tratamiento de las basuras; sin embargo, sólo una parte de la zona urbana accede al servicio de recolección, en la zona rural los medios de eliminación de residuos practicados comúnmente por la población son la quema y el entierro.

Esto pudo confirmarse durante el trabajo de campo, ya que los pobladores involucrados respondieron que no se cuenta con el servicio y que se procede a la quema o al entierro en hoyos. Igualmente, se confirmó que el uso de letrinas en la zona es aún mayoritario como también se afirma en el Plan Local de Salud, en el que se señala que sólo el 16 % de la población en la zona urbana de Horqueta cuenta con baños modernos, mientras que, en mayor proporción, el 72 % correspondiente a la zona rural utilizan letrinas sanitarias.

En cuanto al acceso al agua potable, las tres localidades consultadas tienen distintas formas de acceso.

En la localidad de Paso Mbutu, los habitantes señalaron que no cuentan con agua potable y corriente. La gran mayoría de la comunidad utiliza el agua de pozo para el riego y lavado de cubiertos ya que sale salada y para el consumo traen de una naciente, a la que denominan chorro o yvu, otra alternativa es acumular el agua de lluvia en bidones 100 o 200 litros; o pagar 20 mil por bidón para abastecimiento.

En la localidad de Calle 15, las personas han dicho que el acceso es a través de pozos particulares, en algunos casos comparten. Existen familias que usan el agua de tajarar diariamente.

¹¹³ Incluye: ESSAP, SENASA, red comunitaria, red privada, y pozo artesiano, con cañería fuera de la vivienda, pero dentro del terreno o con cañería hasta la cocina y/o baño.

¹¹⁴ Incluye: Desagüe por red pública, pozo ciego con y sin cámara séptica.



Tajamar- Calle 15. Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020.

Y, en la localidad de Domínguez Nigó indicaron que acceden al agua a través de un pozo artesiano gestionado a través de la Gobernación. El agua es tratada con cloro y la gran mayoría de las familias accede a ella.

Ninguna de las comunidades consultadas accede a la red desagüe cloacal.



*Disposición final de Residuos- Calle 15
Fuente: Registro fotográfico de trabajo de campo. Equipo consultor.
Concepción. Agosto -Septiembre 2020.*

En relación al uso de Pozo séptico/Letrina/Otro, en las comunidades más de la mitad de la población aun utiliza letrina.

Con respecto al tratamiento de la basura han mencionado que ninguna de las localidades cuenta con servicios de recolección de basuras, estas son quemadas o tiradas en hoyos, confirmando así los datos mencionados por la DGEEC/STP del censo 2012.

Según los datos publicados en el Plan de Desarrollo Municipal de Horqueta, el acceso a energía eléctrica es suministrado por la Sub Estática de Costa Romero ubicada a 3km de Horqueta y procesa la energía de la Central Hidroeléctrica de Itaipú, aunque de las localidades de Horqueta involucradas a la consulta, los pobladores han indicado que la totalidad de la población cuenta con energía eléctrica a través de la ANDE.

Educación

En relación a la educación en el Distrito de Horqueta, según los datos del Ministerio de Educación y Ciencias (MEC)¹¹⁵ y la Guía Completa de Educación en Paraguay¹¹⁶, se encuentran 86 establecimientos educativos, de los cuales 17 se encuentran en el área urbana y 69 en el área rural. De la totalidad, 40 instituciones con modalidad de Educación Inicial (32 en el área rural y 8 en el área urbana); 83 instituciones con modalidad de Educación Escolar Básica (11 en el área urbana y 72 en el área rural); 20 instituciones con modalidad de Educación Media (3 en el área urbana y 17 en el área rural). Así mismo se pueden ver en la siguiente tabla.

Tabla 77. Nivel educativo según zona de ubicación

Nivel educativo	Total	Zona	
		Urbana	Rural
Distrito Horqueta			
Educación inicial	40	8	32
Escolar Básica	83	11	72
Educación media	20	3	17
Total	143	22	121

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.



Escuela y Colegio Edelmira Torres Blanco - Paso Mbutu.



Escuela Básica 2460 Niño Milagroso- Calle 15

Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -Septiembre 2020.

Asimismo, según datos del MEC¹¹⁷, existen 3 instituciones con modalidad de Formación Profesional de Educación Permanente para jóvenes y adultos, las 3 se encuentran ubicadas en el área urbana y 1 institución con Modalidad de Educación Especial también en el área urbana (formación integral de personas con necesidades educativas diferentes, en el área urbana).

¹¹⁵ MEC. Disponible en: https://datos.mec.gov.py/data/establecimientos_escolares_priorizados_elegibles_fonacide

¹¹⁶ Disponible en: <https://guia-concepcion.educacionenparaguay.com/>

¹¹⁷ MEC. Disponible en: https://datos.mec.gov.py/data/establecimientos_escolares_priorizados_elegibles_fonacide

Es importante aclarar que existen establecimientos que tienen más de una institución y que en las instituciones podrían impartirse más de una modalidad.

A continuación, se presenta cada institución educativa y sus características:

Tabla 78. Instituciones educativas del Distrito de Horqueta por zona, modalidad y acceso a servicios básicos

Instituciones Educativas Distrito de Horqueta	Localidad/Barrío	Zona	Nombre de asentamiento	Nombre Comunidad Indígena	Nivel educativo	Agua	Energía
Escuela Básica N° 519 Zapadores del Chaco	Horqueta	Urbana	-	-	E.E.B. y E.I.	SENASA	ANDE
Escuela Básica N° 2067 Padre José Venancio Ortellado	Horqueta	Urbana	-	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 4952 San Roque G. de Sta. Cruz.	Horqueta	Urbana	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 7597 Juan Pablo II	Horqueta	Urbana	-	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 6922 Prof. Ruperta Giménez de González.	Horqueta	Urbana	-	-	E.E.B.	SENASA	ANDE
4 instituciones: Esc. Básica N° 28 Próceres de Mayo, Col. Nac. Próceres de Mayo, Col. Nac. San Roque G. de Santa Cruz y Centro de Educ. PPJA N° 37	Barrio Las Palmas	Urbana	-	-	E.I., E.E.B. y PPJA	SENASA	ANDE
Colegio Nacional Jorge Sebastián Miranda	Barrio Las Palmas	Urbana	-	-	E.M.	SENASA	ANDE
Escuela Básica N° 1076 Priv. Sub. Sagrado Corazón de Jesús	Barrio Las Palmas	Urbana	-	-	E.I. y E.E.B.		
Centro N 1-49 Humberto Ramón Morales	Barrio Las Palmas	Urbana	-	-	E.I., E.E.B. y E.M. y PPJA	SENASA	ANDE
Colegio Parroquial Priv. Sub. Alejo García y Centro 1 - 8 Manuel Ortiz Guerrero	Casco Urbano	Urbana	-	-	EEB, EM y PPJA	-	-
Centro de Educación Integral Mborayhu Pavé	Barrio Inmaculada	Urbana	-	-	E.E.	-	-
Escuela Básica N° 1077 Priv. Sub. La Inmaculada	Barrio Inmaculada	Urbana	-	-	E.I. y E.E.B.	-	-
Esc. Básica N° 6659 CEINOR	Peguajho San Francisco	Urbana	-	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 4337 San Isidro - Sede Tutorial EMA	Laguna 7 - Gral. Bernardino Caballero	Rural	-	-	E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 4344 Gral. Bernardino Caballero	Calle 8 Zona Sur	Rural	-	-	E.I. y E.E.B.	Pozo Artesiano	ANDE

Instituciones Educativas Distrito de Horqueta	Localidad/B arrio	Zona	Nombre de asentamiento	Nombre Comunidad Indígena	Nivel educativo	Agua	Energía
Aulas Extensivas Nueva Esperanza	Asentamiento Nueva Esperanza	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 7173 Santa Ana	Kurupa`y Loma	Rural	Asentamiento Kurupa`y Loma	-	E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 593 y Col. Nac. Capitán Gumersindo Sosa.	Capitán Sosa	Rural		-	E.I., E.E.B. y E.M.	SENASA	ANDE
Escuela Básica N° 2667 y Col. Nac. Divino Niño Jesús	Horqueta Km.37	Rural		-	E.E.B.	SENASA	ANDE
Escuela Básica N° 4357 Hno. José Luis Arbues Rubiol	Colonia Juan Manuel Frutos	Rural	Colonia Juan Manuel Frutos	-	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 2666 y Colegio Nacional San Sebastián	Peguajho Guasu	Rural		-	EEB y EM	SENASA	ANDE
Escuela Básica N° 1703 San Ignacio de Loyola y Colegio Nacional San Ignacio	B° San Ignacio	Rural	Colonia Ex - Combatiente	-	E.I., E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 2100 San Marcos	Km 31	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 2069 y Col. Nac. San Blas.	Peguajho Loma San Blas	Rural	-	-	E.I. y E.E.B. y E.M.	SENASA	ANDE
Escuela Básica N° 4339 Paz del Chaco	Santo Domingo	Rural	-	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 4342 Dr. José Gaspar R. de Francia y Col. Nac. Capitán Giménez.	Capitan Gimenez	Rural	Colonia José Berges	-	E.I. E.E.B.	Pozo Artesiano	ANDE
Colegio Nacional Gral. Bernardino Caballero y Escuela Básica N° 1718 Gral. Bernardino Caballero	Santa Librada	Rural	-	-	E.I., E.E.B. y E.M.	SENASA	ANDE
Escuela Básica N° 1713 San Luis Gonzaga Colegio Nacional San Luis Gonzaga	Costa Romero	Rural	Colonia José Berges	-	E.I., E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 513 y Col. Nac. Mcal. José F. Estigarribia.	Naranjaty`i	Rural	-	-	E.M. y E.E.B	SENASA	ANDE
Escuela Básica N° 7061 Virgen de Fátima	Horqueta	Rural	-	-	E.E.B	SENASA	ANDE
Escuela Básica N° 2073 San Miguel	San Miguel	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 1712 Fulgencio Yegros y Colegio Nacional de Alfonso Cue	Alfonso Cué	Rural	-	-	EI, EEB E.E.B.	SENASA	ANDE

Instituciones Educativas Distrito de Horqueta	Localidad/B arrio	Zona	Nombre de asentamiento	Nombre Comunidad Indígena	Nivel educativo	Agua	Energía
Escuela Básica N° 4347 San Roque G. de Santa Cruz y Colegio Nacional San Roque G. de Santa Cruz	Calle 11	Rural	Asentamiento Alemán Cué	-	E.I. y E.E.B. y E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 1709 y Col. Nac. Don Carlos A. López	25 de Abril	Rural	-	-	E.I. y E.E.B.	Pozo Común	ANDE
Escuela Básica N° 1974 y Col. Nac. Roque Bogado	Pirity	Rural	-	-	E.M. y E.E.B.	Privado	ANDE
Escuela Básica N° 2580 y Col. Nac. San Felipe.	San Felipe. Santa Librada	Rural	-	-	E.I. y E.E.B. y E.M.	SENASA	ANDE
Escuela Básica N° 1706 Héroes del Chaco.	Cerrito Naranjaty	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 2459 Edelmira Torres Blanco y Colegio Nacional Edelmira Torres Blanco	Paso Mbutú	Rural	-	-	E.E.B. y E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 4349 Perpetuo Socorro y Colegio Nacional Perpetuo Socorro	Calle 9	Rural	Asentamiento Alemán Cué	-	E.I., E.E.B. y E.M.	Pozo Artesiano	ANDE
Escuela Básica N° 2579 San Estanislao	Santani.	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 7862 San Juan	Kurupa`y Loma	Rural	Asentamiento Kurupa`y Loma	-	E.E.B.	Pozo Común	ANDE
Escuela Básica N° 6647 Mcal. Francisco Solano López	Callejon Santa Rosa	Rural	-	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 2072 San Juan Evangelista	Peguajho Typy	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 4947 Priv. Sub. Virgen de Caacupe	Calle 9 - Alemán Cué	Rural	Asentamiento Alemán Cué	-	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 6550 María Auxiliadora	Kurupa`y Loma	Rural	Asentamiento Kurupa`y Loma	-	E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 7158 Eligio Ayala	Kurupa`y Loma	Rural	Asentamiento Kurupa`y Loma	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 2578 Gral. Bernardino Caballero	Laguna Siete	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 593 Capitán Gumersindo Sosa.	Capitán Sosa	Rural	-	-	E.I., E.E.B. y E.M.	SENASA	ANDE
Escuela Básica N° 3564 Héroes del Chaco y Colegio Nacional Héroes del Chaco	Cepingo Cañada	Rural	-	-	E.E.B. y E.M.	Pozo Artesiano	ANDE

Instituciones Educativas Distrito de Horqueta	Localidad/B arrio	Zona	Nombre de asentamiento	Nombre Comunidad Indígena	Nivel educativo	Agua	Energía
Escuela Básica N° 4345 Dr. José Gaspar Rodríguez de Francia	Tupãrenda	Rural	Colonia Juan Manuel Frutos	-	E.I. y E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 2071 y Col. Nac. Dr. Eligio Ayala.	Costa Clavel	Rural	-	-	E.M. y E.E.B	SENASA	ANDE
Escuela Básica N° 4356 San Lorenzo y Col. Nac. San Lorenzo Mártir.	Brasil Cue	Rural	-	-	EEB y EM.	SENASA	ANDE
Escuela Básica N° 2068 San Roque G. de Sta. Cruz.	Salinas Cué	Rural	-	-	E.E.B	SENASA	ANDE
Escuela Básica N° 4334 Don Carlos Antonio López.	Egua	Rural	-	-	E.E.B	Pozo Artesiano	ANDE
Escuela Básica N° 4358 Niños Mártires de Acosta Ñu.	Peguajho San Francisco	Rural	-	-	E.I. y E.E.B.	SENASA	ANDE
Colegio Nacional Gral. Marcial Samaniego	Naranjaty	Rural	-	-	E.E.B. y E.M.	SENASA	ANDE
Escuela Básica N° 4953 1° de Mayo	Capitán Giménez - Zona Sur	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 8044 Takuapu Pora	Jeguahaty	Rural	-	Jeguahaty	E.E.B.	Tajamar	Panel Solar
Escuela Básica N° 15194 Paso Ita	Vy`a Renda - Boquerón	Rural	-	Vy`a Renda	E.E.B.	Pozo Artesiano	ANDE
Escuela Básica N° 7075 Santa Teresita	Peguajho	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 7598 José Domingo Jara	Asentamiento la Amistad.	Rural	-	-	E.I. Y E.E.B.	SENASA	ANDE
Escuela Básica N° 1707 Emiliano R. Fernández	Ycua Jhovv	Rural	-	-	E.I. Y E.E.B.	SENASA	ANDE
Escuela Básica N°2577 Independencia Nacional	Naranjaty	Rural	-	-	E.E.B.	-	-
Escuela Básica N° 1714 Juan Carlos García	Belén Cue	Rural	-	-	E.E.B.	-	-
Escuela Básica N°2576 Prof. Carmen Joaquina M. de López	Ybyraty	Rural	-	-	E.E.B.	-	-
Escuela Básica N°1710 José Berges	Naranjaty	Rural	-	-	E.I. y E.E.B.	-	-
Escuela Básica N° 3834 República del Paraguay	San Roque. Cap. Sosa	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 4346 Gral. Elizardo Aquino	Santo Domingo	Rural	-	-	E.I. y E.E.B.	-	-
Escuela Básica N° 7347 San José Obrero	San José	Rural	-	-	E.E.B.	-	-

Instituciones Educativas Distrito de Horqueta	Localidad/B arrio	Zona	Nombre de asentamiento	Nombre Comunidad Indígena	Nivel educativo	Agua	Energía
Esc. Básica N° 4888 Virgen del Carmen	Toldo Cué - Calle 7	Rural	-	-	E.E.B.	Pozo Artesian o	ANDE
Escuela Básica N° 6990 Mons. Aníbal Maricevich	Colonia Oro Verde	Rural	-	-	E.I. y E.E.B.	Pozo Artesian o	ANDE
Escuela Básica N° 4343 Dr. Raúl Peña y Colegio Nacional Dr. Raúl Peña	Alfonso Cué - Calle 10	Rural	-	-	E.I. y E.E.B. y E.M.	Pozo Artesian o	ANDE
Escuela Básica N° 4348 San Jorge	San Jorge	Rural	Colonia San Jorge		E.I. y E.E.B.	Pozo Artesian o	ANDE
Escuela Básica N° 1708 Gral. José Eduvigis Díaz	Cuartelero	Rural	-	-	E.E.B.	Pozo Común	ANDE
Escuela Básica N°4338 Santa Lucía	Paso Ata	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N°4340 Prof. German Bazán	Santa Librada	Rural	-	-	E.I. y E.E.B.		
Escuela Básica N° 1711 Ntra. Sra. De la Asunción	Espagin	Rural	-	-	E.I. y E.E.B.	SENASA	ANDE
Escuela Básica N° 2581 Niños Mártires de Acosta Ñu.	San Antonio	Rural	-	-	E.I. y E.E.B.	Pozo Artesian o	ANDE
Escuela Básica N° 2070 San Juan Bosco	Ycua Pora	Rural	-	-	E.E.B.	SENASA	ANDE
Escuela Básica N° 2668 Ntra. Sra. Del Rosario	Santo Domingo	Rural	-	-	E.E.B.	-	-
Escuela Básica N° 4351 Héroes del Chaco	Totora	Rural	-	-	E.E.B.	-	-
Escuela Básica N° 1705 Niños Héroes de Acosta Ñu	Jhugua Po'í	Rural	-	-	E.E.B.	-	-
Escuela Básica N° 4598 El Paraguayo Independiente	Espagin	Rural	-	-	E.I. y E.E.B.	-	-
Escuela Básica N° 1716 Mcal. José Félix Estigarribia	Toldo Cué	Rural	-	-	E.I. y E.E.B.	-	-
Escuela Básica N° 6991 Prof. Dr. Luis María Argaña	Calle 11	Rural	-	-	E.E.B.	-	-
Escuela Básica N° 2462 Mcal. José Félix Estigarribia y Colegio Nacional Choferes del Chaco	Colonia Choferes del Chaco- Fisco	Rural	-	-	E.I. y E.E.B.	-	-

Fuente: elaboración en base a los datos del MEC- Datos abiertos, Establecimientos escolares 2019 y la Guía Completa de Educación en Paraguay.

Con respecto a la educación superior, en el distrito de Horqueta existen varias instituciones universitarias, públicas y privadas, como se indica en el informe de estudios sociales del componente industrial, entre ellas figuran, Universidad Tecnológica Intercontinental (UTIC), Universidad San

Carlos, Universidad Nacional de Concepción (UNC), la Universidad Politécnica y Artística del Paraguay (UPAP). Asimismo, el Instituto de Formación Docente de Horqueta (IFD Horqueta).

Se identifica una variedad de carreras de grado y posgrado ofrecidas por estas instituciones, entre ellas se destacan las carreras relacionadas a la Agronomía, Ciencias de la Educación, Administración, Contabilidad, Informática, entre otras vinculadas a la salud, como Medicina, Enfermería, Nutrición y otros.

Formación profesional y técnica

En lo que refiere al acceso a la formación profesional y técnica, dentro del Departamento de Concepción se observan varias ofertas de enseñanza en instituciones públicas y privadas. Según los datos extraídos de la página oficial de SINAFOCAL, en el distrito de Horqueta está planificado impartir cursos de “Cocina y Repostería”.

Se presentan a continuación otras ofertas de formación profesional y técnica que existen en el distrito de Horqueta.

Tabla 79. Educación técnica

Institutos	Distritos	Carreras
ITN Instituto Tecnológico del Norte	Horqueta	Auxiliar de informática Secretariado Ejecutivo Técnico en informática Programación Cajero comercial Cajero bancario Inglés americano

Fuente: Información complementaria en el marco de los estudios sociales (Componente Industrial-Pág.18)

Salud



USF Paso Mbutu- Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -septiembre 2020

Con respecto a los servicios de salud, según los datos del Ministerio de Salud Pública y Bienestar Social (MSPYBS), en el Distrito de Horqueta existe; 1 Hospital Distrital y 11 Unidades de Salud de la Familia. Los siguientes centros asistenciales son:

- Hospital Distrital de Horqueta
- USF- Santa Librada
- USF- Paso Mbutú
- USF- Naranjatú
- USF- Peguajhó Loma
- USF- Capitán Giménez
- USF- Alfonso Cué
- USF- Capitán Sosa
- USF- Curupa'y Loma
- USF- Alemán Cué
- USF- Ybyraty-Brasil Cué
- USF- Totora

En el Plan Local de Salud se menciona que en la Localidad de Horqueta y sus alrededores se cuenta con 7 Puestos de Salud:

- Puesto de Salud Capitán Sosa
- Puesto de Salud Pirity San Carlos
- Puesto de Salud Arroyito Núcleo 7
- Puesto de Salud Calle 13 San Ignacio
- Puesto de Salud Cuartelero
- Puesto de Salud Paso Mbutu
- Puesto de Salud Ykua Hovy



Puesto de Salud Cuartelero -Fuente: Registro fotográfico de trabajo de campo. Equipo consultor. Concepción. Agosto -Septiembre 2020.

Según datos proveídos por la Primera Región Sanitaria, en el año 2018 existían 76 establecimientos de salud en todo el departamento de Concepción, de los cuales 15 se encuentran en el distrito de Horqueta (servicios públicos confirmar) y 1 clínica privada (San Antonio).

Según datos brindados por los pobladores de las localidades visitadas en el marco del trabajo de campo, se confirmó que hay 1 USF en Paso Mbutu (1 Doctor, 1 Lic. En Enfermería, 2 Técnico Superior en Enfermería y 1 Agente Comunitario). Programas de Vacunación, PANI, Planificación y papa Nicolau, Control prenatal, Control crecimiento y desarrollo, Prevención Its, Hipertensión y diabetes, Tuberculosis y otras. Las problemáticas más frecuentes de salud son la hipertensión y parasitosis por el uso de letrina y el uso del agua que no es agua potable.

Los pobladores de Calle 15 consultan en esta USF porque queda a una distancia de 8km y si no se encuentra el doctor acuden al Puesto de Salud de Arroyito a 12 km. Los habitantes de Domínguez Nigó consultan en el Puesto de Salud de Cuartelero, les queda a una distancia de 10 km, cuentan con

un médico de familia y 4 licenciadas. Realizan visitas, desarrollan charlas educativas a los alumnos y reuniones con el grupo de mujeres.

Para los casos graves acuden a Horqueta o Concepción (distancia a Horqueta: 40 km de la ruta y Concepción: 80km).

Acceso a Tecnologías de información y medios de comunicación (TIC) y bienes de confort

Atendiendo a los datos facilitados por la DGEEC, con relación al acceso a TICs, puede señalarse que la gran mayoría de las viviendas en el distrito cuentan con teléfono celular, seguidamente de radio y televisor; en menor proporción las viviendas poseen TV cable, computadoras, antenas parabólicas, computadoras conectadas a internet y teléfono fijo, como puede observarse en la siguiente tabla.

Tabla 80. Equipos domésticos y TIC

Acceso a TIC	Departamento de Concepción	Distrito de Horqueta
Viviendas particulares ocupadas con personas presentes	42.402	8.761
% Viviendas con radio	80,6	76,9
% Viviendas con televisor	79,8	75,4
% Viviendas con teléfono fijo	8,0	5,2
% Viviendas con teléfono celular	83,3	83,7
% Viviendas con computadora	11,9	7,7
% Viviendas con computadora conectada a internet	9,2	5,3
% Viviendas con antena parabólica	10,8	6,3
% Viviendas con TV cable	13,4	15,7

Fuente: STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

Los habitantes de las localidades consultadas (Paso Mbutu, Calle 15 y Domínguez Nigó) han indicado que los medios de comunicación más utilizados son: radio, televisión, celulares y redes sociales; de los cuales mencionaron como emisoras radiales a Radio Arroyito Récord 96.5, Radio Cristal y la 102.5 de Arroyito; Guyra Campana 102.5 y la 89.9 de Horqueta; Radio Los ángeles y Radio Regional; a canales de televisión: Canal 9 SNT, Telefuturo y canales por cable y Celulares con internet: a través de mensajería, llamadas y grupos de whatsapp (mencionaron que en la zona hay mala conexión a internet).

Así mismo, la DGEEC proporcionó información con relación al acceso de la población del Distrito de Horqueta a los bienes de confort en las viviendas, estos datos señalan que gran porcentaje de las viviendas cuentan con motocicletas, seguidamente cuentan con heladeras y lavarropas, luego en menor porcentaje las viviendas poseen ducha eléctrica, video/DVD, aire acondicionado, automóvil/camioneta, horno microondas y termocalefón, como se puede observar en la siguiente tabla.

Tabla 81. Equipos domésticos y Bienes de confort

Bienes de confort	Departamento de Concepción	Distrito de Horqueta
Viviendas particulares ocupadas con personas presentes	42.402	8.761
% Viviendas con heladera	68,1	62,2
% Viviendas con lavarropas	50,9	44,5
% Viviendas con video/DVD	21,2	16,1
% Viviendas con termocalefón	4,0	3,7
% Viviendas con ducha eléctrica	25,7	19,9
% Viviendas con acondicionador de aire	15,2	8,8
% Viviendas con horno microondas	14,4	7,4
% Viviendas con automóvil/camioneta	9,9	8,5
% Viviendas con moto	74,3	72,3

Fuente:

STP/DGEEC. Censo Nacional de Población y Viviendas, 2012.

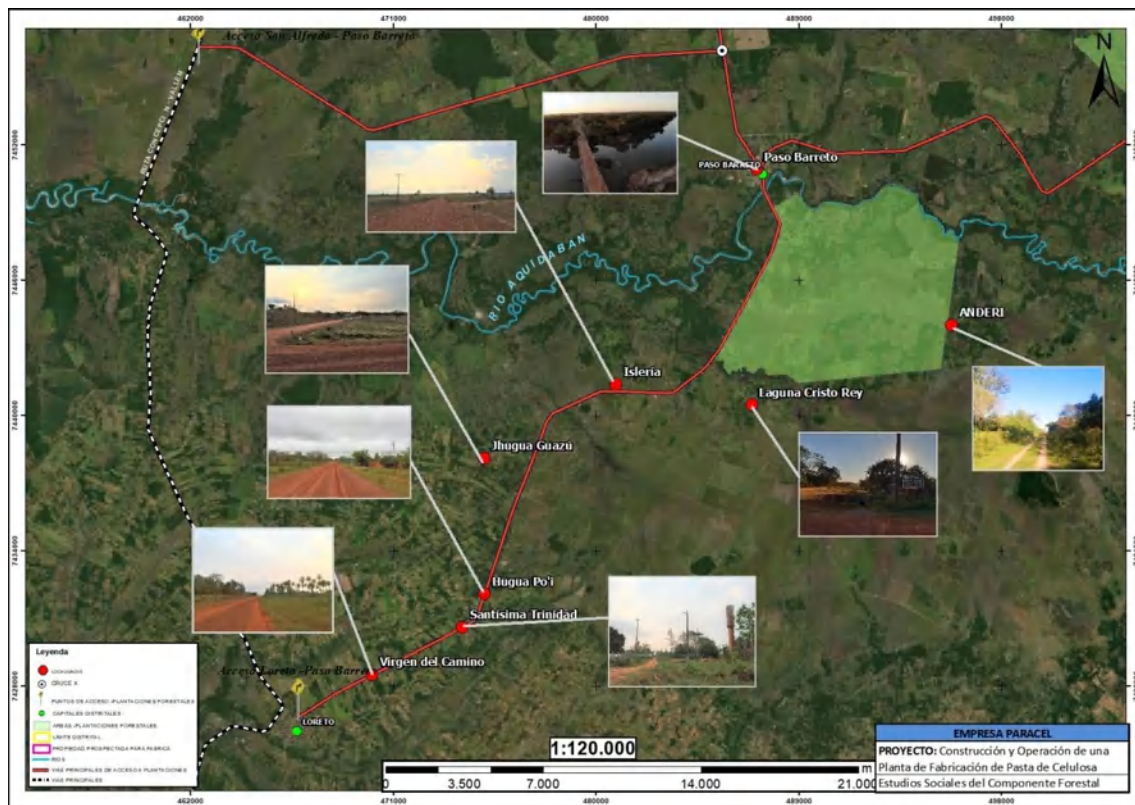
ANEXO 4: FICHAS DE COMUNIDADES IDENTIFICADAS

El presente anexo contiene datos proporcionados por referentes del nivel local durante el proceso de consulta. Estos elementos han sido sistematizados en formato de fichas teniendo en cuenta variables socioeconómicas, culturales e históricas; a fin de visualizar un perfil específico de las comunidades de estudio.

Con miras a la caracterización del territorio se detalla información correspondiente a un total de 16 comunidades. Las mismas fueron identificadas a partir de los accesos principales¹y/o la cercanía a los campos forestales prospectados, que se encuentran localizados en los departamentos de Concepción y Amambay.

A continuación se presentan las comunidades de estudio. Cabe señalar que el orden establecido se definió en función a los accesos principales.

Mapa Acceso Loreto-Paso Barreto

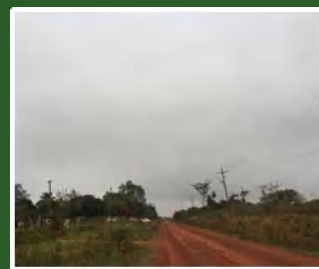


A partir de esta vía se encuentran las comunidades de: Virgen del Camino, Santísima Trinidad, Hugueta Po'i, Jhugua Guazú, Islería, Laguna Cristo Rey, Anderi y Paso Barreto.

1 Ver Mapa- Principales vías de acceso vinculadas al proyecto- Estudios Sociales Componente Forestal 2020.



Virgen del Camino



Información general

Zona: Rural

Distancia del centro urbano: A unos 26 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Loreto

División del territorio: Virgen del Camino

Límites: Santísima Trinidad, Huguá Po'i, Loreto, Torales San Roque, Laguna Mobohapy, Caacupemí

Principales vías de acceso: Ruta Loreto - Paso Barreto.

Habitantes: 281 personas

Cantidad de familias/viviendas: Alrededor de 100 familias y 75 viviendas

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

Se la conoce como Virgen del Camino en honor a la Santa Patrona de la comunidad. Empezó a poblarse desde hace más de 60 años. En sus inicios había aproximadamente unas 30 familias; instaladas principalmente en la zona más próxima a la localidad de Santísima Trinidad.

Los primeros pobladores eran oriundos de las localidades de Ykua Porã, Cañada la Paz, Jhugua Bonete y Ciudad del Este; siendo los Guerrero, Guerrero Vázquez y Cristaldo parte de las primeras familias en asentarse en la zona.

Actualmente el territorio se extiende desde la casa de don Apolonio Rojas hasta la casa de la familia Guerrero.

Entre los aspectos positivos se señalan: accesibilidad a la ruta, tierra apta para la agricultura y la ganadería, libertad de culto, suficiente abastecimiento de agua, tranquilidad, armonía y el buen relacionamiento entre vecinos.



Principales actividades económicas

- Se dedican principalmente a la agricultura y la pequeña ganadería (vacas, cabras).
- Producen además para venta: leche, queso, huevo. Por lo general estos productos se venden en la ciudad de Loreto.
- Trabajo en las estancias: Quienes se dedican a esta actividad van a las estancias del Chaco o trabajan en las estancias cercanas por jornal o por trato.
- Comercio: existen además pequeñas despensas, bodegas, sitios de venta de combustibles, lavadero, gomería.



Situación del empleo: En la zona predomina la falta de fuentes de trabajo y la mayoría se emplea como jornalero haciendo changas. Aproximadamente el 40% de los que terminan sus estudios secundarios continúan formándose.



Despensa- Virgen del Camino



Actividades recreativas

- **Fiesta Patronal:** El 5 de octubre se celebra el día de la Virgen del Camino. En la misma fecha se recuerda además el Día del Camino. Se realizan festivales, rezo, procesión o santo corrido.
- **Club Hípico:** Jineteada
- **Torneo campesino:** participan las comunidades cercanas y es organizado a nivel parroquial.
- **Balnearios:** Las personas acuden a los balnearios de las zonas cercanas tales como: Balneario Itá, Paso Horqueta, San Josemí, María Auxiliadora.
- **Otras actividades:** Se organizan actividades para recaudar fondos a través de las cooperadoras escolares (ACE) y se celebra el día del niño.



Medios de comunicación

- **Radio:** Cristiana. 107.5 Misión de Dios. Se escucha hasta la ribera del río Paraguay, Paso Horqueta y Carayá Vuelta.
- **TV:** Por antena de Claro, principalmente.
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp.



Organizaciones / Asociaciones

- Comisión vecinal Virgen del Camino
- Junta de Saneamiento Virgen del Camino
- Comité de mujeres productoras Mburukuja Poty
- Delegados de base de Iglesia Católica
- Comité de agricultores
- Docentes agremiados a la OTEP y SINADIS
- Asociados a la FNC y Tekopyahu



Principales problemáticas económicas, sociales y culturales

- Pobreza y desigualdad: asociada principalmente a las necesidades existentes en la zona
- Falta fuentes de trabajo en la comunidad
- Trabajos esporádicos y mal remunerados
- Falta apoyo a la producción campesina, asistencia técnica, capacitación, fortalecimiento y generación de canales de comercialización
- Abigeato
- Bajo porcentaje de personas acceden a la universidad
- Deserción escolar
- Embarazo precoz



Aspectos necesarios para un mayor desarrollo

- Acceder a capacitaciones y oportunidades laborales
- Apoyo y fortalecimiento para los comités productivos
- Personal médico para mejorar la cobertura y atención
- Priorizar el acceso a una educación de calidad en todos los niveles formativos
- Iniciar con los trabajos para asfaltar la ruta que une Loreto con Paso Barreto

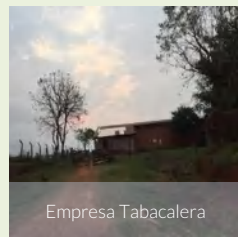
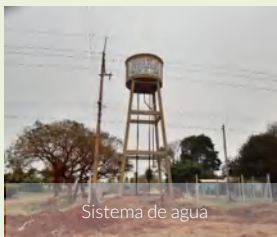
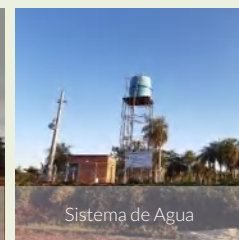


Acceso a servicios básicos

- **Agua potable:** La comunidad cuenta con 3 pozos para el abastecimiento de agua. El primer pozo solo se utiliza para lavar ropas y para los animales debido a que el agua es de color rojo, de esta dependen alrededor de 18 familias.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** La mayoría de las viviendas tienen baños con pozo ciego.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado)
 1. Paso Barreto - Concepción
 2. Puentesño- Concepción: día de por medio.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman y en menor proporción depositan en hoyos.
- **Energía eléctrica:** Proveída por la ANDE.



Instituciones y sitios de interés





Santísima Trinidad



Información general

Zona: Rural

Distancia del centro urbano: A unos 30 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Loreto

División del territorio: Santísima Trinidad

Límites: Hugua Po'i, Jhugua Rivas, Virgen del Camino- La ruta Loreto-Paso Barreto

Principales vías de acceso: Ruta Loreto – Paso Barreto / Jhugua Rivas La Asunción

Habitantes: 619 personas en Hugua Po'i y Santísima Trinidad

Cantidad de familias/viviendas: Alrededor de 35 viviendas

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

Esta localidad se conformó entre los años 1968 y 1970, tras dividirse de la comunidad de Hugua Po'i.

Los primeros pobladores fueron Juan Pío Martínez, Florencio López, Manuel Reguera y Vidal Medina; quienes provenían de la zona de Hugua Po'i.

La llamaron Santísima Trinidad en honor al dogma que establece el trino divino. En el año 2002 se construyó el templo y en el 2004 la escuela. Ambas edificaciones llevan el mismo nombre que la comunidad.

En la actualidad, hay aproximadamente unas 35 casas desde el pozo artesiano que está sobre ruta, hasta el cruce que conecta con la localidad de Jhugua Rivas de la Asunción.



Entre los aspectos positivos se señalan: tranquilidad, poco flujo vehicular, seguridad, participación comunitaria, tierra apta para producción y el hecho de ser una comunidad unida.



Principales actividades económicas

- La actividad principal es la agricultura y ganadería en pequeña escala; para consumo y también para venta.
- Un porcentaje de la población trabaja en las estancias del Chaco por jornal o por trato.
- Hay personas empleadas en el frigorífico que se trasladan diariamente a la capital departamental.
- También hay un sector que se dedica a la producción de miel de caña y ka'i ladrillo (dulce de maní), otros a la venta de leche y elaboración de queso.
- Asimismo, se menciona que existen pequeñas despensas que aportan al sustento familiar.



Actividad productiva: ganadería



Situación del empleo: Migración de jóvenes en busca de ofertas laborales y educativas. Se prefiere trabajar en las estancias del Chaco porque se recibe mejor remuneración que en las estancias de la zona. En el caso de la agricultura, el rubro de renta principal es el feijao. Se menciona, además, que varios productos dejaron de ser rentables debido a los bajos precios de venta.



Actividades recreativas

- **Fiesta patronal:** El 15 de junio es el día de la Santísima Trinidad, y la comunidad organiza fiestas y festivales en conmemoración.
- **Otras fiestas religiosas:** Día de San Antonio, María Auxiliadora, Caacupé, Divino Niño. Estas festividades son organizadas por familia, y participa la comunidad.
- **Club Hípico:** Se realizan carreras de caballo de manera semanal o quincenal. A la actividad asisten pobladores de la zona y de las ciudades de Concepción, Horqueta y San Alfredo.
- **Deportes:** Se realizan torneos de fútbol, vóley masculino y femenino.



Medios de comunicación

- **Radio:** Tekopyahu de Loreto
- **TV:** Canal 9, Telefuturo. La gente que tiene antena de Claro o Tigo ve otros canales.
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp.



Organizaciones / Asociaciones

- Comisión vecinal Santísima Trinidad
- Delegados de base de Iglesia Católica
- Comisión de agua (No a través de SENASA)
- Asociación de Cooperadora Escolar (ACE)
- Comité de Tekoporã



Principales problemáticas económicas, sociales y culturales

- Pobreza
- Falta fuentes de trabajo en la comunidad
- Comercialización de la producción campesina a bajo precio
- No hay mercado seguro para la comercialización de productos.
- Caminos en mal estado
- Se necesita ampliar los niveles de educación escolar. Solo se cuenta hasta el 6° grado en la comunidad.
- Red de abastecimiento de agua insuficiente



Aspectos necesarios para un mayor desarrollo

- Fuentes de trabajo
- Mejorar la red vial comunitaria
- Mercados seguros para la comercialización de productos de la agricultura familiar campesina a precios justos
- Ampliar la red de abastecimiento de agua de la comunidad
- Ampliar la cobertura de niveles educativos hasta el 9° grado

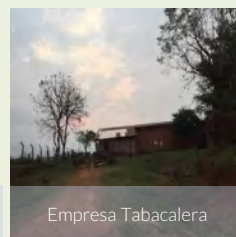
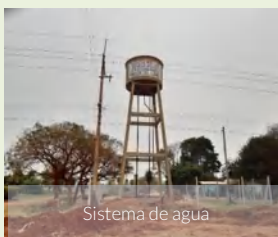
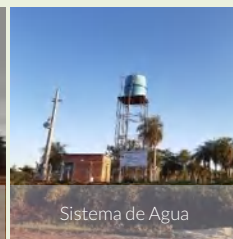
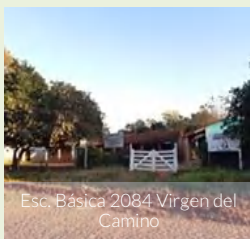


Acceso a servicios básicos

- **Red de abastecimiento de agua:** En la comunidad existen dos pozos artesianos (uno en la entrada sobre ruta que no se usa porque el agua posee un color rojo cobrizo y otro instalado en el predio de la escuela). Alrededor de seis familias no se abastecen del sistema por estar en zonas altas donde la presión del agua no es suficiente. Estas acarrear agua para consumo de los vecinos más cercanos. También tienen pozo en los hogares, pero durante la época de sequía no abastecen.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** Predomina el uso de letrinas (25 familias), y algunos hogares tienen baños con pozo ciego.
- **Medio de transporte:** Tienen acceso a ómnibus de empresas privadas desde la ruta Loreto-Paso Barreto, pero no se utiliza de manera frecuente. El medio de transporte principal es la motocicleta.
- **Tratamiento de basura:** No disponen de servicio de recolección de basura en la comunidad. Los pobladores queman sus residuos.
- **Energía eléctrica:** Proveída por la ANDE.



Instituciones y sitios de interés





Hugua Po'i



Información general

Zona: Rural

Distancia del centro urbano: A unos 32 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Loreto

División del territorio: Hugua Po'i

Límites: Santísima Trinidad, Jhugua Guazú, Ykua Porâ, Cerrito-Naranjatý, Jhugua Rivas La Asunción

Principales vías de acceso: Ruta Loreto-Paso Barreto / Horqueta- Naranjatý Ykua Porâ

Habitantes: 619 personas en Hugua Po'i y Santísima Trinidad

Cantidad de familias/viviendas: 121 viviendas

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

Antiguamente era zona de paso de carretas y caballos; se estima que desde hace unos 150 años empezó a conformarse la comunidad con pobladores provenientes principalmente de la zona de Ykua Porâ. Entre los pobladores de origen se encuentran los de apellido Páez. La población antigua está conformada en su mayoría por pobladores de la zona de Ykua Porâ.

Aproximadamente hace unos 180 años atrás, en el año 1840, un extranjero que se encontraba realizando los trabajos para la apertura del camino encontró una imagen de San Rafael, que coincidentemente es el santo patrono del viajero. Para los pobladores fue representativo el hallazgo por lo que se la conoce como Jhugua Po'i San Rafael.

En el año 1950, la comunidad se independizó de la localidad de Jhugua Guazú; periodo en el que también fueron construidos el oratorio y la escuela San Rafael.

Entre los aspectos positivos se señalan: Seguridad, la naturaleza, el lugar. La tierra es apta para la producción, y se tiene acceso a la ruta.



Principales actividades económicas

- Agricultura y ganadería; principalmente para consumo
- Un gran porcentaje de hombres trabaja en las estancias del Chaco, a partir de los 15 años.
- En la tabacalera se emplean mayoritariamente como "capataces" o encargados más que como productores.
- Algunos elaboran productos de limpieza.
- Hay familias subcontratadas por la ANDE para mantenimiento del tendido eléctrico.
- Pequeños comercios tales como: despensas, bodega, taller de motos y otros.



Despensa Copetín-Hugua Po'i



Situación del empleo: Predomina el trabajo en las estancias del Chaco. Se menciona que al menos el 20% es jornalero y también se dedica a la actividad agrícola. Al menos el 1.5% tuvo que emigrar al exterior en busca de fuentes de trabajo.



Actividades recreativas

- **Fiesta patronal:** 24 de octubre, San Rafael
- **Otras fiestas religiosas:** Virgen de Caacupé, San Antonio, María Auxiliadora y Divino Niño
- **Torneos:** Fútbol y vóley (hombres y mujeres)
- **Celebración:** Del Día del Niño y del Día de la Juventud en las escuelas
- **Desde la USF:** Se organizan actividades como charlas educativas, el club de embarazadas y el club de adultos mayores.



Medios de comunicación

- **Radio:** Tekopyahu, Regional, Aquidabán
- **TV:** por antena de Claro principalmente
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp.



Organizaciones / Asociaciones

- Comisión vecinal
- Comités productivos de mujeres (SAS)
- Grupo juvenil de la iglesia
- Comisión de la iglesia
- Subconsejo de salud
- Comisión de agua



Principales problemáticas económicas, sociales y culturales

- Pobreza y desigualdad
- Falta fuentes de trabajo en la comunidad
- Trabajos esporádicos mal remunerados
- Migración y desarraigo
- Falta apoyo a la producción campesina, asistencia técnica, capacitación, fortalecimiento y canales de comercialización.
- Ausencia de oferta educativa terciaria en la zona
- Deserción escolar
- Problemas de abastecimiento de agua



Aspectos necesarios para un mayor desarrollo

- Formación profesional y generación de oportunidades laborales
- Seguridad laboral y mejor remuneración
- Ampliar la oferta educativa y acceder a una educación de calidad en todos los niveles formativos
- Generar proyectos productivos sustentables para las familias
- Apoyo, formación y fortalecimiento para los comités productivos ya existentes
- Ampliar o mejorar la red de abastecimiento de agua



Acceso a servicios básicos

- **Red de abastecimiento de agua:** En la comunidad cuentan con red de agua potable a través de la Junta de Saneamiento. Se utiliza para consumo y uso cotidiano.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** Baños con pozo ciego en la mayoría de las casas. Se estima que el 20% de las viviendas poseen letrinas.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado): Paso Barreto - Huguá Po'i - Concepción.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman y en menor medida depositan en hoyos.
- **Energía eléctrica:** Proveída por la ANDE. Se cuenta con un transformador por cada 8 o 9 casas.



Instituciones y sitios de interés



Esc. Básica 1727 San Rafael



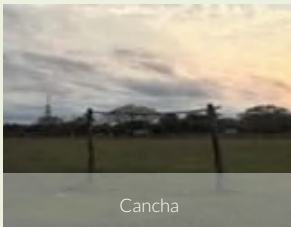
Colegio Nacional Huguá Po'i



Subcomisaría 17 Huguá Po'i



Sistema de agua



Cancha



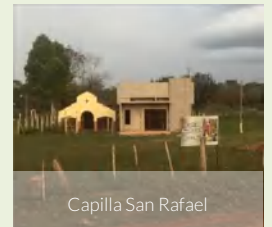
USF-Huguá Po'i



Dispensario de salud



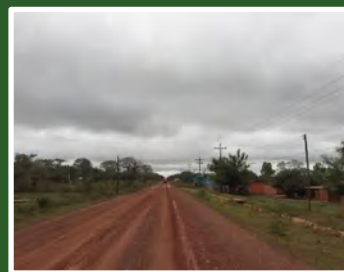
Sitio de venta de combustible



Capilla San Rafael



Jhugua Guazú



Información general

Zona: Rural

Distancia del centro urbano: A unos 36 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Loreto

División del territorio: Jhugua Guazú se divide en 3 zonas

Límites: Estancias Tupa Mba'e, Estancia Buenaventura. Comunidades de Jhugua Poi, Jhugua Rivas La Asunción y Jhugua Bonete

Principales vías de acceso: Ruta Loreto-Paso Barreto, Jhugua Rivas La Asunción, Jhugua Bonete

Habitantes: 1061 personas

Cantidad de familias/viviendas: 603 familias en las zonas de Jhugua Bonete, Jhugua Rivas Boquerón, Islería, Laguna Cristo Rey, Anderi Jhugua Guazu, Jhugua Bonete

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

Se conformó hace más de 70 años. Durante la época de la revolución del 47 ya había pobladores en la zona; varios de ellos ex combatientes de la Guerra del Chaco. Los apellidos más conocidos son: Obelar y Medina. Entre los primeros pobladores se encuentran el Monseñor Alejo Obelar y Leonardo Obelar.



Entre los aspectos positivos se señalan: Tranquilidad, y el lugar, la tierra es apta para producción; y se destacan además la unidad, solidaridad, la organización y la gente.



Principales actividades económicas

- Agricultura, producción hortícola con sistema de riego para autoconsumo y venta. Por lo general comercializan en la ciudad de Loreto.
- Los varones migran al Chaco para trabajar en las estancias, frigoríficos y tambos (Loma Plata), desde los 15 años.
- Las mujeres migran a las ciudades para trabajar de empleadas domésticas, algunas continúan estudiando; y otras van al exterior en busca de oportunidades laborales.
- De la producción ganadera se comercializa leche, queso.
- Algunos se dedican a la cría de gallinas y venden huevos.



Situación del empleo: Escasa oferta laboral en la zona. La gente migra por cuestiones de estudio o trabajo.



Actividades recreativas

- **Fiesta patronal:** Sagrado Corazón de Jesús. Se celebra en junio, dependiendo del calendario religioso. Participan de la celebración las personas de las comunidades cercanas y pobladores del lugar.
- **Hípico:** Carrera de caballo de manera semanal, dependiendo de la época.
- **Torneo de fútbol:** Principalmente participan equipos conformados por hombres. Se están incorporando las mujeres en la categoría de fútbol 5.
- **Otras celebraciones:** Festejo del Día del Niño y del Día de la Juventud en las instituciones educativas de la zona.



Medios de comunicación

- **Radio:** Tekopyahu (Loreto), Regional (Concepción)
- **TV:** por antena
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp.



Organizaciones / Asociaciones

- Comisión vecinal
- Comité productivo María Auxiliadora
- Comité de agricultores y horticultores
- Comisión de la iglesia
- Clubes deportivos



Principales problemáticas económicas, sociales y culturales

- Falta fuentes de trabajo a nivel local
- Pobreza
- Migración en busca de oportunidades laborales y educativas
- Existen profesionales, pero no pueden ocuparse en su área formativa.
- Abigeato
- Desarraigo
- Aún persisten prácticas machistas orientadas a asignar tareas del hogar a las mujeres y tareas productivas a los hombres.



Aspectos necesarios para un mayor desarrollo

- Fuentes de trabajo y seguridad laboral
- Evitar la migración y el desarraigo
- Mejorar los caminos vecinales
- Asistencia técnica y acompañamiento sostenido a productores locales con miras a la comercialización de productos y la generación de mercados seguros

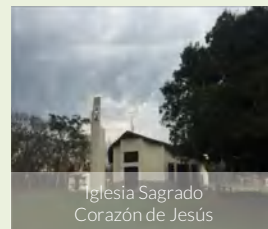
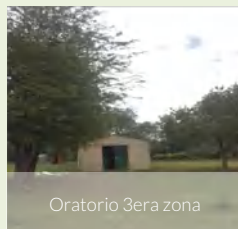
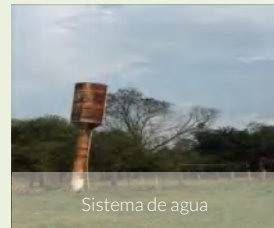


Acceso a servicios básicos

- **Red de abastecimiento de agua:** Cuentan con red de abastecimiento a través de la Junta de Saneamiento. Además, cuentan con dos pozos instalados para la producción con sistema de riegos. Algunas personas tienen pozos particulares en sus viviendas.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** Más del 50% de las viviendas aún cuentan con letrinas y un porcentaje menor baños con pozo ciego.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. Sobre la ruta principal se puede acceder al servicio de ómnibus privados: Paso Barreto a Concepción.
- **Tratamiento de basura:** En algunas viviendas clasifican las basuras, ya que tienen chacras y esta le sirve de abono. Los productos inorgánicos son quemados o arrojados en hoyos.
- **Energía eléctrica:** Proveída por la ANDE.



Instituciones y sitios de interés





Islería



Información general

Zona: Rural

Distancia del centro urbano: A unos 44 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Loreto

División del territorio: Islería

Límites: Estancia Santa Teresa, Laguna Cristo Rey, Jhugua Guazú, Río Aquidabán, Estancia Santa Teresa, Naranjatý

Principales vías de acceso: Ruta Loreto-Paso Barreto

Habitantes: Alrededor de 108 personas

Cantidad de familias/viviendas: Aproximadamente 25 casas; pero no todas están habitadas

Comunidades indígenas: No hay comunidades indígenas en la zona.




Aspectos históricos

La comunidad posee unos 150 años de antigüedad. Su conformación data de principios de la Guerra Grande. En la actualidad existen unas 25 casas; de las cuales algunas no están habitadas.

Los apellidos más antiguos son Zavala, Colman, Miskinich, Cristaldo y Saveiro. Los Martínez migraron de la zona de Puerto Pinasco en el año 1975; y los Saveiro eran oriundos de Ykua Porâ.

Recibe el nombre de Islería por poseer características similares a las de una isla en épocas de lluvia y creciente; ya que las zonas donde se encuentran la Laguna Tajy, el Arroyo Javevy'y y el Río Aquidabán solían desbordarse a menudo; dificultando el acceso y quedando el territorio completamente aislado.

 **Entre los aspectos positivos se señalan:** Tranquilidad, el lugar, la solidaridad entre vecinos, la gente es buena, trabajadora y tiene ganas de superarse.



Principales actividades económicas

- Pequeña ganadería (entre 10 a 15 vacas)
- Pequeñas granjas y chacras para autoconsumo
- Cría de ganado menor
- Trabajo en las estancias del Chaco y algunos casos en las estancias cercanas
- Venta de leche, queso, huevo, gallina, chancho
- Pesca



Situación del empleo: Casi la totalidad realiza alguna actividad por jornal (changas). Se sustentan de la agricultura y la cría de ganado para consumo y venta según necesidad. Un jornal diario equivale a 65 mil guaraníes dependiendo del trabajo que se solicite.



Actividades recreativas

- **Fiesta patronal:** 1 de octubre, Santa Teresita del Niño Jesús, se comparte con la comunidad en el tinglado de la iglesia. Entre las actividades que se realizan durante la festividad se mencionan:
 - **Laceada:** se realiza en el terreno de la iglesia. Doma de toro.
 - **Torneo de fútbol 5:** principalmente entre adultos.
- **Hípico:** Carrera de caballo de manera semanal, dependiendo de la época.
- **Otras actividades:** En la escuela cada año se festeja el Día del Niño con actos culturales y fiesta.



Medios de comunicación

- **Radio:** Tekopyahu (Loreto), Ypané y Regional (Concepción)
- **TV:** por antena principalmente, Telefuturo
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp. Tienen un grupo conformado por pobladores actuales y también personas que vivieron en la comunidad pero que migraron en busca de mejores oportunidades.



Organizaciones / Asociaciones

- Comisión vecinal
- Comité de mujeres Santa Teresita del Niño Jesús (Tekoporá)
- Referentes de base de la capilla
- Comisión de agua



Principales problemáticas económicas, sociales y culturales

- Pobreza y desigualdad: asociadas principalmente a las necesidades existentes en la zona
- Falta de fuentes de trabajo en la comunidad
- Abigeato en un porcentaje mínimo, y en casos aislados
- No hay un recambio para la producción, la mayoría son adultos mayores.
- Pocos estudiantes en la escuela debido a que el porcentaje de natalidad en la zona es bajo
- Migración y desarraigo



Aspectos necesarios para un mayor desarrollo

- Mejorar los caminos vecinales

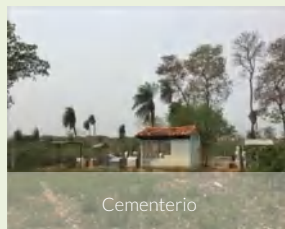
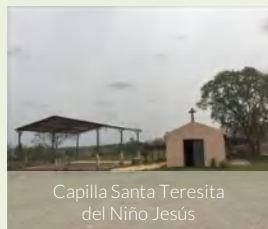
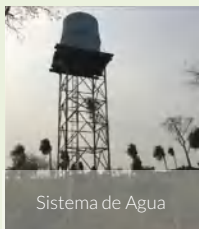


Acceso a servicios básicos

- **Red de abastecimiento de agua:** La comunidad cuenta con un pozo instalado por los pobladores sin asistencia de SENASA.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** Del total de viviendas, 15 familias cuentan letrinas y las 10 restantes tienen instalados baños con pozo ciego.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado): Paso Barreto - Concepción (TTL).
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman los residuos.
- **Energía eléctrica:** Proveída por la ANDE desde el año 2000 aproximadamente.

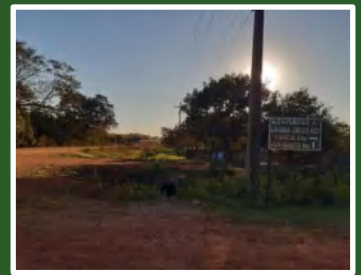


Instituciones y sitios de interés





Laguna Cristo Rey



Información general

Zona: Rural

Distancia del centro urbano: A unos 48,9 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Loreto

División del territorio: Laguna Cristo Rey

Límites: Anderí, Estancia Cristo Rey, Estancia Reino, Estancia Buena Vista y la Ruta de Loreto- Paso Barreto, Estancia Buena Vista

Principales vías de acceso: Ruta Loreto-Paso Barreto, Anderí-Potrero Tacuara - Calle 12-Horqueta (inhabilitada)

Habitantes: 224 personas

Cantidad de familias/viviendas: Más de 50 familias

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

Empezó a poblarse antes del año 1870, posee unos 150 años de antigüedad. Se denomina Cristo Rey en honor al Santo Patrono de la comunidad y Laguna debido a que existe un arroyo en la zona.

La construcción de la iglesia se realizó en el año 1920 y está ubicada frente a la Escuela N° 1723 Andrés T. Morel Cristaldo.

Entre los primeros pobladores se encuentran los de apellido Morel, Giménez, Cristaldo y Salomón; estos últimos provenientes de Italia y Francia. Actualmente existen unas 50 casas a lo largo del territorio.

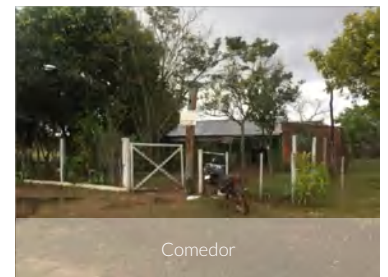


Entre los aspectos positivos se señalan: el lugar, la naturaleza, la tranquilidad y el hecho de ser una zona segura.



Principales actividades económicas

- Predomina la ganadería en pequeña escala.
- Se realizan actividades de granja y cría de ganado menor.
- La agricultura es preferentemente para autoconsumo; la chacra y la huerta familiar son tareas asumidas por las mujeres.
- Por lo general los hombres trabajan en las estancias del Chaco como empleados, otros en las estancias de la zona y algunos son macateros.
- En la zona también están los que se desempeñan como empleados públicos en las instituciones educativas.
- Los pobladores de la comunidad se dedican a la venta de queso, leche, huevo y animales menores. Existen compradores que se abastecen de la comunidad para luego comercializar los productos en las ferias.
- Existen además personas que tienen pequeños comercios tales como: despensas, comedor, venta de minicarga y carbón.



Situación del empleo: No hay fuentes de trabajo en la zona; hay mucha gente que se ve obligada a salir de la comunidad en busca de oportunidades de empleo. La mayoría se sustenta a través de trabajos esporádicos y puntuales (changas); por consiguiente, no tienen ingresos seguros. También hay profesionales que no pueden emplearse en su área de estudio debido a la falta de oportunidades.



Actividades recreativas

- **Fiesta patronal:** Cristo Rey, se celebra el tercer domingo de noviembre. Se organiza laceda mecánica (moto), participan alrededor de 50 a 60 caballos y jinetes. La recaudación es para la iglesia.
- **Deporte:** Se realizan torneos de fútbol.
- **Otras actividades:** En la escuela se organizan festivales, se celebra el Día del Niño y el Día de la Juventud.



Medios de comunicación

- **Radio:** Paso Barreto, Loreto y Arroyito
- **TV:** Por antena, sin eso no hay señal
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp.



Organizaciones / Asociaciones

- Comisión vecinal
- Comisión de agua
- Comité de iglesia



Principales problemáticas económicas, sociales y culturales

- Pobreza
- Falta fuentes de trabajo en la comunidad
- Falta apoyo a la producción campesina, asistencia técnica, capacitación, fortalecimiento y generar canales de comercialización.
- Poca presencia del Estado
- Falta oportunidades para las mujeres y jóvenes (capacitación, iniciativas productivas).
- Migración de jóvenes en busca de oportunidades laborales y educativas
- Desarraigo



Aspectos necesarios para un mayor desarrollo

- Mayor presencia del Estado
- Generar fuentes de trabajo
- Apoyo a la agricultura familiar campesina (capacitación, acompañamiento y asistencia técnica sostenida para la producción del campo)
- Instalar una unidad de salud en la zona
- Tener acceso al almuerzo escolar

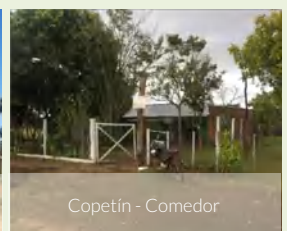
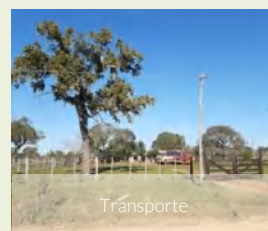
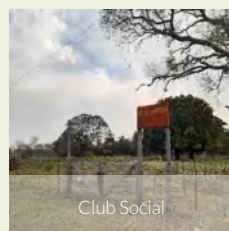
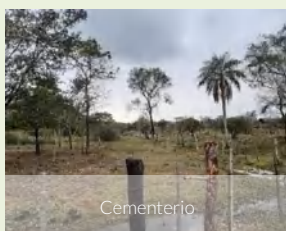
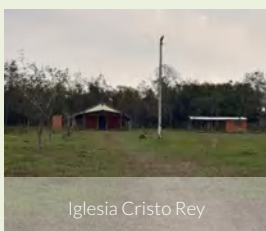


Acceso a servicios básicos

- **Agua potable:** Pozo instalado por la Secretaría de Emergencia Nacional en el 2010. Es autogestiva, no se gestionó con SENASA y abastece a toda la comunidad.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** Baño con pozo ciego en un 70 %.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. Anteriormente ingresaba la empresa de transporte Amanecer, pero el dueño de la misma falleció y dejó de funcionar. En la ruta cuentan con servicio de ómnibus (privado): Paso Barreto-Concepción (Empresa TTL).
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman y una población menor deposita en hoyos.
- **Energía eléctrica:** Proveída por la ANDE.



Instituciones y sitios de interés





Anderi



Información general

Zona: Rural

Distancia del centro urbano: A unos 63 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Loreto

División del territorio: Anderi

Límites: Estancia Cristo Rey, Estancia Isla Guazú, Potrero Tacuara, Laguna Cristo Rey

Principales vías de acceso: Laguna Cristo Rey, Ruta Loreto-Paso Barreto, Potrero Tacuara (callejón que está inhabilitado)

Habitantes: 94 personas aprox

Cantidad de familias/viviendas: Entre 20 a 24 viviendas

Comunidades indígenas: No hay comunidades indígenas en la zona



Aspectos históricos

El nombre de Anderi se vincula a la historia de un joven secretario que murió de sed durante la época de sequía mientras visitaba los campos menos poblados de la zona. Hay una cruz que lleva el nombre de Manuel Anderi para recordarlo.

Los inicios de la comunidad se remontan a los años 1920.

Existen tres grandes familias en la zona: Alcaraz, Ocampos y Giménez. Los primeros pobladores provenían principalmente de las comunidades de Domínguez Nigó y Jhugua Ocampos.

Para acceder al territorio se atraviesa un puente de madera construido por los lugareños; que a su vez es utilizado para conectar con la localidad de Laguna Cristo Rey, y tener salida a la ruta que une Loreto con Paso Barreto.

Las casas están construidas en las zonas altas; por lo que hay muy pocas viviendas visibles desde el camino. Esto se debe a que en épocas de lluvia es recurrente el desborde del arroyo; por lo que se altera la dinámica de entrada y salida del lugar ya que se inundan los caminos y la comunidad queda aislada.

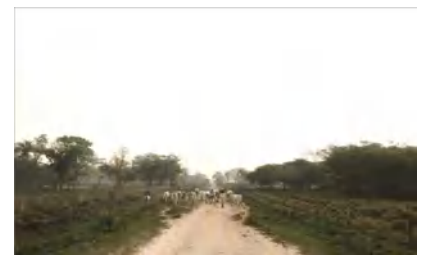


Entre los aspectos positivos se señalan: la tranquilidad, la tierra es apta para la producción, la solidaridad y el buen relacionamiento entre los pobladores, el arraigo por parte de los pobladores.



Principales actividades económicas

- Pequeña ganadería y cría de animales menores para consumo y venta según necesidad
- Los productos de la chacra y huerta son principalmente para consumo.
- Hay personas que se dedican a la elaboración de queso para venta. Hay compradores que llegan hasta la zona para abastecerse y luego volver a vender en la ciudad de Concepción.
- Elaboración y venta de sombreros de Karanda'y
- Se menciona además que en la zona hay un pequeño almacén con productos básicos de consumo familiar y una carpintería.
- Por lo general se dedican a realizar actividades por jornal (changas); y algunos van a trabajar a la ciudad de Concepción.



Situación del empleo: Es una zona que se sustenta de la producción del campo para autoconsumo principalmente, un alto porcentaje realiza trabajos por jornal (changas). No hay empleos fijos, la escuela es la única institución pública de la zona que funciona bajo la peculiaridad de poseer un sistema unidocente.



Actividades recreativas

- **Fiesta patronal:** Virgen del Rosario, se celebra el 6 de octubre. Se realizan festivales, doma de toro mecánico, rezo, karu guasu, recorrido del santo, bingo, torneo de fútbol, entre otras actividades.
- **En las escuelas:** Se festeja el Día del Niño.



Medios de comunicación

- **Radio:** Concepción y Aquidabán de Paso Barreto, Radio Cristal de Arroyito
- **TV:** SNT (canal de aire), el resto por antena
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp, pero tienen problemas de cobertura en la zona.



Organizaciones / Asociaciones

- Comisión vecinal
- Comisión de festejo para la celebración de la fiesta patronal (es puntual para la actividad)
- Asociación de Cooperadora Escolar (ACE)



Principales problemáticas económicas, sociales y culturales

- Pobreza y desigualdad: asociada principalmente a las necesidades existentes en la zona
- Faltan fuentes de trabajo en la comunidad.
- Caminos en mal estado
- Falta apoyo a la producción campesina, asistencia técnica, capacitación, fortalecimiento y canales para la comercialización de productos; sobre todo en época de creciente.
- Crisis económica, que se agudizó con la pandemia (escaso y nulo movimiento económico)
- Pérdida de producción en época de creciente, que no es asistida por parte del gobierno local.
- Escasa presencia del Estado en la zona
- Desborde del arroyo



Aspectos necesarios para un mayor desarrollo

- Mejorar los caminos vecinales
- Construcción de una Unidad de Salud en la zona
- Acceso a una red de abastecimiento de agua comunitaria
- Asistencia técnica sostenida para la producción familiar campesina

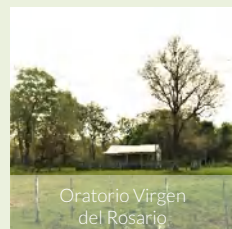
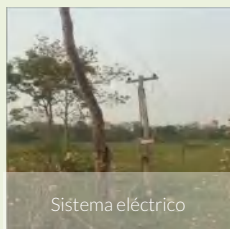


Acceso a servicios básicos

- **Agua potable:** En la comunidad tienen pozos o tajamares en sus terrenos. Durante la sequía hay problemas de abastecimiento de agua.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** La mayoría de los hogares tiene letrina.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. No cuentan con servicio de ómnibus.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman.
- **Energía eléctrica:** Proveída por la ANDE, desde hace aproximadamente 10 años.



Instituciones y sitios de interés





Paso Barreto



Información general

Zona: Rural

Distancia del centro urbano: A unos 58 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Paso Barreto

División del territorio: Inmaculada Concepción, María Auxiliadora, San Salvador, Santo Domingo, 6 de Agosto, Nuevo Barrio y un sector denominado Ex Carbonería

Límites: Al Norte con Estancia Prosperidad, al sur con Isla Tuyu, al oeste con el río Aquidabán – Loreto y al este: Estancia Rancho Z

Principales vías de acceso: Ruta Loreto. Paso Barreto, Calle 15, Cruce x, San Alfredo, Jhugua Ñandu-P. Mbutu – Horqueta

Habitantes: 1100 personas aprox.

Cantidad de familias/viviendas: 862 familias

Comunidades indígenas: Existen 3 comunidades indígenas situadas en la zona Norte del Distrito, una de ellas linda con el departamento de Amambay. Son de la etnia Mbya Guaraní y Pa'i Tavytera. Son unas 123 familias: Jeguahaty (55 familias), Tacuarendyju (13) y Vy'a Renda (45).



Aspectos históricos

La ciudad de Paso Barreto empezó a poblarse en el año 1800. Durante la época de la Guerra Grande pasaron las tropas del Mariscal López. Cuentan que cerca del río Aquidabán vivía un hombre de apellido Barreto, en una zona de paso donde los habitantes referenciaban como "el paso de don Barreto", de esta denominación proviene el origen de su nombre.

Con la creación del Ministerio de Obras Públicas, durante el periodo del General Samaniego, la zona empezó a crecer y desarrollarse a nivel de infraestructura. Todas las instituciones que se crearon se iniciaron en su época. El 26 de agosto de 1970 se realizó la apertura oficial de la escuela que lleva su nombre y queda aproximadamente a unos 500 metros del río Aquidabán.

Los apellidos más conocidos de la zona son: Sánchez, Franco, López, Blanco. Los Luschich eran emigrantes de Checoslovaquia que vinieron después de la Guerra del Chaco. También algunos excombatientes se quedaron a poblar el territorio.

Durante la época de auge de los aserraderos muchas personas provenientes principalmente de Curuguaty empezaron a asentarse en el lugar. En la actualidad algunos provienen de las localidades de Concepción, Pedro Juan Caballero y Coronel Oviedo, principalmente para trabajar por temporadas.

La distritación de Paso Barreto es reciente, la misma se realizó el 31 de mayo de 2013 y es una fecha emblemática para los pobladores de la zona.



Entre los aspectos positivos se señalan: Tranquilidad, seguridad, no hay delincuencia, la unidad entre la gente, el ambiente y el bajo nivel de contaminación. Además, se menciona que el río y la playa son atractivos turísticos durante las épocas de elevada temperatura.



Principales actividades económicas

- Agricultura, huerta y horticultura principalmente para consumo; una sola familia se dedica a la venta.
- Ganadería en pequeña y gran escala (estancias)
- Trabajo en las estancias cercanas (empleados fijos)
- Aserraderos (piso de parquet, incienso). Desde 1994 empezaron a funcionar los primeros aserraderos, después fue mermando debido a la falta de materia prima.
- Pesca para venta y autoconsumo
- Algunos se dedican a la producción y venta de carbón.
- Las mujeres se dedican a la venta de comida, peluquería, confección de ropa con el apoyo del SNPP.
- Comercio: despensa, copetín, servicio de minicarga, entre otros
- Funcionarios públicos: algunos se emplean como docentes en escuelas y colegios; otros trabajan en la USF, la Municipalidad u otras instituciones del Estado.
- Migración con fines laborales a las ciudades de Concepción, Asunción, y también a países como España
- Venta ambulante de frutas y verduras
- Hay pequeños talleres de moto y automóviles donde la gente también se emplea.



Situación del empleo: Hay mucho desempleo en la zona. Durante la pandemia, se registra un aumento de la venta de comida rápida y más elaboradas; también se incrementaron las huertas familiares (al menos una por vivienda).

Hay algunas personas que se encontraban empleadas en otras ciudades como Ciudad del Este, y tuvieron que regresar debido al contexto Covid-19.

En la ciudad funcionan aserraderos (compradores de Filadelfia, exportación de piso parquet e incienso). Se menciona que la producción disminuyó por falta de materia prima.

En la zona son mayoritariamente jornaleros, muchos de ellos jóvenes que se dedican a realizar changas ("por díaseros") limpian casas, acarrear arena, abono, y trabajan el aserradero.

Escasos empleos para las mujeres: algunas son funcionarias del Estado, en su mayoría ama de casas y por lo general migran a otras ciudades.



Actividades recreativas

- **Fiesta Patronal:** El 8 de agosto se celebra el día de Santo Domingo.
- **Deportes:** Torneo de fútbol de mujeres y hombres (hay una escuela de fútbol). Además, se inició la liga de varones y mujeres; la principal es la liga juvenil. Se practica también vóley y piki vóley.
- **Hípico:** Carrera de caballo. Laceda, el club de lazo eso es lo que más atrae gente de otros lugares.
- **Festival Municipal** de Paso Barreto del río Aquidabán
- **Fiestas bailables:** Los fines de semana, organizadas por las comisiones de la comunidad.
- **Desfile:** El principal se realiza en junio por la Paz del Chaco y el aniversario de distritación; ya que se juntan ambos eventos en una celebración.
- **En las instituciones educativas:** Se organizan torneos interescolares e intercolegiales o intercambio e interdistritales desde la ACE o el EGIE.
- **Turismo:** Playa en el río Aquidabán. Suelen ir personas a pescar o pasar el día.
- **Actividades de la USF:** Club de embarazadas y de madres, octubre rosa. Con pacientes diabéticos se realizan charlas y actividades lúdicas.



Medios de comunicación

- **Radio comunitaria:** Aquidabán Comunicaciones y Santa Cecilia, Lira FM, Radio Regional (Concepción)
- **TV:** por antena principalmente (Claro, Tigo y Personal)
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp. Facebook: página de actividades de la Municipalidad.



Organizaciones / Asociaciones

- | | |
|---|---|
| <ul style="list-style-type: none"> • Comisiones vecinales • Comisiones de iglesia • Grupos juveniles de la iglesia y los colegios • Asociación de Cooperadores Escolares-ACE y EGIE | <ul style="list-style-type: none"> • Consejo de salud • Asociación de la radio Aquidabán • Comisión de agua Junta de Saneamiento • Comisión de mujeres (Tekoporà) |
|---|---|



Principales problemáticas económicas, sociales y culturales

- | | |
|---|---|
| <ul style="list-style-type: none"> • Pobreza • Faltan fuentes de trabajo en la comunidad, principalmente para jóvenes y mujeres. • Migración en busca de oportunidades laborales y educativas (Asunción y Concepción) • Desarraigo • Contaminación debido a la utilización de hornos para carbón | <ul style="list-style-type: none"> • Conflictos cuando hay presencia de personas que no son del lugar • Falta educación sexual debido al aumento de embarazos adolescentes. • Inundación • Falta oferta educativa terciaria (universidades). • Machismo por cuestiones culturales y religiosas |
|---|---|



Aspectos necesarios para un mayor desarrollo

- Fuentes de trabajo y remuneración justa
- Generación de oferta educativa universitaria
- Apoyo a la producción campesina, asistencia técnica sostenida, mercado seguro, comercialización a precios justos de venta
- Trabajo articulado entre partidos políticos de cara al desarrollo del municipio
- Mejorar los caminos vecinales
- Instalación de industria de lácteos
- Invertir en recuperación del caudal del río



Acceso a servicios básicos

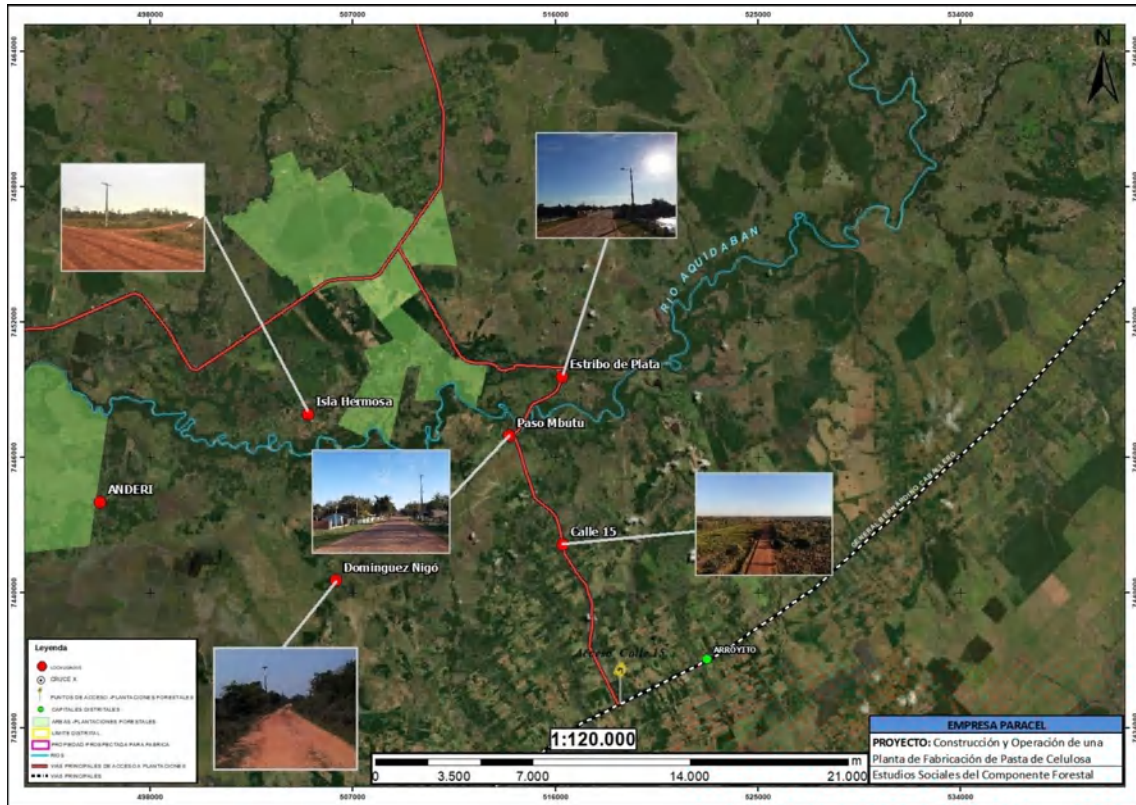
- **Red de abastecimiento de agua:** Cuentan con red de agua potable, se organizan a través de juntas de saneamiento.
- **Red de desagüe:** Cuenta con desagüe pluvial y alcantarillado sanitario en algunos lugares de la zona urbana.
- **Pozo-Letrina:** La mayoría de los hogares en la zona urbana de Paso Barreto tienen baños con pozo ciego y cámara séptica debido al terreno.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado). Empresa TTL-Paso Barreto. Paso Barreto hasta concepción día de por medio. Jhugua Ñandú-Horqueta.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman y una población menor deposita en hoyos. En el predio de la Municipalidad queman una vez por semana en un horno.
- **Energía eléctrica:** Proveída por la ANDE.



Instituciones y sitios de interés



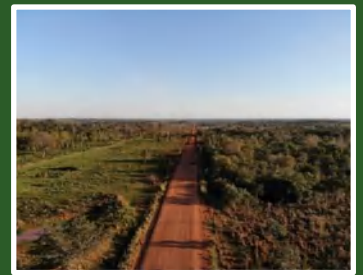
Mapa Acceso Calle 15 (Zona Sur)



El acceso conocido como Calle 15, se encuentra en el límite del distrito de Horqueta y Arroyito. Este trayecto conecta con las comunidades de: Calle 15, Dominguez Nigó, Isla Hermosa, Paso Mbutu y Estribo de Plata.



Calle 15 (Norte)



Información general

Zona: Rural

Distancia del centro urbano: A unos 78 km de la ciudad de Concepción (Ruta V-Calle 15)

Municipio del cual depende: Horqueta

División del territorio: Calle 15 Zona Norte
Límites: Calle 14, Paso Mbutu, Arroyito, Ruta V- Calle 15 Sur

Principales vías de acceso: Ruta V, Calle 14, Paso Mbutu

Habitantes: 241 personas

Cantidad de familias/viviendas: Alrededor de 51 familias

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

La escuela de la comunidad se fundó en 1960; pero alrededor de 1900 ya empezó a habitarse la zona. Se la conoce como calle 15 debido a que desde el municipio de Horqueta cada dos mil metros hay callejones que están enumerados.

Calle 15 Norte, está más próxima a la localidad de Paso Mbutu; y Calle 15 Sur se encuentra del otro lado de la ruta V.

A su vez, el callejón (camino) divide a la comunidad de Horqueta y Arroyito desde la distritación de este último en el año 2016.

Además, se menciona que entre los primeros pobladores se encuentran los de apellido Alarcón, Benítez y Pereira.



Entre los aspectos positivos se señalan: que los pobladores se conocen, son solidarios; y la comunidad es tranquila.



Principales actividades económicas

- Ganadería en pequeña escala principalmente
- Agricultura para consumo; los rubros de renta son el sésamo, la sandía, la piña y el feijao.
- Pequeños comercios: despensa, lugares de venta de combustible
- Algunos funcionarios, docentes y mayormente jubilados del sector



Situación del empleo: Los jóvenes migran al terminar el colegio a ciudades como Pedro Juan Caballero o Asunción. Esto se debe principalmente a la falta de empleos en la zona.



Ganadería



Actividades recreativas

- **Fiesta patronal:** Divino Niño, se celebra el 20 de julio. Se realiza una misa, procesión y un gran almuerzo en la comunidad.
- **Deportes:** Torneos de fútbol, vóley, carrera de 100 m llano (en calle 15 Sur)
- **Otras celebraciones:** La ACE se encarga de organizar torneos para recaudar fondos. Se celebra el Día del Niño.



Medios de comunicación

- **Radio:** Comunitaria 102.5 y Radio Cristal (Arroyito), Los Ángeles (Horqueta)
- **TV:** SNT y Telefuturo por antena
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp. No hay buena señal en la zona.



Organizaciones / Asociaciones

- Comisión de iglesia
- Comisión de Deporte (carrera)
- Asociación de Cooperadora Escolar (ACE)



Principales problemáticas económicas, sociales y culturales

- Faltan fuentes de trabajo en la comunidad.
- Escasa presencia del Estado en la zona
- Migración, en su mayoría jóvenes
- No se cuenta con red de abastecimiento de agua potable. El agua es salada.



Aspectos necesarios para un mayor desarrollo

- Apoyo y presencia del Estado en la comunidad
- Instalar un sistema de abastecimiento de agua potable en la zona



Acceso a servicios básicos

- **Agua potable:** En la comunidad no dispone de agua potable para consumo. En las viviendas cuentan con pozos particulares o tajamares para el uso diario.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** Aproximadamente el 70% de los hogares aún cuentan con letrina, el 30 % restante con pozo ciego.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado): Jhugua Ñandu - Concepción, Puentesíño - Concepción (día de por medio).
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman.
- **Energía eléctrica:** Proveída por la ANDE, desde 1990 aproximadamente.

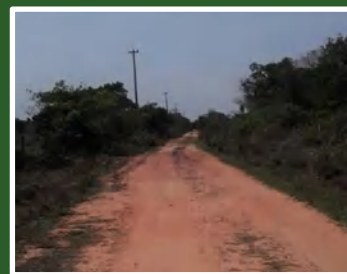


Instituciones y sitios de interés





Domínguez Nigó



Información general

Zona: Rural

Distancia del centro urbano: A unos 77 km de la ciudad de Concepción (Ruta V)

Municipio del cual depende: Horqueta

División del territorio: Domínguez Nigó

Límites: Isla Hermosa, Paso Senda, Potrero Tacuara

Principales vías de acceso: Loreto-Anderi, Potrero Tacuara, desde Isla Hermosa (en canoa). Desde Paso Mbutu por calle 12. Desde Horqueta por Callejón 40, calle 10, 11 y 12

Habitantes: No mencionan

Cantidad de familias/viviendas: Alrededor de 36 familias

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

La comunidad tiene aproximadamente 25 años de antigüedad. Las casas distan entre 2 a 3 km unas de otras.

Entre los primeros pobladores están los de apellido Zabala, Giménez y Fernández.

✓ **Entre los aspectos positivos se señalan:** la gente, el hecho de que todos se conocen y la tranquilidad.



Principales actividades económicas

- Elaboración de sombreros de Karanda'y para venta a las despensas de la comunidad o a un "patrón" que comercializa en otras zonas
- Pocos trabajan en las estancias como encargados.
- Están los que trabajan por jornal y se dedican a hacer alambrado o limpieza de terreno en las estancias; pero no se da de manera frecuente.
- Agricultura para consumo; producción de mandioca, maní, caña de azúcar
- Ganadería en pequeña escala
- Cría de ganado menor
- Producción de leche, huevo, queso. Con algunos productos permutan por artículos en las despensas.
- Pequeños comercios; despensa y comercial



Vivienda



Situación del empleo: La venta de sombrero de Karanda'y se realiza a través de intermediarios o permutan a cambio de productos en las despensas de la zona. El desempleo es elevado y predomina el trabajo por jornal, pero no de forma sostenida.



Actividades recreativas

- **Fiesta patronal:** El 24 de junio, día de San Juan, se comparte con la comunidad y se realizan comidas tradicionales como el so'o hu'ú.
- **Club Hípico:** Carrera de caballo cada 15 días
- **Torneo de fútbol:** En las comunidades de Potrero Tacuara, Anderi, Calle 12, isla Tuyu, Cuartelero
- **Actividad de Pesca:** En el río Aquidabán



Medios de comunicación

- **Radio:** Récord de Arroyito y Radio Regional de Concepción
- **TV:** por antena principalmente.
- **Celular:** no cuentan con cobertura.



Organizaciones / Asociaciones

- Comisión vecinal
- Comisión de agua potable
- Comisión de iglesia pro festejo
- Equipo de Gestión Institucional Educativa EGIE
- Comisión de deporte



Principales problemáticas económicas, sociales y culturales

- Faltan fuentes de trabajo.
- Falta mercado seguro para comercialización de productos artesanales.
- Falta mejorar los caminos vecinales.
- Abigeato



Aspectos necesarios para un mayor desarrollo

- Mejorar los caminos vecinales
- Instalar un sistema de abastecimiento de agua potable en la zona



Acceso a servicios básicos

- **Agua potable:** Cuentan con pozo artesiano desde hace cinco meses. Se gestionó a través de la Gobernación. El agua es tratada con cloro.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** La mayoría de las viviendas aún tiene letrina en las viviendas. Aproximadamente siete viviendas con pozo ciego.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona no cuentan con ómnibus, tienen que salir hasta calle 12 para disponer del servicio.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje depositan en hoyos.
- **Energía eléctrica:** Proveída por la ANDE, desde 1999.



Instituciones y sitios de interés



Esc. Básica 4335



Hípico-Domínguez Nigó



Sistema de agua



Capilla María Auxiliadora



USF- Cuartelero



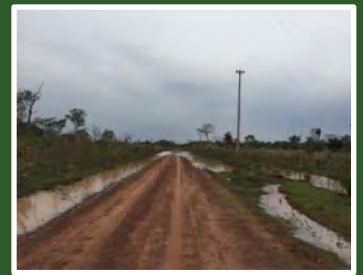
Iglesia Evangélica Filadelfia



Oratorio San Juan Bautista



Isla Hermosa



Información general

Zona: Rural

Distancia del centro urbano: A unos 80 km de la ciudad de Concepción (Loreto- Paso Barreto)

Municipio del cual depende: Paso Barreto

División del territorio: La Palma, San Pedro, San Miguel y Barrio Centro

Límites: Jhugua Ñandú, Ruta Paso Barreto- Loreto, Paso Mbutu, Domínguez Nigó, río Aquidabán

Principales vías de acceso: Ruta Paso Barreto- Loreto, Cruce Calle 14 - Cruce Calle 15, Paso Mbutu -Jhugua Ñandú, Dominguez Nigó

Habitantes: 700 personas

Cantidad de familias/viviendas: Alrededor de 160 viviendas

Comunidades indígenas: No hay comunidades indígenas en la zona.




Aspectos históricos

Isla Tuyu, como era conocida anteriormente tiene alrededor de 170 años.

Empezó a poblarse en el año 1850. Los primeros pobladores eran de apellido; Giménez, Silva, Núñez, De León, Escobar, Báez, Vargas.

La escuela se construyó en 1913 y el primer profesor era de apellido Silva.

 **Entre los aspectos positivos se señalan:** la gente, es una comunidad unida, se destaca la tranquilidad, la naturaleza, y la seguridad de la zona.



Principales actividades económicas

- Pequeña ganadería para consumo; en algunos casos producen queso y venden.
- En menor medida trabajan en la chacra, ya que la tierra no es apta para cultivo.
- Los hombres trabajan en las estancias del Chaco a la edad de 12 o 13 años.
- Las jóvenes migran a Asunción, Concepción, Pedro Juan; España o Argentina.
- Alrededor de 80 familias se dedican a la elaboración y venta de sombreros de Karanda'y.
- Algunos trabajan en el frigorífico, y por lo general son jornaleros ("pordiasero").
- Otros son funcionarios públicos en las instituciones de la zona (salud, educación).



Elaboración de sombrero de Karanda'y



Comité Brazos Unidos del sombrero de Karanda'y



Situación del empleo: Existen muy pocas fuentes de trabajo en la comunidad y un alto porcentaje de desempleo. La situación se complejiza teniendo en cuenta que varias personas regresan del Chaco debido a que la oferta de trabajo disminuyó durante la pandemia. La gran mayoría trabaja por jornal haciendo changas y una gran cantidad de personas migra a otras ciudades y ya no regresa.

En la comunidad se dedican principalmente a la agricultura y ganadería en pequeña escala para autoconsumo. Mencionan que las personas que se emplean en el frigorífico ganan más, pero las condiciones laborales no son óptimas, se habla de un sistema de explotación debido a la carga horaria alta y la falta de estabilidad laboral.



Actividades recreativas

- **Fiesta patronal:** San Pedro, el 29 de junio y San Miguel el 29 de septiembre. Para la celebración se organiza desfile, lotería y fiesta.
- **Club Hípico:** Se realiza carrera de caballo.
- **Deporte:** Torneos de fútbol "femenino y masculino". Los hombres participan de competencias que se organizan en Paso Mbutu, Jhugua Ñandu, Horqueta y Paso Barreto. También se realizan torneos de vóley.
- **Desde la USF:** Se organiza caminatas y participan de la actividad los adultos mayores y los niños.
- **En las escuelas:** Se celebra el Día del Niño, día de la juventud, torneo interescolar e interclase.



Medios de comunicación

- **Radio:** Cristal FM 95.6 (Arroyito)
- **TV:** por antena principalmente.
- **Celular:** Se cuenta, pero la señal de internet en la zona no es buena.



Organizaciones / Asociaciones

- Comisión vecinal
- Comisión de Iglesia (2)
- Asociación de Cooperación Escolar
- Comité de Mujeres Brazos Unidos del Sombrero de Karanda'y (dejaron de activar durante la pandemia)
- Grupo juvenil de la iglesia



Principales problemáticas económicas, sociales y culturales

- Faltan fuentes de trabajo.
- Pobreza
- Falta de oportunidades, especialmente para los jóvenes
- Migración y desarraigo
- Deficiencia en la educación impartida en las escuelas
- Disminución de la población joven



Aspectos necesarios para un mayor desarrollo

- Brindar educación de calidad.
- Apoyo a la producción campesina, asistencia técnica sostenida y estrategias de comercialización.
- Fuentes de trabajo, especialmente para los jóvenes.
- Mejorar la infraestructura, equipamiento de salud.
- Una antena repetidora de internet.



Acceso a servicios básicos

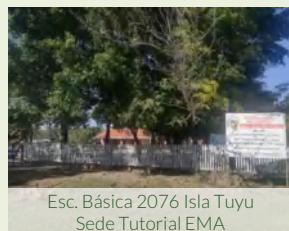
- **Agua potable:** Cuentan con red de abastecimiento de agua gestionada a través de SENASA; desde hace 10 años.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** El 2% de las viviendas posee baño con pozo ciego, los demás cuentan con letrina.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado) desde la ruta Loreto-Paso Barreto: Paso Barreto – Concepción, y Puentesño - Concepción.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman y una población menor deposita en hoyos.
- **Energía eléctrica:** Proveída por la ANDE desde hace 13 años. La instalación es muy precaria, hay muchos cortes de energía eléctrica. Para mantenimiento de sistema vienen funcionarios de Paso Barreto o Jhugua Ñandu.



Instituciones y sitios de interés



Esc. Básica 15308 Tte. Cnel. Hermes Arámbulo



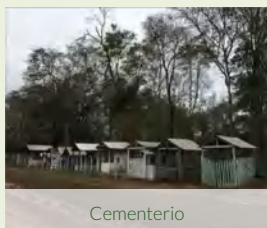
Esc. Básica 2076 Isla Tuyú Sede Tutorial EMA



Subcomisaría 28 Isla Tuyú



Sistema de agua



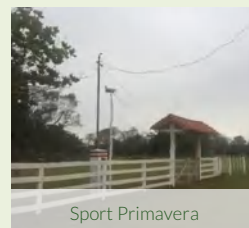
Cementerio



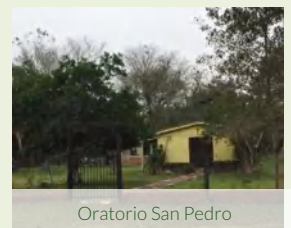
Hípico Las Palmas



USF Isla Tuyú



Sport Primavera



Oratorio San Pedro



Paso Mbutu



Información general

Zona: Rural

Distancia del centro urbano: A unos 84 km de la ciudad de Concepción (Ruta V- Calle 15)

Municipio del cual depende: Horqueta

División del territorio: Paso Mbutu

Límites: Arroyito, Col. Jorge Sebastián Miranda., Estribo de Plata, Domínguez Nigó, Paso Senda, Calle 15-Horqueta, Calle 15- Arroyito

Principales vías de acceso: Calle 15, Calle 14, Jhugua Ñandu, Paso Barreto y Puentesíño

Habitantes: 500, aproximadamente

Cantidad de familias/viviendas: Alrededor de 120 familias

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

Cuentan que Paso Mbutu es más antigua que la ciudad de Horqueta; pero no hay escrituras que lo demuestren. Mencionan que desde la época de los López empezó a poblarse el lugar.

En los inicios sólo existían tres casas que servían de depósito de yerba mate, de Tropa 40; de ahí se trasladaba el cargamento hasta Concepción. El nombre se vincula a dos aspectos: Mbutu por el insecto; y, porque era un lugar de “paso” para transportar yerba mate, de Pedro Juan Caballero a Concepción, con tropas que se trasladaban en carretas.

Entre los primeros pobladores se encuentran: los Soria, Pianderi, Peña y Regunega.

Entre los aspectos positivos se señalan: la tranquilidad, las costumbres y tradiciones, el río, la plaza y la naturaleza. Se menciona además que es una comunidad bastante unida y solidaria.



Principales actividades económicas

- Agricultura principalmente para consumo (mandioca, poroto, maíz). Alrededor de unas 20 familias tienen huertas.
- Algunos se dedican a la producción de banana; y otros producen pastizales para los ganaderos de la zona.
- Ganadería en pequeña y gran escala
- Hay personas que se dedican a la venta de leche.
- Producción de sombrero de Karanda'y y tarrafa. Hay compradores que llegan a la comunidad y luego venden en otras zonas.
- Funcionarios de instituciones públicas existentes en la zona (USF, escuela, registro civil y policía)
- Pesca para consumo y venta
- Actividades de caza para consumo
- Trabajo por jornal en las estancias cercanas y del Chaco: hacen limpieza de terreno, alambrado, fabricación de postes. Acuerdan una cantidad de hectáreas para trabajar. Son en su mayoría varones los que se dedican y también familias.
- Las mujeres se dedican a la venta ambulante de comidas dulces y saladas, hacen limpieza y lavan ropa.
- También hay pequeños comercios como: despensas, comedores, puesto de venta de combustible y taller mecánico.



Situación del empleo: Hay mucho desempleo. La mayoría realiza changas por jornal. Los adolescentes empiezan a trabajar al terminar el 9no grado. Como consecuencia del desempleo hay migración al Chaco, a Pedro Juan Caballero o Asunción; y en algunos casos a España o Argentina.



Actividades recreativas

- **Fiesta patronal:** El santo Patrono es San José, se celebra el 1 de mayo. Además, se realizan otras celebraciones como: el día de María Auxiliadora, el 24 de mayo; Santa Rosa, el 30 de agosto. Deportes: laceda, carrera de caballo, vóley, torneos de fútbol.
- **Otras Actividades:** Playa, pesca y fiestas en el río Aquidabán; principalmente en la época de Navidad o Año Nuevo donde se reúnen personas de las localidades de Horqueta, Arroyito, Jhugua Ñandu.
- **En la escuela** se celebra además el día del niño y de la juventud y el día del Folclore.
- **Desde la USF:** Se realizan club de hipertensos y diabéticos, madres PANI y adultos mayores.



Medios de comunicación

- **Radio:** Cristal 96.5 y radio comunitaria 102.5 (Arroyito), Guyra Campana (Horqueta), Regional (Concepción)
- **TV:** Telefuturo, SNT, y por antena
- **Celular:** La principal forma de comunicación es a través de WhatsApp, pero en la zona no hay buena señal.



Organizaciones / Asociaciones

- Comisión vecinal
- Comisión de Pescadores de Paso Mbutu (en formación)
- Asociación de Cooperadora Escolar (ACE)
- Consejo de Salud
- Comisión de Agua
- Comisión de iglesia laicos
- Liga de fútbol Sport Paso Mbutu
- Escuela de fútbol



Principales problemáticas económicas, sociales y culturales

- Pobreza
- Faltan fuentes de trabajo en la comunidad.
- Trabajos esporádicos y precarizados
- Migración y desarraigo
- Problemas de abastecimiento de agua potable (la misma es salada)
- Faltan universidades públicas en la zona.
- Inundación



Aspectos necesarios para un mayor desarrollo

- Red de abastecimiento de agua potable para la comunidad
- Fuentes de trabajo
- Centros de formación (Universidad Pública, mandos medios)
- Invertir y desarrollar el turismo. Infraestructura para potenciar la playa. Un parador comunitario para vender los productos
- Mejorar los caminos vecinales
- Formación y fortalecimiento de comité productivos locales
- Apoyo a los productores de la zona por parte del gobierno local

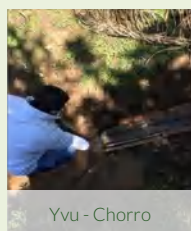
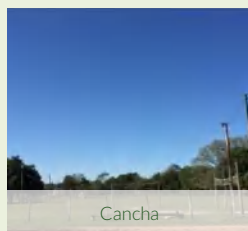


Acceso a servicios básicos

- **Agua potable:** La comunidad no dispone de un sistema de red de agua potable. Utilizan pozo para uso cotidiano y para beber se abastecen de la naciente a la que denominan Yvu o Chorro. También utilizan agua de lluvia.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** La mayoría de los hogares tienen letrinas, y en menor porcentaje pozo ciego.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado): Jhugua Ñandu-Concepción, y Puentesño- Concepción (día de por medio).
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman.
- **Energía eléctrica:** Proveída por la ANDE.



Instituciones y sitios de interés





Estribo de Plata



Información general

Zona: Rural

Distancia del centro urbano: A unos 88 km de la ciudad de (Ruta V- Calle 15)

Municipio del cual depende: Paso Barreto

División del territorio: Estribo de Plata

Límites: Paso Mbutu, Colonia Jorge, Sebastián Miranda, Estancia La Blanca

Principales vías de acceso: Calle 15 - Paso Mbutu, Colonia Jorge Sebastián Miranda

Habitantes: 50 personas

Cantidad de familias/viviendas: Alrededor de 17 viviendas

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

La comunidad empezó a poblarse antes de 1904; tiene al menos unos 100 años de antigüedad. Cuentan que el nombre se debe a que durante el periodo de los López se utilizaban estribos de plata para montar a caballo. Los primeros pobladores eran de apellido Pereira.

Antes había en la comunidad unas 33 viviendas; pero muchos migraron a la Colonia Jorge Sebastián Miranda.

✓ **Entre los aspectos positivos se señalan:** la tranquilidad, la libertad, la naturaleza, la tierra y el río.



Principales actividades económicas

- Se dedican a la ganadería principalmente, para autoconsumo y venta según necesidad cada 15 o 22 días.
- Agricultura; producen principalmente mandioca, ya que la tierra no es apta para cultivar.
- Cría y venta de ganado menor (gallina principalmente)
- En algunos hogares se produce queso para la venta.
- Los varones van a trabajar al Chaco y las mujeres principalmente a España o Argentina.



Situación del empleo: No hay fuentes de trabajo en la comunidad, la gente migra en busca de mayores oportunidades. El rubro principal es la ganadería para consumo.



Actividades recreativas

- **Fiesta patronal:** El 8 de diciembre, día de la Virgen de Caacupé, se celebra con una misa, un festival y un "karu guasu" para compartir entre los pobladores de la comunidad.
- **Hípico:** Se organizan carreras de caballo.



Medios de comunicación

- **Radio:** Cristal FM-Aroyito
- **TV:** Telefuturo, SNT, y por antena
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp.



Organizaciones / Asociaciones

- Comisión vecinal



Principales problemáticas económicas, sociales y culturales

- Falta de fuentes de trabajo en la comunidad
- Inseguridad, asaltos
- Falta apoyo a la producción campesina, asistencia técnica, capacitación, fortalecimiento y canales de comercialización a precios justos.
- Abigeato



Aspectos necesarios para un mayor desarrollo

- Tener un rubro de exportación como el tártago
- Mercado seguro y precios justos de venta
- Apoyo del gobierno y asistencia técnica sostenida para la producción campesina

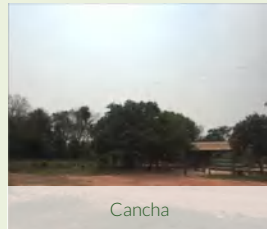


Acceso a servicios básicos

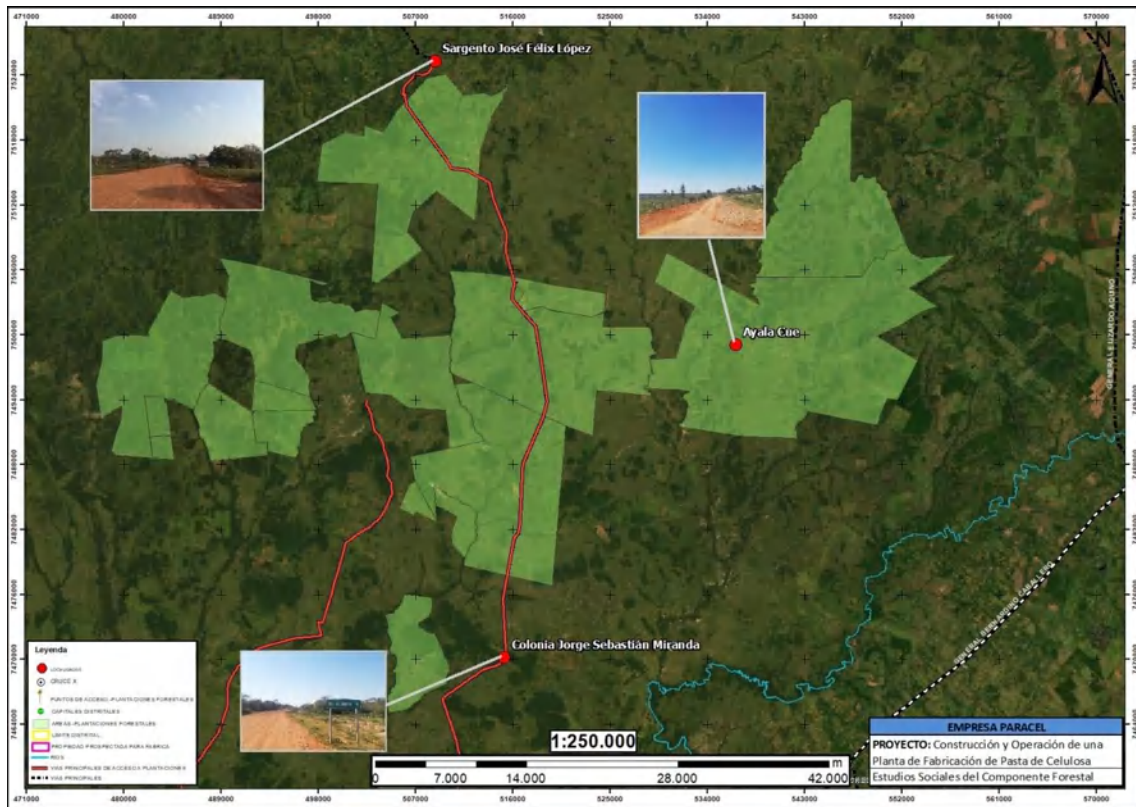
- **Agua potable:** La comunidad no cuenta con sistema de abastecimiento de agua potable. La mayoría de los hogares posee pozos; 2 de las viviendas de la zona no cuentan con pozo y se abastecen de los vecinos más próximos.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** La mayoría de las viviendas tienen letrinas, solo 5 cuentan con baños con pozo ciego en la comunidad.
- **Medio de transporte:** El medio de transporte principal es la motocicleta y caballo. En la zona cuentan con servicio de ómnibus (privado) tres veces por semana. (Horarios: para ir a Concepción a las 5:15 AM, para regresar sobre la Ruta V Pasa a las 15:00 PM): Puentesíño - Concepción, y Jhugua Ñandu - Concepción.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. En mayor porcentaje queman y tiran en hoyos.
- **Energía eléctrica:** Proveída por la ANDE. Hay una vivienda sin conexión eléctrica. Hay cortes frecuentes de energía eléctrica en la zona.



Instituciones y sitios de interés



Mapa Acceso Calle 15 (Zona Norte)



En dirección al Norte, siguiendo el acceso de Calle 15, se encuentran las comunidades de Colonia Jorge Sebastián Miranda, Sargento José Félix López y Ayala Cue.

Para llegar a la comunidad de Ayala Cue por esta vía, se debe ingresar unos 20 km en dirección al distrito de Bella Vista Norte por un camino de servidumbre de paso localizado al margen derecho de la ruta, en el distrito de Sargento José Félix López.



Jorge Sebastián Miranda



Información general

Zona: Rural

Distancia del centro urbano: A unos 101, 85 km de la ciudad de Concepción (Loreto-Paso Barreto)

Municipio del cual depende: Paso Barreto

División del territorio: Cerrito, San Antonio, San Juan, San Isidro, San

Sebastián, Alegría y Las Mercedes y La Esperanza (en proceso de aprobación)

Límites: Estancia Trementina - Puentesíño, Paso Barreto

Principales vías de acceso: Calle 15 - Paso Mbutu, Puentesíño, Paso Barreto

Habitantes: 1300 personas, aprox.

Cantidad de familias/viviendas: No mencionan

Comunidades indígenas:

Jeguahaty: situada en la estancia Aguerito (55 familias aproximadamente)

Vy'arenda Boquerón: camino a Puentesíño (45 familias aproximadamente)



Aspectos históricos

No mencionan con exactitud el año de origen de la comunidad, cuentan que desde antes de 1950 ya había pobladores en la zona. Lleva el nombre de Jorge Sebastián Miranda en homenaje a un profesor horqueteño que falleció. Pero la comunidad es más conocida como Jhugua Ñandu; el nombre se debe a que anteriormente había una zona de estancias conocida como Jhugua donde había muchos avestruces.



Entre los aspectos positivos se señalan: la tierra, la tranquilidad, la gente es trabajadora con deseos de estudiar y superarse.



Principales actividades económicas

- Aproximadamente el 15% se dedica a la producción agrícola. Se cultiva sésamo, mandioca y maíz para consumo. El sésamo y el zapallo son rubros de renta. Actualmente hay más producción hortícola; principalmente tomate, sandía y banana.
- La mayoría se dedica a la ganadería en pequeña escala. Se produce leche y queso para consumo y también para venta.
- Algunos hombres trabajan en las estancias del Chaco, por jornal o por trato (subcontratados), o con sueldo fijo. En algunos casos van a las estancias acompañados de sus esposas para trabajar; éstas son encargadas de las cocinas. Otros son "jornaleros" en las estancias cercanas.
- Un gran porcentaje trabaja por jornal diario (changas) en rubros como la construcción (albañilería).
- Las mujeres en su mayoría son amas de casas o poseen pequeños negocios como despensa, decoración, alquiler de sillas. Las que son estudiantes siguen formándose y trabajando en las ciudades.
- Algunos son funcionarios públicos (salud, educación).



Situación del empleo: Se estima que el porcentaje de desempleo es del 30%. La mayoría trabaja haciendo changas. No muchos se dedican a la agricultura debido a la falta de caminos y la dificultad para trasladar la producción; los que se dedican al rubro comercializan a través de intermediarios en la zona. La población joven se traslada a las ciudades para emplearse/ estudiar; pero muchos dejan sus estudios para trabajar y ayudar a sus familias.

Taller mecánico



Actividades recreativas

- **Fiesta patronal:** Se organiza por barrio y se involucra toda la comunidad. Se mencionan: San Sebastián, el 20 de enero; San Juan Bautista, el 24 de junio; Las Mercedes, el 24 de septiembre.
- **Deportes:** Torneo de fútbol y vóley (mujeres y hombres)
- **Laceada:** Se organizan torneos; pero oficialmente una vez al año a través de la asociación.
- **Otras celebraciones:** En el mes de agosto se celebra la independencia del área educativa (anteriormente el área educativa dependía de la ciudad de Loreto).
- **Los colegios y las escuelas** realizan festivales y campeonatos interescolares, celebran el Día del Niño y el Día de la Juventud.



Medios de comunicación

- **Radio:** Cristal (Arroyito), Regional (Concepción)
- **TV:** Por antena. Por canal de aire SNT, Telefuturo y Canal 13
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp. Durante la pandemia se activó un grupo para informes con los pobladores y referentes de instituciones.



Organizaciones / Asociaciones

- Asociación de vecinos
- Comisión vecinal: Barrios Alegría y San Isidro
- Comité de producción agrícola (2)
- Comisión de Iglesia (Las Mercedes y San Juan)
- Tienen grupo juvenil para organizar la fiesta patronal
- Asociación de Cooperadoras Escolares



Principales problemáticas económicas, sociales y culturales

- Pobreza
- Faltan fuentes de trabajo en la comunidad.
- Falta apoyo a la producción campesina, asistencia técnica sostenida.
- Mercado seguro para la producción y canales para comercialización a precios justos de venta
- Deserción escolar asociada a la necesidad de emplearse a temprana edad



Aspectos necesarios para un mayor desarrollo

- Capacitación y asistencia técnica sostenida a productores
- Apoyo a la producción campesina; mercado seguro para comercialización a precios justos de venta
- Aumentar el stock de insumos y medicamentos de la USF
- Instalar universidades públicas en la zona



Acceso a servicios básicos

- **Agua potable:** La comunidad cuenta con 5 tanques. Algunos instalados a través de SENASA y otros vía gobernación. El mantenimiento es responsabilidad de la comisión de agua. Hay una comunidad que se abastece del río Aquidabán, pozo común o arroyos cercanos.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** El 45 % de las viviendas tiene baño con pozo ciego. La mayoría posee letrinas en sus hogares.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado): Puentesíño – Concepción, y Jhugua Ñandu - Concepción.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. Los residuos se queman y se tiran en el hoyo.
- **Energía eléctrica:** Proveída por la ANDE. Aproximadamente desde el año 1999 se cuenta con energía eléctrica en la zona. Hay una comunidad indígena que no tiene luz eléctrica.



Instituciones y sitios de interés



Capilla San Juan



Colegio Nacional Dominga Ocariz de Samaniego



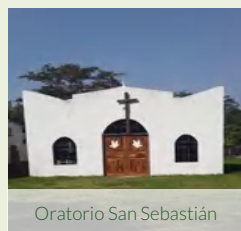
USF-Colegio Jorge Sebastián Miranda



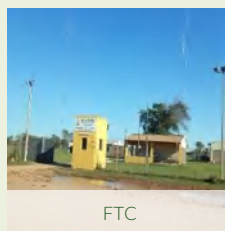
Sistema de agua



Esc. Básica N° 14469 Virgen de las Mercedes



Oratorio San Sebastián



FTC



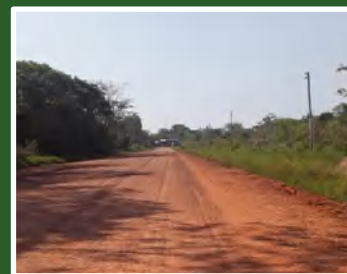
Subcomisaría 27 Col. Miranda



Esc. Básica N° 3229 San Juan Bautista



Sargento José Félix López



Información general

Zona: Rural

Distancia del centro urbano: A unos 180 km de la ciudad de Concepción (Ruta V-Calle 15)

Municipio del cual depende: Loreto

División del territorio: San Clemente, Santa Ana, Piri Poty, La Suerte, Yvyte, Loma Pytã, Unión

Límites: San Carlos del Apa, Bella Vista Norte, Col. Jorge Sebastián Miranda. Alrededor de la zona urbana hay asentamientos y estancias

Principales vías de acceso: Calle 15, Bella Vista, Paso Barreto - Jhugua Ñandu, San Carlos del Apa

Habitantes: 2887 personas

Cantidad de familias/viviendas: Alrededor de 861 familias

Comunidades indígenas:

Takuarita: cuenta con 189 habitantes, aproximadamente; viven de la agricultura, la caza y la pesca.

La Esc. Básica N° 6292 Takuarita posee alrededor de 96 estudiantes.

Reciben asistencia médica por parte de la USF de Sargento José Félix López una vez al mes.



Aspectos históricos

Los pobladores mencionan que después de la Guerra del 70 empezó a conformarse la comunidad. Fue tierra de excombatientes de la Guerra Grande.

Puentesño, es la capital del distrito. Algunos mencionan que su nombre se vincula al hecho de que antiguamente había brasileros que se dedicaban a la macatería; uno de ellos falleció bajo un puente y por ende empezaron a denominar a la zona como "Puentesño".

José Félix López, en honor al hijo de Juanita Pesoa y el Mariscal López que combatió y murió en la Guerra Guasu.

Entre los apellidos más antiguos se señalan: Antebi, Ojeda, Sánchez, Pereira. La comunidad se conformó con pobladores provenientes principalmente de Horqueta, Tacuati y Brasil.

✓ **Entre los aspectos positivos se señalan:** la tranquilidad, la naturaleza y los recursos naturales (hay bosques nativos, tierra fértil, el río y el Arroyo Amambay que corre en sentido contrario al río Apa), no hay contaminación en la zona, las personas producen para satisfacer sus necesidades de consumo, hay solidaridad y se conocen entre los miembros de la comunidad.



Principales actividades económicas

- Agricultura. Cultivo de maíz y sésamo para venta; el maíz tupi pytã se vende a una estancia de la zona para alimento de animales; también hay huertas y chacra para consumo (maní, zapallo, mandioca, batata).
- Producción ganadera en pequeña y gran escala
- Cría de ganado menor.
- Pesca para consumo y venta
- En las estancias están quienes trabajan como jornaleros o como encargados "peones".
- Explotación de madera: Tajy, Yvyra Pytã, Urundeymi y Moreysyvo.
- Empleados del Estado (docentes, salud y otras instituciones públicas de la zona)
- Pocas mujeres son empleadas domésticas, mayormente son amas de casa y no reciben remuneración; algunas trabajan en las estancias.
- Hay personas que se dedican a la venta de minutas. En la zona también producen carbón.
- Hay comercios tales como: despensa, comercial, taller de motocicletas y automóviles, copetín, comedores, carpintería, ferretería, auto repuestos y aserraderos. También cuentan con servicio de hospedaje, peluquería, servicio de minicarga y reparación de celulares.



Situación del empleo: Se menciona el desempleo, la falta de fuentes de trabajo en la zona que garanticen la estabilidad, seguridad laboral y remuneración acorde a los trabajos que se realizan.

Muchos migran al terminar el bachillerato o antes para trabajar. Van a las ciudades de Concepción Pedro Juan Caballero.

Un gran porcentaje se dedica a realizar trabajos esporádicos a cambio de un jornal diario que varía dependiendo de la actividad que se les solicite.



Actividades recreativas

- **Fiesta patronal:** El día de San Pedro y San Pablo se celebra el 29 de junio.
- **Deportes:** Organizan torneo de piqui vóley y fútbol. Tienen liga de fútbol (liga senior y liga femenina).
- **Carrera de caballos:** En el hípico local se organizan eventos a los cuales acuden pobladores de otras localidades.
- **Aniversario de distritación:** Se celebra el 7 de septiembre; se realizan festivales, novenarios, elección de miss, jineteada, serenata y desfile estudiantil durante la semana de aniversario.
- **En las escuelas** se organizan olimpiadas educativas interescolares. Además, se realiza el festival de la carreta, del Karai Octubre y del trébol.
- **Festival Paso Bravo:** en la fecha se realizan desfiles estudiantiles y participan referentes artísticos de Arroyito, Belén, San Carlos del Apa.
- **Festival del Arroyo Itaky,** se celebra el 7 de septiembre.
- **Actividades que se realizan desde la USF:** Se organizan charlas dirigidas a la población de adultos mayores, club de embarazadas, club de padres, entre otros.



Medios de comunicación

- **Radio:** Itaky FM 98.8, Radio Activa, Radio Más 98.5, Radio Evangélica Pregonero FM 96.5, y Sendero Luz del Cielo
- **TV:** Por antena. Por canal de aire SNT, Telefuturo y Canal 13
- **Celular:** La mayoría tiene acceso a internet. La principal forma de comunicación es a través de WhatsApp.



Organizaciones / Asociaciones

- Comisiones vecinales
- Comité de iglesias – Grupos Juveniles
- Comisión de deportes
- Asociación de Cooperadoras Escolares (ACE)
- Equipo de Gestión de Instituciones Educativas (EGIE)
- Comité 29 de Junio Jaiko Poravê Rekávo
- Asociación Campesina Norte Pyahu
- Asociación de Comerciantes



Principales problemáticas económicas, sociales y culturales

- Faltan fuentes de trabajo en la comunidad; principalmente para jóvenes.
- Trabajo informal precarizado
- Falta apoyo a la producción campesina, asistencia técnica, capacitación, fortalecimiento y generación de canales de comercialización adecuados.
- Falta infraestructura de salud acorde a las necesidades de la zona.
- Falta mejorar los caminos.
- Existen problemas de abastecimiento de agua en los asentamientos
- Se registra un aumento de casos de trabajo sexual.
- Embarazo precoz
- Se registran casos de adolescentes en situación de consumo de drogas.
- Migración y desarraigo
- Faltan centros y universidades que garanticen la formación terciaria.



Aspectos necesarios para un mayor desarrollo

- Acceder a capacitaciones y oportunidades laborales
- Fortalecer la agricultura familiar campesina y los canales de comercialización de productos
- Mejorar los caminos existentes a fin de comercializar en otras zonas
- Construcción de parques y plazas
- USF ampliada, con infraestructura adecuada para atención



Acceso a servicios básicos

- **Agua potable:** La comunidad posee al menos 10 Juntas de Saneamiento. Además, cuentan pozos de agua y tajamares particulares. Hay comunidades que tienen problemas de abastecimiento de agua.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** 93 Viviendas aún cuentan con letrinas; las demás poseen pozo ciego con cámara séptica. En los asentamientos predominan las viviendas con letrinas.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado). Empresa Yeruti y Estrella del Norte provenientes de Pedro Juan, una empresa de Bella Vista, empresa Águila de Concepción.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura. Los residuos por lo general se queman o se tiran en hoyos. Hay un terreno baldío en el barrio Loma Pytâ sirve como vertedero de la zona; donde la gente que tiene medios deposita su basura.
- **Energía eléctrica:** Proveída por la ANDE.



Instituciones y sitios de interés





Ayala Cue



Información general

Zona: Rural

Distancia del centro urbano: A unos 172 km de la ciudad de Concepción (Ruta V-Calle 15)

Municipio del cual depende: Bella Vista Norte

División del territorio: Ayala Cue

Límites: Casualidad, Estancia Santa Teresa, Estancia Zapallo, Estancia Errante

Principales vías de acceso: Cruce Bella Vista, Puentesíño por camino de estancias

Habitantes: No menciona

Cantidad de familias/viviendas: Alrededor de 130 familias

Comunidades indígenas: No hay comunidades indígenas en la zona.



Aspectos históricos

Desde 1950 ya había población asentada en Ayala Cue; pero se desconoce la fecha en que empezó a conformarse la comunidad.

Los primeros pobladores eran de apellido Ayala; después vinieron los Mendoza. Como inicialmente fue tierra exclusiva de los Ayala, en la actualidad, se la conoce como Ayala Cue ya que los terrenos pasaron a ser también propiedad de otras familias.

Los primeros pobladores de la zona fueron los de apellido Ayala y Mendoza.

Entre los aspectos positivos se señalan: tranquilidad, la unidad, la no discriminación, el diálogo. Se menciona además que la Estancia aporta a la comunidad en materia de salud.



Principales actividades económicas

- Se dedican a la agricultura para consumo (poroto, maíz, mandioca). La mayoría tiene chacra y huerta.
- Las mujeres son amas de casa y algunas migran a Concepción, Bella Vista Norte y Pedro Juan Caballero para trabajar y estudiar; y otras venden comestibles en la zona.
- Algunos varones trabajan en la estancia Santa Teresa como encargados "peones"; los jóvenes trabajan en los retiros.
- Existen pequeñas despensas en la comunidad.
- Unas cinco personas son funcionarios del Estado y trabajan en las escuelas de la zona.



Fuente: <https://m.facebook.com/Escuela-Basica-3990-Santa-Teresa-994509710629099/photos/1017546474992089/>



Situación del empleo: Hay desempleo en la zona, por lo general realizan changas esporádicas y reciben un pago entre quince y veinte mil guaraníes.



Actividades recreativas

- **Fiesta patronal:** El 15 de octubre se conmemora el día de Santa Teresita, se celebra con misa, procesión, números artísticos y una gran comida que se comparte en la Estancia Santa Teresa.
- **Deportes:** Torneo de fútbol y vóley
- **Actividades organizadas en las escuelas:** Se celebra el Día del Niño y el Día de la Juventud, la fiesta de San Juan. Se organiza bingo y torneos de fútbol con los estudiantes y se comparte con los padres y los demás miembros de la comunidad.



Medios de comunicación

- Radio cristiana
- **TV:** Telefuturo por antena
- **Celular:** no hay buena señal en la zona.



Organizaciones / Asociaciones

- Asociación de Cooperadora Escolar (ACE)



Principales problemáticas económicas, sociales y culturales

- Pobreza y desigualdad
- Faltan fuentes de trabajo en la comunidad.
- Trabajos esporádicos y precarizados
- Falta una unidad de salud familiar para atención médica.
- Falta un puesto policial en la zona.



Aspectos necesarios para un mayor desarrollo

- Acceder a capacitaciones y oportunidades laborales
- En materia de seguridad es necesaria la instalación de un puesto policial en la comunidad.
- Se requiere la instalación de una USF en la zona.



Acceso a servicios básicos

- **Agua potable:** La comunidad cuenta con un pozo que abastece a la comunidad. Se gestionó a través de la gobernación de Amambay.
- **Red de desagüe:** No se cuenta con red de desagüe en la comunidad.
- **Pozo-Letrina:** La mayoría de las viviendas tienen letrinas.
- **Medio de transporte:** El medio de transporte principal es la motocicleta. En la zona cuentan con servicio de ómnibus (privado): Empresa Yeruti que va a Puentesíño.
- **Tratamiento de basura:** No se cuenta con servicio de recolección de basura, se quema y/o tiran en hoyos.
- **Energía eléctrica:** Proveída por la ANDE, desde hace unos 10 años aproximadamente.

ANEXO 5: INVENTARIO DE PROGRAMAS Y PROYECTOS AID-PARACEL

Inventario de Programas y proyectos en el AID.

A continuación, se presenta la gama de programas y proyectos identificados durante el proceso de elaboración de los estudios sociales. Estos divididos en tres grupos.

- Programas y proyectos identificados durante:
 - La elaboración de la caracterización socioeconómica de las zonas de influencia del proyecto.
 - La identificación de impactos acumulativos y
 - El relevamiento de la percepción de actores institucionales y referentes comunitarios.

Se tomaron en cuenta los registros de la etapa anterior; componente industrial, si bien se presentan programas y proyectos que tienen estrecha relación con los distritos incluidos en el AID del componente forestal, se consideró importante actualizar (donde fue posible) las informaciones respecto a dichas iniciativas.

1- Proyectos identificados durante la elaboración de la caracterización socio-económica de las zonas de influencia del proyecto.

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
1	Obras de acantarillado sanitario y la construcción de una planta de tratamiento de aguas residuales en un terreno cedido por el municipio.	MOPC, Municipalidad y Junta de Saneamiento San Antonio de la Ciudad de Horqueta.	Se avanza en el proceso para la construcción y tratamiento de aguas residuales, así como para el mejoramiento del sistema de agua potable para la ciudad.	Horqueta	Actualmente	En ejecución
2	Mejoramiento Caminos Vecinales en el departamento de Concepción	Ministerio de Obras Públicas y Comunicaciones	Mejoramiento de la transitabilidad de 37 Km de caminos vecinales en los siguientes tramos el tramo Loreto - Paso Barreto.	Departamento de Concepción.	2020 - 2025	En espera de ejecución

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
3	Construcción de Caminos Vecinales Pavimentados y no Pavimentados Departamento de Concepción	Ministerio de Obras Públicas y Comunicaciones	Contribuir al mejoramiento de la transitabilidad de tramos de Caminos Vecinales en el Departamento de Concepción. 35,480 Km de Construcción de Caminos Vecinales Pavimentados y no Pavimentados del tramo Retiro Alegre – Itacua; 25,679 Km de Construcción de Caminos Vecinales Pavimentados y no Pavimentados del tramo Horqueta - Jhugua Poi.	Departamento de Concepción.	2019 - 2020	En proceso
4	Mejoramiento Caminos - Departamento Concepción	Ministerio de Obras Públicas y Comunicaciones	Contribuir al mejoramiento de la transitabilidad de los caminos de los distritos de Loreto – Las Palmas-San Blas – Ruta 5 km. 18.2, tramo 14.1 de 15. del Departamento de Concepción. - 17.56 km de Pavimentación asfáltica del tramo Ruta 5 – Jhugua Ocampos – Ykya Jhovv – San Blás del Departamento de Concepción.	Departamento de Concepción.	2019 - 2020	En Proceso
5	Mejoramiento Sistema Eléctrico en el departamento de Concepción	Administración Nacional de Electricidad	Mejorar la calidad de vida de la población que habita en el área de influencia del proyecto, que abarca a los distritos de Concepción, Loreto, San Alfredo y Belén del departamento de Concepción, y el distrito de Pozo Colorado del departamento de Presidente Hayes, correspondiente al Sistema Norte mediante la construcción de LT simple terna en 220 kV entre SE Horqueta-SE Concepción I; 2) Construcción LT 66 kV entre SE Concepción II; SE Concepción I; 3) Construcción nueva Subestación (SE) Concepción II en 220 kV; 4) Ampliación de la SE Horqueta y; 5) Ampliación de la SE Concepción I.	Departamentos Concepción y Pte. Hayes	2020 - s/d	En proceso ¹

¹ Banco de Desarrollo de América Latina. Noviembre 2020. Disponible en : <https://www.caf.com/es/actualidad/noticias/2020/11/ande-firma-contrato-de-prestamo-por-usd-250-millones-con-caf-para-fortalecer-el-sector-electrico-nacional/>

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
6	Programa de Saneamiento y Agua Potable para el Chaco y Ciudades Intermedias de la Región Oriental del Paraguay	Ministerio de Obras Públicas y Comunicaciones	Construcción del Sistema de Alcantarillado Sanitario y Planta de Tratamiento de Efluente de la Ciudad de Horqueta.	Distrito de Horqueta.	2020 -	En ejecución
7	PPI Fase II - Proyecto Paraguay Inclusivo	Ministerio de Agricultura y Ganadería	Proyecto de inclusión de la agricultura familiar en cadenas de valor. Tiene como objetivo contribuir a incrementar los activos, los ingresos y calidad de vida de los agricultores familiares campesinos pobres y población rural pobre, mediante su inserción en forma sostenible, y a través de sus organizaciones sociales representativas, en Cadenas de Valor, con visión de género y conservación del medio ambiente.	Región Oriental del Paraguay; prioritariamente los Departamentos de Concepción, San Pedro, Guairá, Caaguazú, Caazapá, Itapúa, Paraguari, Misiones, Cordillera, Central y Canindeyú.	2019 - s/d	En ejecución
	"Gestión Organizativa Territorial para la protección ambiental y cultural de comunidades campesinas del distrito de Horqueta-Concepción". Con apoyo del Proyecto Bosques para el Crecimiento Sostenible	Ministerio del Ambiente y Desarrollo Sostenible (MADES), el PNUD y ejecutada por la OZAE.	El proyecto es implementado por la Organización Zonal de Agricultores Ecológicos (OZAE) del distrito de Horqueta del primer departamento de Concepción y se desarrolla en el marco de la iniciativa	Horqueta		En proceso

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
	Programa Cadenas de valor inclusivas	USAID-FECOPROD-CIRD	So objetivo principal es impulsar el desarrollo económico y social sostenible de unos 15.000 productores rurales de pequeña escala de la zona norte del país, mediante la promoción de cadenas de valor agropecuarias que presten especial atención a la inclusión activa de las mujeres, jóvenes e indígenas mediante acciones y estrategias que incorporen la sostenibilidad ambiental y la mitigación de los efectos adversos del cambio climático.	Concepción, Horqueta, Belén, Loreto y Yvy Ya'u		Final
9	PAGRO - Programa de Modernización de la Gestión Pública de Apoyos Agropecuarios.	Ministerio de Agricultura y Ganadería	Tiene como objetivo contribuir a la mejora de la productividad y el aumento de ingreso de los pequeños y medianos productores agropecuarios. El programa enfatiza fortalecer la agricultura familiar, para lograr la seguridad alimentaria e inserción a cadenas de valor a través del incremento de la cobertura de los servicios institucionales con calidad, enfoque territorial e inclusividad.	Concepción, Cordillera, Misiones, Paraguari, Caaguazú, Caazapá, Guaira, Central, Itapuá, San Pedro y Pte. Hayes.	s/d	Finalizado
	Fortalecimiento y desarrollo de micro-emprendedores FDM2	Itaipu y Unión Industrial Paraguaya (UIP)	Consiste en apoyo a través capacitaciones y la transferencia de fondos de inversión para microempresas.	Horqueta	-----	En ejecución
----		Directores municipales de Horqueta y de Concepción, con el apoyo de BASI IS-SERPAJ y la Red Rural	Mediante el cual se elabora una ordenanza municipal que declara a 7 comunidades horqueteñas como agroecológicas.	Horqueta	----	----

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
10	PRONAFOPE - Programa de Fomento de la Producción Pecuaria.	Ministerio de Agricultura y Ganadería	A través de aportes económicos y capacitación técnica busca promover el incremento de la producción y productividad de los productores familiares pecuarios, contribuyendo a la seguridad alimentaria y la generación de ingresos de los productores/as y sus familias.	Nacional	2009/s/d	En ejecución ²
	Proyecto “Mejorando la seguridad alimentaria y generando oportunidades económicas en el departamento de Concepción”	OCRC (Organización Campesina Regional de Concepción)	Se trabaja la agricultura sostenible, seguridad alimentaria y gestión de recursos ambientales. A través de este se brinda asistencia técnica a pequeños agricultores orgánicos y capacitación laboral y de liderazgo a jóvenes y mujeres, ayudando a mejorar la seguridad alimentaria y el potencial de generación de ingresos.	Departamento de concepción	2018-2021	En ejecución
11	PROMAFI - Proyecto de Mejoramiento de la Agricultura Familiar Campesina e Indígena en el Noreste del Paraguay	Ministerio de Agricultura y Ganadería	El objetivo del proyecto es incrementar de manera sostenible los ingresos de los hogares rurales pobres mediante el fortalecimiento organizacional, la mejora de la producción y el crédito procedente de instituciones financieras intermediarias.	Región Oriental del Paraguay.	2018 - s/d	En ejecución
12	RESIPROAF - Restauración de los Sistemas de Producción de la Agricultura Familiar a Nivel Nacional.	Ministerio de Agricultura y Ganadería	Tiene como objetivo dotar al productor agropecuario y sus familias de apoyos financieros, herramientas tecnológicas, infraestructura y servicios asociados, sirviendo de soporte para otros beneficios ya brindados por el MAG, logrando que los actuales sistemas de producción sean más óptimos, competitivos y modernos.	Nacional	2019 - s/d	En ejecución

² MAG- Twitter. Disponible en: <https://twitter.com/magparaguay/status/1319971092350586881>

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
14	Programa de Modernización y Mecanización de la Agricultura Familiar.	MAG-STP-ITAIPU- UNOPS	El proyecto tiene como objetivo promover el fortalecimiento de emprendimientos de producción agrícola orientados a la integración a los mercados, a cadenas de valores regionales, a través de servicios e insumos para consolidar la modernización tecnológica, el aumento de la productividad, la mejora de los ingresos de las familias en situación de pobreza y extrema pobreza en los asentamientos rurales promoviendo el fortalecimiento organizacional de familias agricultoras.	Concepción, San Pedro, Canindeyú, Caaguazú, Caazapá, y Alto Paraná.	2015 - s/d	En ejecución
15	Tekoporã - Programa de Transferencias Monetarias con Corresponsabilidad.	Ministerio de Desarrollo Social	TEKOPORÃ es un programa de transferencias condicionadas (PTC) que busca brindar protección social a hogares en situación de pobreza y mejorar la calidad de vida de sus participantes. Desde un comienzo el foco fue la facilitación del ejercicio de los derechos a alimentación, salud y educación. En la actualidad, se busca incorporar a personas con discapacidad severa en situación de pobreza y/o vulnerabilidad, así como también a comunidades indígenas.	Nacional	2005 - Indefinido	En ejecución
16	Programa Tenonderã	Ministerio de Desarrollo Social	Busca que las familias que van a egresar de Tekoporã puedan generar sus propios ingresos, sean estables económica y socialmente con alternativas de producción, a fin de que puedan salir y mantenerse fuera de la situación de pobreza. Este programa complementa el trabajo con las familias para una salida estructural y sostenida de su situación de pobreza.	Nacional	2014 - Indefinido	En ejecución

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
17	Programa de pensión alimentaria para adultos mayores en situación de pobreza.	Ministerio de Hacienda	Programa de pensión alimentaria consiste en la otorga a todas las personas mayores de 65 años que vivan en situación de pobreza un ingreso económico mensual para satisfacer sus necesidades básicas. Asimismo, también considera a los veteranos de la guerra del Chaco y sus herederos como beneficiarios, también a las familias de los militares y policías caídos en servicio activo.	Nacional	2009 - Indefinido	En ejecución
18	PAI - Programa Ampliado de Inmunizaciones.	Ministerio de Salud Pública y Bienestar Social	Tiene como objetivo la protección adecuada de la población contra enfermedades inmunoprevenibles, para lo cual se garantiza la adquisición y provisión gratuita y efectiva de las vacunas que forman parte del esquema regular de vacunación y de aquellas recomendadas por la OPS/OMS.	Nacional	2004 - Indefinido	En ejecución
19	PANI - Programa Alimentario Nutricional Integral.	Ministerio de Salud Pública y Bienestar Social	El objetivo del Programa es contribuir al mejoramiento de la calidad de vida de la población paraguaya. Posee un enfoque preventivo e integral, favoreciendo la recuperación nutricional de poblaciones vulnerables.	Nacional	2005 - Indefinido	En ejecución
20	PAEP - Programa de Alimentación Escolar del Paraguay.	Ministerio del Ministerio de Educación y Ciencias	Busca instalar una nueva cultura de alimentación saludable, con enfoque de derecho, priorizando los productos de la agricultura familiar y la formación en educación alimentaria nutricional de los estudiantes del sistema educativo.	Nacional	2014 - Indefinido	En ejecución
21	Abrazo - Programa Nacional para la Disminución del Trabajo Infantil	Ministerio de la Niñez y la Adolescencia	Programa nacional de transferencia condicionada para la disminución progresiva del trabajo infantil que suma los componentes de: calle, familia, centros y redes de protección.	Concepción, Amambay, Canindeyú, Alto Paraná, Caaguazú, Cordillera,	2005 - Indefinido	En ejecución

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
				Central, Guairá, Misiones, 21Itapúa.		
22	Programa Competitividad de las MIPYMES	Ministerio de Industria y Comercio	Busca que las micro, pequeñas y medianas empresas generen nuevos empleos, desarrollen productos innovadores y accedan a mercados importantes, incrementen sus ingresos para que de esta forma las empresas puedan ser más competitivas.	Nacional	2019 - s/d	En ejecución
23	Programa Mejora de las Capacidades Empresariales de las MIPYMES – PMCE.	Ministerio de Industria y Comercio	El objetivo es contribuir al incremento de la productividad de Paraguay, a través de la implementación coordinada de medidas para las MIPYMES paraguayas, conducentes a facilitar su formalización, capacitación y su acceso al financiamiento.	Nacional	2020 - s/d	En ejecución
24	InnovandoPy - Programas de promoción de la creatividad y nuevas ideas.	Ministerio de Industria y Comercio	Busca identificar ideas tecnológicas innovadoras, inspirar y motivar a jóvenes emprendedores, conectar el sector privado con el público, colaborar con el desarrollo de proyectos con base digital y alto potencial de crecimiento y consolidar el ecosistema de emprendimientos con base tecnológica en Paraguay.	Nacional	2015 - s/d	En ejecución
25	MiPYME Compite	Ministerio de Industria y Comercio	Programa que busca mejorar el marco jurídico, político e institucional para fortalecer el sector privado en Paraguay, aumentar la competitividad de las MIPYMES y mejorar el clima de negocios para la actividad empresarial, el comercio y las inversiones en el país, promoviendo una gestión ambiental responsable.	Nacional	2020/2023	s/d

Nro.	Proyecto/Programa	Institución	Descripción resumida	Alcance geográfico	Fechas de ejecución	Situación
26	Proyecto Salud Familiar Comunitaria.	Tesai reka - MSPBS	La finalidad del proyecto es contribuir al fortalecimiento de las Unidades de Salud Familiar, desarrollando acciones que redunden en beneficio de la salud de comunidades rurales a través del mejoramiento de las capacidades de dichas unidades, el incremento de la población que accede a los servicios de salud, promoviendo el cambio de conocimiento y comportamiento en relación a Salud Sexual y Reproductiva e incorporando el enfoque de Gestión y Reducción del Riesgo en las comunidades.	Concepción, San Pedro, Caaguazú y Canindeyú.	2019 - s/d	En ejecución
27	Proyecto Mejorando la seguridad alimentaria y las oportunidades económicas en el departamento de Concepción en Paraguay.	OCRC - IAF Inter-American Foundation	Brinda asistencia técnica a pequeños agricultores orgánicos y capacitación laboral y de liderazgo para jóvenes y mujeres. Sus actividades ayudan a mejorar la seguridad alimentaria y el potencial de generación de ingresos.	Departamento de Concepción.	2018 - 2021	En ejecución
	Construcción de viviendas sociales	MUVH y FONAVIS	328 Viviendas sociales que fueron entregadas	Paso Barreto y Horqueta		Finalizó en junio de 2020

Tipo	Obra en curso	Longitud	Estado
Pavimentación asfáltica	Tramo Concepción - Puerto Vallemi y Acceso a Concepción (1,5 Km) y Variante (4,75 Km)	6,25 km	Inaugurado 16/10/2020
Pavimentación asfáltica sobre empedrado	Tramo Horqueta - Río Ypané (Tacuati) (Lote 1)	39 km	19/10/2020
	Tramo Ruta 5 - Jhugua Ocampos - Ykua Jhovv - San Blas. 5ta. Tanda. Lote 3	17,56 Km	En ejecución
	Tramo Loreto - Las Palmas - San Blas - Ruta 5. 5ta. Tanda de la Dirección de Vialidad. Lote 6.	15,1 Km	En ejecución
Contrato de rehabilitación y mantenimiento	Vial 3. Ruta PY05 Tramo Concepción - Pozo Colorado Km 372+260 al Km 416+222. Lote3	44 Km	Inicio oficial
Rehabilitación y mantenimiento	Ruta PY05. Tramo: Concepción - Yby Yaú (109 Km). Lote2	109 Km	En proceso (noticia julio 2020)
Obras de alcantarillado sanitario	Construcción de unidades sanitarias para comunidades beneficiadas del proyecto de alcantarillado sanitario para ciudades intermedias de la Región Oriental	-----	en proceso
Pavimentación asfáltica	Asfalto Puentesño-Bella Vista Norte/avance del 15%	-----	Terraplen en proceso
Avance en la pavimentación asfáltica	Arroyito a calle 18-56% de ejecución	En proceso	

2- Proyectos identificados en el marco de elaboración de la evaluación de impactos acumulativos

Nro.	Proyecto/ Programa	Institución	Resumen	Alcance geográfico	Fechas de ejecución	Situación
1	Sistema de alcantarillado sanitario y planta de tratamiento de aguas residuales para la ciudad de Horqueta	Ministerio de Obras Públicas y Comunicaciones	Financiación del Banco Interamericano de desarrollo (BID). Prevé la construcción del sistema de alcantarillado sanitario para el casco urbano de la ciudad de Horqueta; además se contempla la construcción de la planta de tratamiento de aguas residuales, que estará ubicada en el límite norte de la ciudad, en un predio municipal de aproximadamente 10 hectáreas.	Distrito de Horqueta		Proyecto planificado
2	Adecuación ambiental del sistema de alcantarillado sanitario de Concepción - ESSAP S.A.”	Empresa de Servicios Sanitarios del Paraguay	Administrado por la ESSAP S.A., siendo la única empresa concesionaria de los servicios de agua potable y alcantarillado sanitario a nivel país, y opera en la ciudad de Concepción desde finales de la década de 1970.	Distrito de Concepción	En Ejecución	Proyecto planificado
3	Mejoramiento de caminos vecinales en Concepción	Ministerio de Obras Públicas y Comunicaciones	El MOPC impulsa el proyecto de mejoramiento de caminos vecinales del departamento de Concepción planificado ejecutar en el periodo 2020-2025, e incluye el mejoramiento del tramo Loreto - Paso Barreto, equivalente a 37 km.	Distrito de Loreto/Distrito de Paso Barreto	2020-2025	Proyecto planificado

Nro.	Proyecto/ Programa	Institución	Resumen	Alcance geográfico	Fechas de ejecución	Situación
4	Mejoras de la conectividad física del departamento de San Pedro – Tramo Punta Riel – Belén	Fondo de Convergencia del Mercosur (FOCEM)	Forma parte del proyecto de mejoramiento de San Pedro – Belén – Concepción, y tiene como objeto mejorar la transitabilidad del tramo San Pedro del Ycuamandiyú (Empalme Ruta PY11) – Piri Pucu – Potrero Naranjo – Punta Riel – Belén, Belén – Concepción (Antigua traza de la Ruta Nacional N° 5) y el Acceso al Puerto Ybapovó. De acuerdo con los datos del RIMA del proyecto, las obras serán financiadas por el Fondo de Convergencia del Mercosur (FOCEM).	San Pedro/Belén /Concepción	Finalización prevista junio 22	Proyecto planificado
5	Habilitación y Mantenimiento del tramo Pozo Colorado – Concepción	Ministerio de Obras Públicas y Comunicaciones	Impulsado por el MOPC, tiene como objeto rehabilitar 146 km del tramo Pozo Colorado – Concepción, para recuperar sus niveles de servicio de proyecto mediante la tercerización de los servicios, que desarrollará obras civiles, como la rehabilitación y mantenimiento de ruta pavimentada. Se cuenta con el RIMA del proyecto. Las obras serán financiadas por el Banco de Desarrollo de América Latina (CAF), y se han iniciado las obras a finales del año 2019.	146 km del tramo Pozo Colorado – Concepción	2019	Proyecto planificado
6	Mejoramiento del sistema eléctrico de Concepción (Tramo SE		Los trabajos realizados para la puesta en servicio de la Subestación Móvil de 30 MVA, consistieron en la conexión de la Subestación Móvil a la Línea de Transmisión Vallemí II – Horqueta, con el método a potencial, es decir sin la			En curso

Nro.	Proyecto/ Programa	Institución	Resumen	Alcance geográfico	Fechas de ejecución	Situación
	Horqueta - SE Concepción)		<p>interrupción del suministro de energía eléctrica en la zona de influencia de la Subestación.</p> <p>eleva la confiabilidad y la calidad del suministro de energía eléctrica en la Región Norte, recientemente realizamos la puesta en servicio de la Subestación Móvil 220/23 kV en la Subestación Horqueta, departamento de Concepción, de tal manera a realizar las adecuaciones necesarias para la puesta en servicio de las nuevas y modernas instalaciones de la mencionada subestación, sin la interrupción del suministro eléctrico en la zona³.</p>			
7	Mejoramiento del dragado de la Hidrovía Paraguay - Paraná		<p>De acuerdo con los datos de la caracterización social, MOPC realiza dragados de mantenimiento en el río Paraguay, así como en el río Apa.</p> <p>Adicionalmente, de acuerdo a datos del MOPC y de la Secretaría Técnica de Planificación⁴, se está impulsando un proyecto mayor de dragado de la Hidrovía bajo iniciativa privada, en el marco de la Ley de Alianza Público Privada (Ley N° 5102/13 "De Promoción de la Inversión en</p>			En proceso

³ Estos trabajos para el refuerzo del Sistema de Transmisión en la Región Norte, incluyen además la construcción de la nueva Subestación Villa Real en 220/66/23 kV, la ampliación y modernización de la Subestación Concepción, ambas ubicadas en la localidad de Concepción, además de la construcción de nuevas líneas de transmisión de 220 kV y 66 kV para la interconexión de las mencionadas subestaciones. Disponible en: <https://www.ande.gov.py/interna.php?id=6765#.X5FKztBKg2w>

⁴ <http://www.stp.gov.py/v1/empresas-argentinas-proponen-plan-maestro-para-navegacion-eficiente-en-el-rio-paraguay/>

Nro.	Proyecto/ Programa	Institución	Resumen	Alcance geográfico	Fechas de ejecución	Situación
			Infraestructura Pública y Ampliación y Mejoramiento de los bienes y servicios a cargo del Estado”).			
8	“Mejoramiento del Sistema de Agua Potable para el Desarrollo Regional en la República del Paraguay - ESSAP S.A Ciudad de Concepción	Empresa de Servicios Sanitarios del Paraguay y Ministerio de Obras Públicas y Comunicaciones	El proyecto de “Mejoramiento del sistema de agua potable” fue impulsado de manera conjunta por la ESSAP S.A. y el MOPC Fue ejecutado y concluido a mediados del año 2013, y consistió en la modernización y ampliación de la planta de tratamiento de agua potable en Concepción. Actualmente se encuentra en operación.	Distrito de Concepción	2013	Proyecto en operación
9	Frigorífico Concepción S.A.	Frigorífico Concepción S.A.	Es un emprendimiento industrial que opera desde el año 1977 y en los últimos años ha pasado a convertirse en un importante parque industrial frigorífico, invirtiendo en tecnología de punta y en recursos humanos de amplia experiencia en el rubro ⁵ . Su principal actividad es la producción de carne y subproductos de origen bovino, para luego	Distrito de Concepción	1977	Proyecto en operación

⁵ <https://www.frigorificoconcepcion.com.py/>

Nro.	Proyecto/ Programa	Institución	Resumen	Alcance geográfico	Fechas de ejecución	Situación
			comercializarlos principalmente en los mercados internacionales y, en menor escala, en el mercado interno.			
10	JBS - Belén	JBS Frigorífico Belén	Es un proyecto frigorífico que fue mencionado en las entrevistas realizadas con actores locales, en especial en la zona de la ciudad de Belén donde se desarrolla el emprendimiento. Se destaca que es una de las principales industrias de la zona ⁶ , luego del frigorífico Concepción ⁷	Distrito de Belén	2017	Proyecto en operación

⁶ <https://www.lanacion.com.py/2017/01/03/jbs-paraguay-frigorifico-belen-recio-la-habilitacion-rusia/>

⁷ http://seam.gov.py/sites/default/files/users/control/jbs_b.tablada_rocio.pdf

3- Proyectos mencionados por entrevistados (Actores institucionales y comunitarios)

Los programas y proyectos mencionados por la población consultada son presentados en la siguiente matriz por distrito y técnica aplicada para el relevamiento.

Nro.	Lugar	Programas/ Proyectos	Técnica de relevamiento
1	Loreto	Proyectos para pequeños productores con el MAG (facilitando insumos, fertilizantes, semillas, animales de granja y materiales para corral, herramientas, con la comisión de mujeres, trabajos manuales).	Entrevista institucional
2	Loreto	Programa Tekopora	
3	Loreto	Pensión de Adultos Mayores	Entrevista institucional
4	Loreto	Acompañamiento de la DEAG a grupos de mujeres	Entrevista institucional
5	Loreto	Los proyectos que existen son con recursos propios (cada año apoyo a comités de mujeres con aportes anuales, medios de vida, gallinería, lechería y a nivel urbano todo lo que es infraestructura).	Entrevista institucional
6	Loreto	Proyectos de construcción de USF en algunas comunidades	Entrevista institucional
7	Loreto	Proyecto de mejoramiento de calles y caminos vecinales(para la parte rural, zona Loreto – San Blas – San Josemi)	Entrevista institucional
8	Horqueta	Proyecto de apoyo a productores con FECOPROP.	
9	Horqueta	Plan de Desarrollo Integral	
10	Horqueta	Proyectos no reembolsables. MAG/PRODER: con proyectos de entrega de vaquillas/ tejidos, simbra, chapas y accesorios para cría de gallina/ chanchería.	Entrevista institucional
11	Horqueta	Represa sobre el Río Ypané. (Hidroeléctrica).	Entrevista institucional
12	Horqueta	Vial: Ruta Horqueta- Tacuatî, San Blás. La conexión con ruta X ya está por ser ejecutado. Recapado ruta Yvy Ya'u Concepción.	Entrevista institucional
13	Horqueta	Proyectos de viviendas	
14	Horqueta	Proyecto de planta de tratamiento de aguas residuales (por ejecutarse)	Entrevista institucional
15	Horqueta	Proyecto de alcantarillado sanitario con planta de tratamiento	Entrevista institucional
16	Horqueta	Proyecto Proders/ MAG, actualmente está entregando materiales a los comités para producción de gallinero.	Entrevista Comunitaria

Distrito de Paso Barreto

N°	Localidad	Programas/Proyectos	Técnica de relevamiento
1	Paso Barreto	A licitarse el proyecto de pavimentación asfáltica de la Ruta Loreto – Barreto.	Entrevista
2	Paso Barreto	Construcción de 198 viviendas con el Ministerio de Urbanismo, Vivienda y Hábitat	Entrevista
3	Paso Barreto	Construcción de Unidad de Salud Familiar Ampliada	Entrevista
4	Paso Barreto	A licitarse la construcción de nuevo puente sobre el río Aquidabán	Entrevista
5	Paso Barreto	Construcción y mejora de escuelas y colegios a través de FONACIDE	Entrevista
6	Paso Barreto	Asfaltado de las calles de la ciudad, bajo convenio entre la Municipalidad y el Ministerio de Obras Públicas y Comunicaciones	Entrevista
7	Paso Barreto	Trabajo de reparación para camino de todo tiempo de la ruta Cruce X (Paso Barreto – San Alfredo)	Entrevista
8	Isla Hermosa	Construcción de viviendas con el Ministerio de Urbanismo, Vivienda y Hábitat	Entrevista
9	Isla Hermosa	Colocación de transformadores de alto voltaje con la ANDE	Entrevista
10	Estribo de Plata	Pavimentación Ruta calle 15 – Jorge Sebastián Miranda (Jhugua Ñandu) – Ministerio de Obras Públicas y Comunicaciones	Entrevista
11	Jorge Sebastián Miranda	Construcción de viviendas con Ministerio de Urbanismo, Vivienda y Hábitat	Entrevista
12	Jorge Sebastián Miranda	Construcción de dos aulas para primera infancia en la escuela Dominga Ocariz de Samaniego	Entrevista
13	Jorge Sebastián Miranda	Proyecto entrega de semilla para huerta familiar desde la Municipalidad de Paso Barreto	Entrevista

Distrito de Sargento José Félix López

N°	Localidad	Programas/Proyectos	Técnica de relevamiento
1	Puentesíño	Construcción de 77 viviendas con el Ministerio de Urbanismo, Vivienda y Hábitat (MUVH)	Entrevista
2	Puentesíño	Construcción de polideportivo municipal	Entrevista
3	Sargento José Félix López	Programa Alimentario Nutricional PANI	Entrevista
4	Sargento José Félix López	Mejoramiento de calles, para caminos de todo tiempo	Entrevista
5	Sargento José Félix López	Programas con el Ministerio de Agricultura: PRODEERS, PRONAFROPE, PIMA	Entrevista

N°	Localidad	Programas/Proyectos	Técnica de relevamiento
6	Sargento José Félix López	Asistencia municipal en preparación de suelo con los pequeños productores	Entrevista
7	Sargento José Félix López	Pavimentación asfáltica desde Calle 15 a Puentesíño – Ministerio de Obras Públicas y Comunicaciones	Entrevista

Distrito de Loreto

N°	Localidad	Programas/Proyectos	Técnica de relevamiento
1	Virgen del camino	SENASA: Proyecto de mejora de baño.	Entrevista
	Virgen del camino	Proyecto de conformación de Junta de saneamiento y un pozo artesiano.	Entrevista
2	Virgen del camino	Construcción de Viviendas con el MUVH	Entrevista
3	Virgen del camino	Asistencia técnica a productores de la comunidad, desde la Dirección de Extensión Agraria del Ministerio de Agricultura	Entrevista
4	Santísima Trinidad	Programa Tekoporá del Ministerio de Desarrollo Social	Entrevista
5	Santísima Trinidad	Programa de Tercera Edad del Ministerio de Hacienda	Entrevista
6	Santísima Trinidad	SENASA: Proyecto de mejora de baño	Entrevista
7	Jhugua Po'i	Presentación de proyecto de construcción de viviendas sociales – MUVH.	Entrevista
8	Jhugua Po'i	Construcción de Unidad de Salud Familiar Ampliada	Entrevista
9	Jhugua Po'i	Asistencia técnica a productores de la comunidad desde la Dirección de Extensión Agraria del Ministerio de Agricultura y PRODERS	Entrevista
10	Jhugua Guazú	Asistencia técnica a productores de la comunidad desde la Dirección de Extensión Agraria del Ministerio de Agricultura	Entrevista
11	Jhugua Guazú	Construcción de aulas con fondos de la Gobernación	Entrevista
12	Jhugua Guazú	Construcción de viviendas. MUVH	Entrevista
13	Jhugua Guazú	Construcción de Unidad de Salud Familiar Ampliada	Entrevista
14	Islería	Programa Tekoporá del Ministerio de Desarrollo Social	Entrevista
15	Islería	Programa de Tercera Edad del Ministerio de Hacienda	Entrevista
16	Laguna Cristo Rey	Programa Tekoporá del Ministerio de Desarrollo Social	Entrevista

N°	Localidad	Programas/Proyectos	Técnica de relevamiento
17	Laguna Cristo Rey	Programa de Tercera Edad del Ministerio de Hacienda	Entrevista
18	Anderí	Reparación de puente de madera autogestionada por la comunidad	Entrevista

Distrito de Horqueta

N°	Localidad	Programas/Proyectos	Técnica de relevamiento
1	Paso Mbutu	Construcción de viviendas MUVH	Entrevista
2	Calle 15	Mejora de la escuela y posible construcción de aulas	Entrevista
3	Paso Mbutu y Calle 15	Pavimentación Ruta calle 15 - Jhugua Ñandu - Ministerio de Obras Públicas y Comunicaciones	Entrevista
4	Domínguez Nlgó	Proyecto de construcción de viviendas. MUVH	Entrevista

Distrito de Bella Vista Norte

N°	Localidad	Programas/Proyectos	Técnica de relevamiento
1	Ayala Cue	Ejecución de proyecto para construcción de baños diferenciados y aulas - MEC	Entrevista

ANNEX III
CULTURAL AND NATURE HERITAGE STUDY



SUPPLEMENTARY REPORT ON THE CULTURAL AND NATURAL HERITAGE OF FORESTRY PRODUCTION SECTORS OF PARACEL COMPANY, Concepción, Paraguay

Enrique Bragayrac

Cultural and natural heritage consultant– April, 2021

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Presentation

This characterization of the cultural and natural heritage found in the forestry production areas of Paracel S.A., located in the departments of Concepción and Amambay, is part of the knowledge and operational management that guides the Social Study (SS) - forestry component, as part of the installation of a pulp manufacturing plant, and complements what has already been characterized in the industrial component of the enterprise, which is aligned with the legal and technical regulations for this purpose, as well as the operational procedure for possible findings, within the framework of the Management Program for Findings with Historical or Archaeological Value (Archaeological Finding Chance Program).

In order to contribute to a more detailed evaluation of possible impacts on the environment and the establishment of social management measures and programs for the preventive archeology component of the Social Study - forestry component, the project's production zones were evaluated, identifying cultural entities in different contexts, which however, due to their spatial distribution and bibliographic references of studies, allow us to propose specific recommendations to them, which should be implemented and respond effectively to these impacts, attending to the different stages of project development.

It is important to mention that Paracel has already initiated articulations with the National Secretariat of Culture (NSC), raising to consideration of said institution information on the undertaking, as well as the Report on the characterization of the patrimony, in order to coordinate joint actions for the development and implementation of specific programs of the Social Management Plan (SMP) of the SS. (See Annex 1)

1. TERRITORIAL CONTEXT - Summary of items developed from the All on Concepción - Industrial/Forestry Components

Concepción Department	
Geographical location	Located to the north of the Oriental Region of the country. To the north, it borders with the Apa River, to the south with the Department of San Pedro, to the west with the Paraguay River and to the east with the Department of Amambay. The main waterway is the Paraguay River.
Surface	18,051 km ² and ranks second in the region in terms of area..
Population	244,071 inhabitants, 48.58% of whom are women, with a population density of 13.51 persons per square kilometer. The population in this department is young, with a large majority under 35 years of age (72%); and with an average of 7.61 years of education.
Constitution	It is divided into twelve districts: Concepción, Belén, Horqueta, Loreto, San Carlos del Apa, San Lázaro, Yby Yaú, Azotey, Sargento José Félix López, San Alfredo, Paso Barreto y Arroyito ; and the city of Concepción is the capital of the department.

Source: Elaboration based on the characterization chapter of the All-Social Studies-Preliminary Environmental Impact Study.

Although the main economic activity in the department of Concepción has historically been agriculture and extensive cattle raising, in recent years, large companies have been established, generating new sources of employment for skilled and unskilled people, and promoting economic growth in the department.

In the districts of Concepción that make up the project's DIA, there are 10,623 agricultural and livestock farms; 9,742 farms with temporary and permanent crops; 9,546 farms with other uses; and 5,946 farms with natural and cultivated pasture. To a lesser extent, farms with fallow land and farms with natural woodlands and planted forest trees were identified (Paracel, 2021 – Social and forestry component).

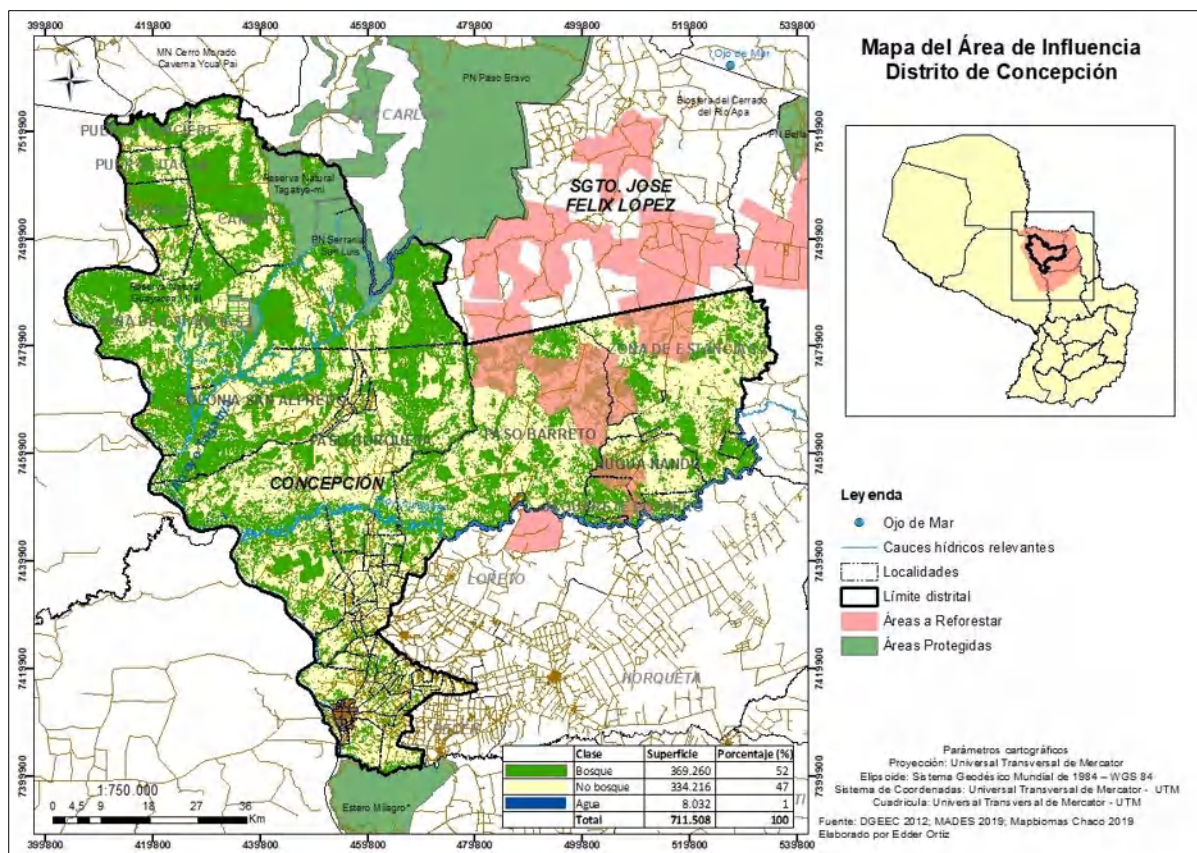


Fig. 1. Map of the area of influence of the Project, Concepción District, showing the forest production areas and their relationship with the present natural heritage, where the Serranía de San Luis National Park stands out to the north, the Tagatiya-mí private nature reserve, which protects springs and runoff from the Tagatiya Stream. The forestry production zones, located to the East, are distant from relevant natural entities, on modified landscapes and where the forest parcel adjoins a forest remnant associated with the Aquidabán River (San Alfredo district), considered areas of historical influence of the Great War, all the way from the Cerro Cora National Park to the Paraguay River.

2. PROJECT PRODUCTION AREAS – A territorial view of cultural and natural heritage associated with preventive management and conservation at the district level and aligned with the SS

The forestry sectors of the project are located on a territory of historical events of the War of the Triple Alliance, as well as a rich and important geological formation, with associated paleontological (fossil)¹ and archaeological remains, so that the interventions presented in a general manner in the SS, for this stage of operation and production, must be in accordance with the provisions of the National Secretariat of Culture (NSC), through NSC Resolution No. 1104/2019 – "by which the national protocol of preventive interventions for archaeological and paleontological heritage is approved." and other regulations, specifically for public and private infrastructure works and agricultural undertakings. The Project falls into this category.

In the districts and localities of the AID, cultural and religious activities are still maintained, related to the celebrations of patron saint festivities and devotion. There is a strong religious diversity and traditions that still remain in the collective memory and in the exercise of practices that come from past generations that still persist as a local and national intangible heritage. (Paracel, 2020/ Social Study/Forestry Component).

The Social Study prepared within the framework of the Paracel Project (2021) mentions that, among the social and cultural factors potentially impacted and their evaluation, the following ecosystem services² are highlighted; quality of life, uses and customs, and archaeological, historical and/or cultural heritage, with a low frequency of impacts; however, impacts to possible cultural entities may occur throughout the stages of the project, since in some areas soil and biomass movement is foreseen. Data related to the cultural heritage of indigenous peoples are developed in the Study of the indigenous component of the entrepreneurship⁴.

Among the activities or aspects that have an impact on archaeological and paleontological heritage is the installation stage: installation of nurseries; soil preparation, tillage, planting, fertilization and replanting; construction and/or adequacy of internal and access/exit roads, and land drainage works; harvesting and transfer of wood. According to the SS (Paracel, 2021), this impact refers to material heritage of archaeological, historical and/or cultural interest, as addressed in the industrial component. On the other hand, the intangible cultural heritage is addressed in the impact of potential affectation of uses and customs of the DIA localities.

¹ Fossils constitute a natural/cultural heritage that would correspond in the first order to the country that possesses it and in the second to humanity; in the latter case, as those sites that possess fossils that are only recognized in a few places in the world (BÁEZ PRESSER; J.L. et al. 2004. Some paleontological antecedents of Paraguay. In: Bol. Mus. Nac. Hist. Nat. Parag. Vol. 15 (1-2): 95 – 110. National Museum of Natural History, San Lorenzo, Paraguay. Available in: <https://www.geologiadelparaguay.com/Antecedentes%20Paleontologicos%20del%20Paraguay.pdf>

² **Ecosystem services:** The benefits that people, including companies, derive from ecosystems. (IFC Performance Standard 6). There are four types of ecosystem services (IFC, 2012): (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulating services, which are the benefits that people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the non-material benefits that people obtain from ecosystems, and (iv) support services. For the purposes of this study, we consider the supply, cultural and regulatory aspects.

³ **Archaeological, historical and/or cultural heritage:** Favorable and unfavorable/negative effects that could be caused by the activities of the project on sites and/or materials considered part of the cultural, spiritual, historical heritage (linked to historical stages and events in Paraguay, such as the pre-Columbian period, wars, colonization and others) and/or archaeological sites of local, regional and national importance. This evaluation refers more to tangible heritage (archaeological sites and objects, architecture, documents, works of art from the past).

⁴ NATAN Foundation, Study of the indigenous component (March, 2021), commissioned by Paracel to this firm.

In turn, sites of cultural interest related to water uses, which could be considered part of the cultural-natural heritage, are referred to in the potential impacts on cultural ecosystem services.

Controlled burning, if used, could affect the ecosystem services of native or planted forest reserves, both in the Paracel fields (riparian reserve forests), as well as in nature reserves (private/public) adjacent to some of the fields with extensive current vegetation cover (National Park Paso Bravo and the National Park Bella Vista). One of the species of high conservation value that could be affected, as well as its associated habitat, is the blue macaw or Hyacinth (*Anodorhynchus hyacinthinus*), and the red macaw or the green-winged macaw (*Ara chloropterus*), species of birds of the parrot family (*Psittacidae*), of the order Psittaciformes, considered the world's largest and most endangered birds. In Paraguay, parrots and macaws are species that suffer a lot of pressure due to hunting and trafficking of their parts (feathers, beaks, claws). These situations, together with the loss of habitat, have a negative impact on the parrot population in the country. Currently, there are 8 species in danger of extinction and the 3 species of macaws registered in the national territory are included in this list, and correspond to the Aquidabán Ecoregion, which includes the department of Concepción³.

The following map plots the approximate distance buffers to historic and paleontological sites.

³ <https://sites.google.com/view/sosguaapy/p%C3%A1gina-principal>

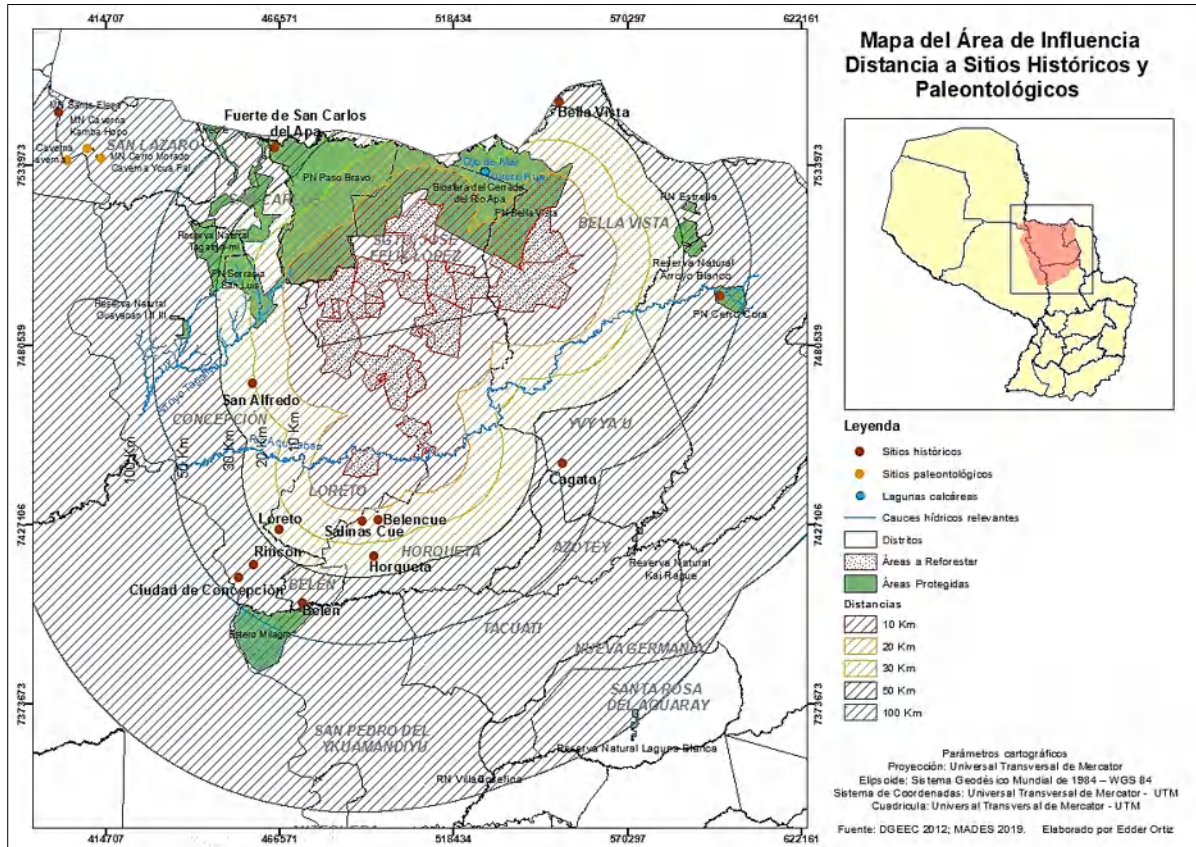


Fig. 2. Map of the project's area of influence, showing the distances from historical and paleontological sites, as well as protected areas and private nature reserves, from the project's forest plots / production area. It is observed that, within the range of influence of 10 to 60 km, the public and private protected areas (north / adjacent to the Apa River) are concentrated, as well as paleontological remains of local and regional relevance (northwest). For the historical sites of the Great War, its greatest presence can occur on the strip of direct influence of 10 km per side, following the course of the Aquidabán river, with greater importance and relevance in the Cerro Cora National Park (approximately 60 km), where sites of native peoples are also observed through shelters with cave painting, protected.

For the department of Concepción, the existence of paleontological remains (fossils) of both flora and fauna ⁴ have been reported, Today, several of these sites are protected under Law No. 4577/2011 (Fig 2), "declaring a protected wild area under the category of natural monument to several areas called caverns, located in the area of Vallemí, Department of Concepción. (Kamba Hopo Cavern; Hill Tres Cerros – July 14th Cavern and Santa Cavern; Morado Hill, Ycua Pa'l Cavern; and the "Natural Monument' Santa Elena Cavern. (Báez Presser *et al*, 2004; SEAM, 2011; Vellisimo Warren, 2016).

Regarding the existence and references of material remains of native peoples, there are samples in the Museum of the Fort of Concepción, deposited through donations from local people that were found in their agricultural work. For the historical events of the Great War, there are also references, with a wide dispersion territory, with greater presence in the department of Amambay, following the Aquidabán river to the Cerro Cora National Park, as can be seen in Fig. 4. This indicates an important relevance to be taken into account in the

⁴ Corresponds to 4 protected sites, on private property

earthworks (superficial archeology) and associated services works in the installation and production processes (stratigraphic archeology) planned for the project to the west.

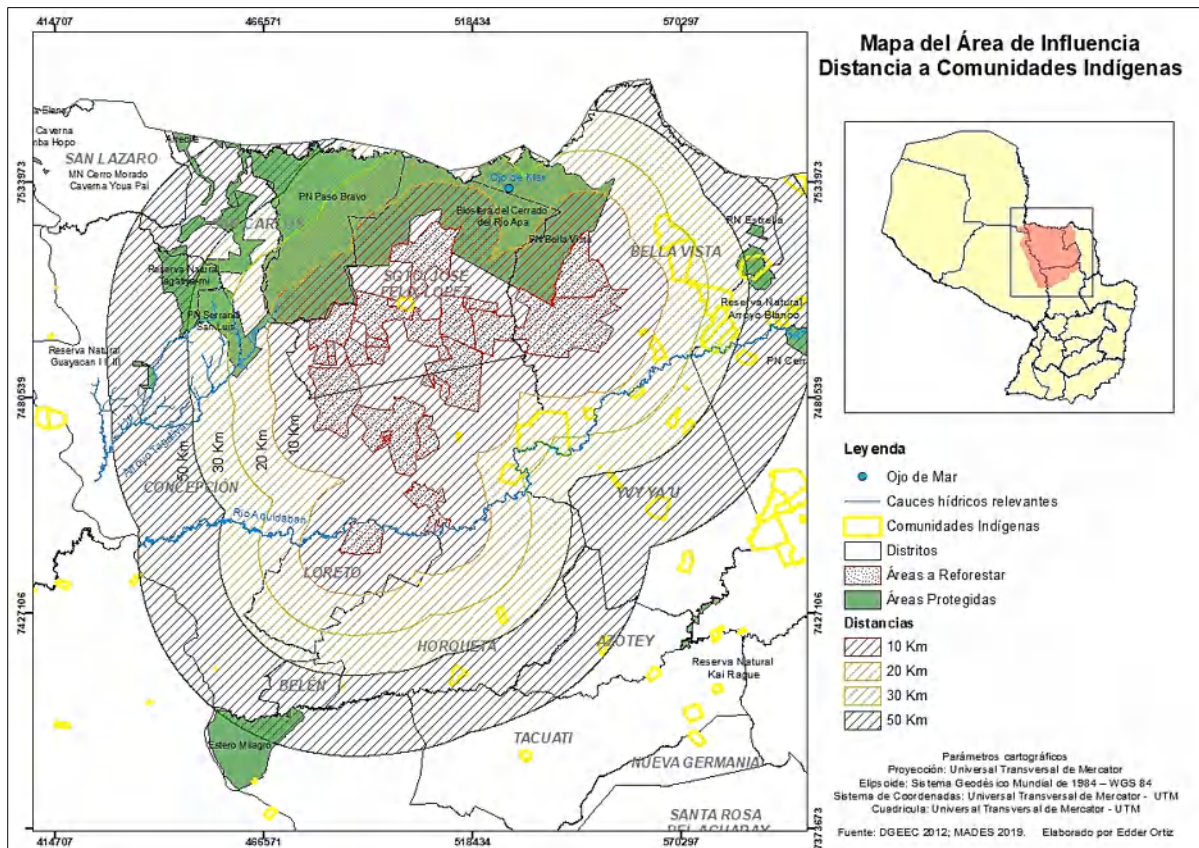


Fig.3 Map of the project's area of influence, showing the distances of indigenous communities from the Indigenous Census (DGEEC, 2012) from the project's forest production plots, noting that the settlements are more than 10 km from the areas, grouped towards the southeast (Cerro Cora NP) following the course of the Aquidabán River, except for one community or site registered as living heritage (DGEEC, 2012; MADES 2019), which is located in the town of Sgto. Félix López. Intervention actions and baseline data of the communities are developed in the Indigenous Component Study (NATAN, 2021)⁷.

⁷Study of the Indigenous Component, developed by Natán Foundation (2021), commissioned by Parcel S.A.

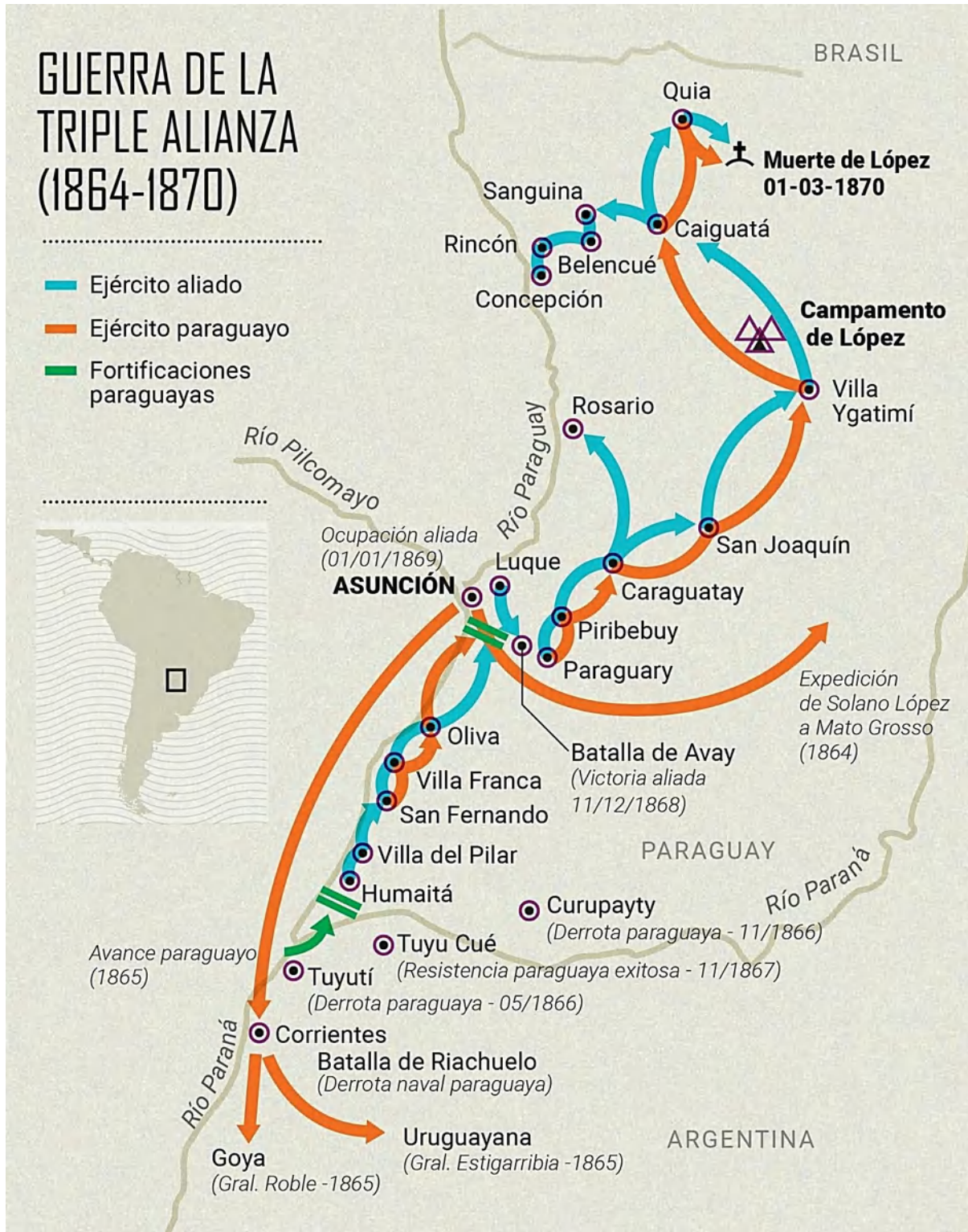


Fig. 4. Map of the war movements of the War of the Triple Alliance, with its historical temporality, showing in a circle the area that corresponds to the department of Concepción and the project area⁸. In the northern part there are no sites of historical relevance that correspond to these dates, however, almost the entire conflict developed towards the west in the Serranía del Amambay (Cerro Cora National Park), having their camps near the Aquidabán river, which it provided them with permanent sources of water and food, as well as river communication. SOURCE: <http://atlaslatinoamericano.unla.edu.ar/>.

⁸Available at: <https://www.facebook.com/HistoriaUniversalPND/photos/pcb.1203426493342656/1203426366676002>

Figure 4 shows two areas with the greatest presence of possible fortuitous finds corresponding to the War of the Triple Alliance, thus having: a) the area to the west and southwest of the forest production plots, was in the hands of the Aliados, and from there they leave for the Cerro Cora National Park (PNCC), place of the final fight, more than 60 km from the forest fields; b) the zone to the East (PNCC), corresponds to sites with a greater presence through the camps of soldiers and logistics, as well as places of confrontations, so it should present a greater presence of cultural entities and historical sites, associated with the death of Mariscal López, and end of the War.

We can mention that the most robust preventive archeology actions will be focused on the East and Southeast sector of the forest production plots, with an average distance that varies between 40 and 60 km, already within the department of Amambay. For the area comprised to the West and Southwest of the parcels, apart from the historical cities described in the Social Study (industrial component), the cultural entities for this historical period will be of low intensity in their fortuitous discovery (Fig. 4). For Concepción and other neighboring cities, the presence of historical infrastructure marks a difference in intervention.

As described in the SS, the archaeological and paleontological heritage of value that may be found by chance in the sequence of production works and other associated works, it is estimated that due to its characteristics it should be of small magnitude according to the works that may require soil movements, However, it is important to point out that the Project is expected to comply with the principles of IFC's PS 8, on "Cultural Heritage" and with the national regulations in force on the matter.

MEASURES AND PROGRAMS – in line with the Social Study – forestry component (SS)

Program for the safeguarding and enhancement of ADA's cultural heritage (industrial component) – AID (forestry component), aimed at preventing potential chance discoveries in the areas identified and described in the SS.

PROGRAMS/ MEASURES	PROJECT STAGE		ASSOCIATED IMPACT
	Industrial Component	Forestry component	
Program for the safeguarding and enhancement of ADA's cultural heritage	Construction and operation	Installation, operation and maintenance	<ul style="list-style-type: none"> - Affection of materials of archaeological, paleontological, historical and/or cultural interest. - Management and enhancement of local and national heritage - Possible loss and/or damage to heritage.
Awareness and follow-up program for contractors and workers regarding compliance with regulations	Construction and operation	Installation, operation and maintenance	<ul style="list-style-type: none"> - Social network impact - Impact on road safety - Occupational health impact (including COVID-19) - Affect on occupational safety. - Affecting the health and safety of others (including COVID-19)

			- Affectation of land properties
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2.1. CHARACTERIZATION OF DISTRICTS CONSIDERED IN THE FORESTRY COMPONENT

In addition to the Districts already characterized in the industrial component, such as Concepción, Belén, Loreto and Horqueta, the following is a description of the main characteristics of the Districts: José Félix López (Puentesíño), Paso Barreto, San Alfredo, Arroyito and Bella Vista Norte (Department of Amambay).

2.1.1. District JOSÉ FÉLIX LÓPEZ (Puentesíño)

This district was founded in 1902 and covers an area of 2,244 km². Its population is dedicated to cattle raising, forestry and agriculture for self-consumption, these activities are also related to the work in the district's ranches and sawmills⁹ in the area. Because it borders the San Carlos del Apa district, where Fort San Carlos del Apa is located (located more than 20 km from the forest fields and outside of the AID), considered national heritage, must take precautions as part of the Preventive Archaeology Action Protocol and associated measures, partly described in the SS.

⁹ According to testimonies, some of them operate with illegally harvested timber from Paso Bravo National Park and neighboring ranches.

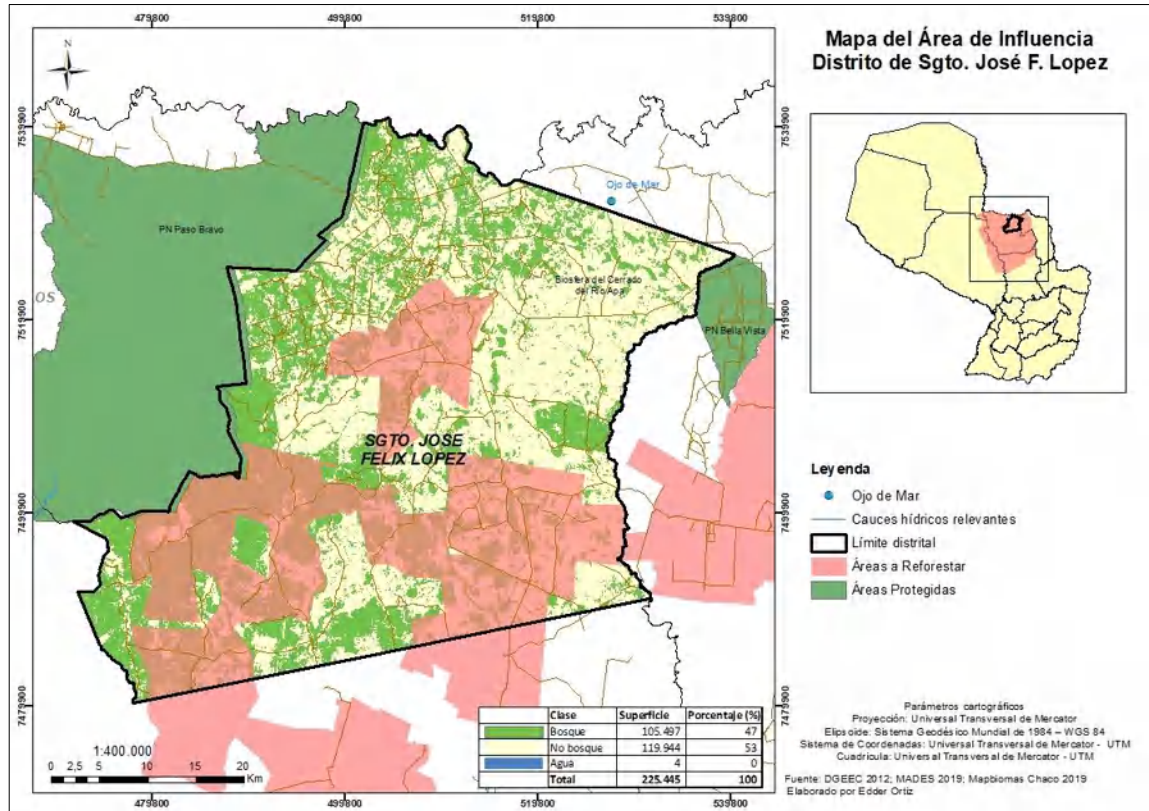


Fig. 3. Map of the district of Sgt. José Félix López showing the forested areas of the project and its relationship with Paso Bravo National Park and Bella Vista National Park (Amambay).

- The cultural heritage present in this district is given by historical events (Southwest part), where there is the possibility of fortuitous discoveries of cultural entities in the subsoil, as well as remains or bones of those who fell in the field, on roads and old bites. of herdsmen, today modified by changes in the natural landscapes. There are no references to studies in the area.
- The natural heritage present in this district is given by the Paso Bravo National Park and the Bellavista NP (Amambay), which adjoin the forest production plots, and are considered high priority conservation sites, considering that it is the habitat of one of the largest macaws in the world and of restricted distribution to this area, as well as the site of the sources of the Tagatiya stream, hence the importance of the actions to be monitored and applied in the field.

2.1.2. District PASO BARRETO

This district was founded in 2013, with an area of 2,158 km². Its population is located in a wetland area, with low fertility soil for large-scale agriculture (agricultural and horticultural production only for self-consumption), and important livestock activity in large areas. The inhabitants are small cattle ranchers or ranch hands. They are also engaged in commerce in general in the urban area and in the wood industry. According to data from the municipality, there are three indigenous communities (Jeguahaty, Vy'arenda and Takuarendihu), with an estimated population of 340 inhabitants, belonging to the Pai Tavytera partiality.

- The cultural heritage present in this district is given by potential sites of historical events, as well as possible sites of hunter-gatherer camps of native peoples, attending to the natural formation of the place, such as provision of good quality food and water.
- Its natural heritage is given by the Aquidabán River, that borders it to the south, which, due to its importance in the collective memory of its people, they carry out an Aquidabán River Festival at the Municipal Beach of Paso Barreto, with 600 meters long, which brings together families and visitors. This information is the result of consultations carried out within the framework of the SS, in which they mentioned that the main activities linked to the attractions of the area are games on the beach and fishing in the Aquidabán River, Paso Barreto and Paso Mbutu.



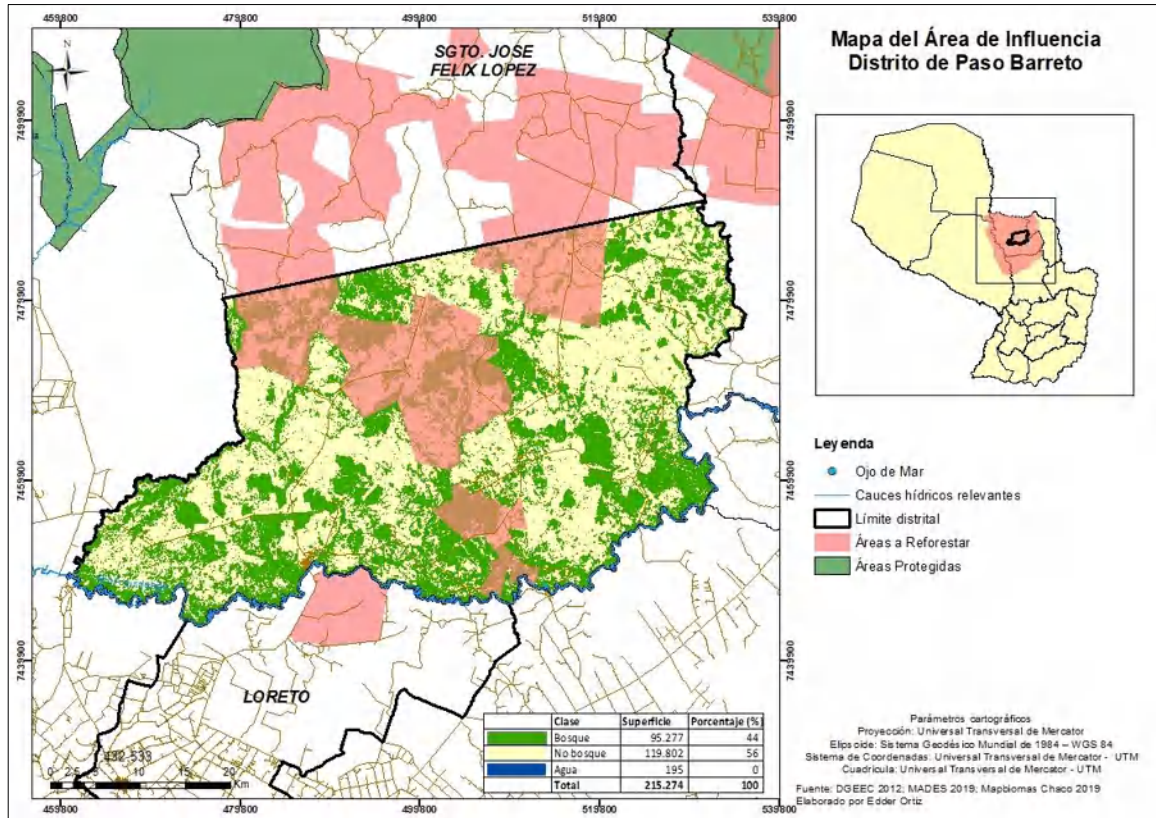


Fig. 4. Map of the Paso Barreto district, showing the forested areas of the project.

2.1.3. District SAN ALFREDO

This district was founded in 2013, with an area of 2,392 km². The site where the colony was created was an old lagoon, known as "Laguna Ybycuá", Until then, it was an obligatory stop for troperos, lumber explorers and some native families. The population is dedicated to the exploitation of wood, livestock, and agriculture. Between 1928 and 1930 the first settlers arrived with the Salesian mission "Puerto Alegre", who dedicated themselves to logging and the wood transported to Puerto Alegre, located on the Paraguay River, for shipment to Argentina. The coastal residents of Ytakua, Guyrati, and Itapukumi make their living from fishing, hunting, mining, and lime production.

The cultural heritage present is given by possible archaeological and historical remains of what was once the ancient lagoon, a site of water and food supply and native peoples' camp. Likewise, the Tagatiyá stream that crosses this district is considered a cultural/natural and geological heritage, due to its crystalline waters, having its source in the San Luis mountain range. Along its route, it is fed by watercourses that have sources in the forests of the area⁶, Hence its importance in monitoring and control of water.

⁶ Available in: <https://infoparaguay.com.py/sitios/arroyo-tagatiya/>

Its natural heritage is given by the presence of the San Luis National Park and the Tagatiya and Guayacán Private Nature Reserves (NR) (Fig. 5), being the forest fields distant from these sites, more than 10 km from the Natural Park San Luis and more than 25 km from Tagatiya NR.

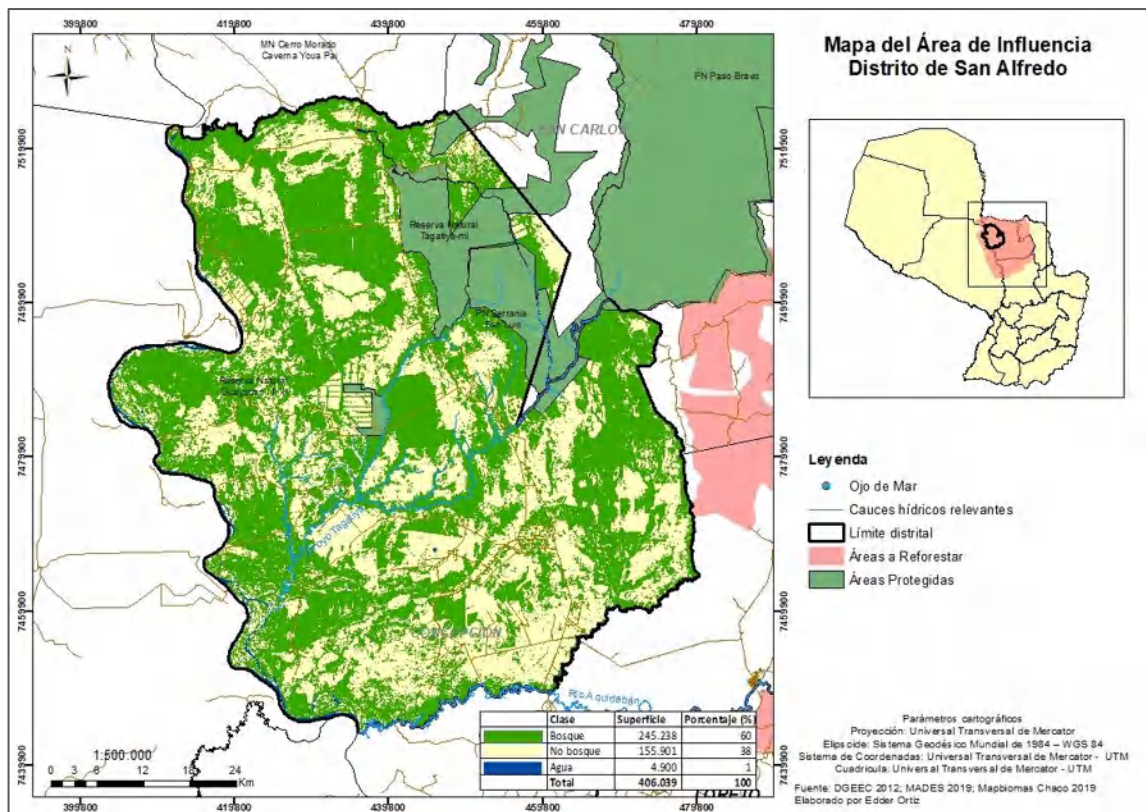


Fig. 5. Map of the San Alfredo district, showing the forested areas of the project and their relationship with protected areas, and the protection of the headwaters and courses of the Tagatiya stream.

2.1.4. District ARROYITO

This district was founded in 2016, with an area of 880 km². Its population is dedicated to agriculture (family farming), horticulture, cotton, spurge, corn, cassava, sugar cane, tupi corn, watermelon, beans, are some of the main items of self-consumption and income in the area. There are small raw material processors, milk and yogurt producers and distributors, bakeries, carpentry, and clothing manufacturers. Commercial development is on the rise.

- There is no cultural or natural heritage, nor is it referenced in the literature or research reports; however, due to its geographic location, it could eventually present some fortuitous cultural entity related to the War of the Triple Alliance.

2.1.5. DISTRICT BELLA VISTA NORTE (DEPARTMENT OF AMAMBAY)

This district was founded in 1902, with a surface area of 3,901 km². Its population is dedicated to agricultural and livestock production (cattle, horses, sheep and goats), but its border trade stands out above all because it is located in front of the Brazilian city of the same name.

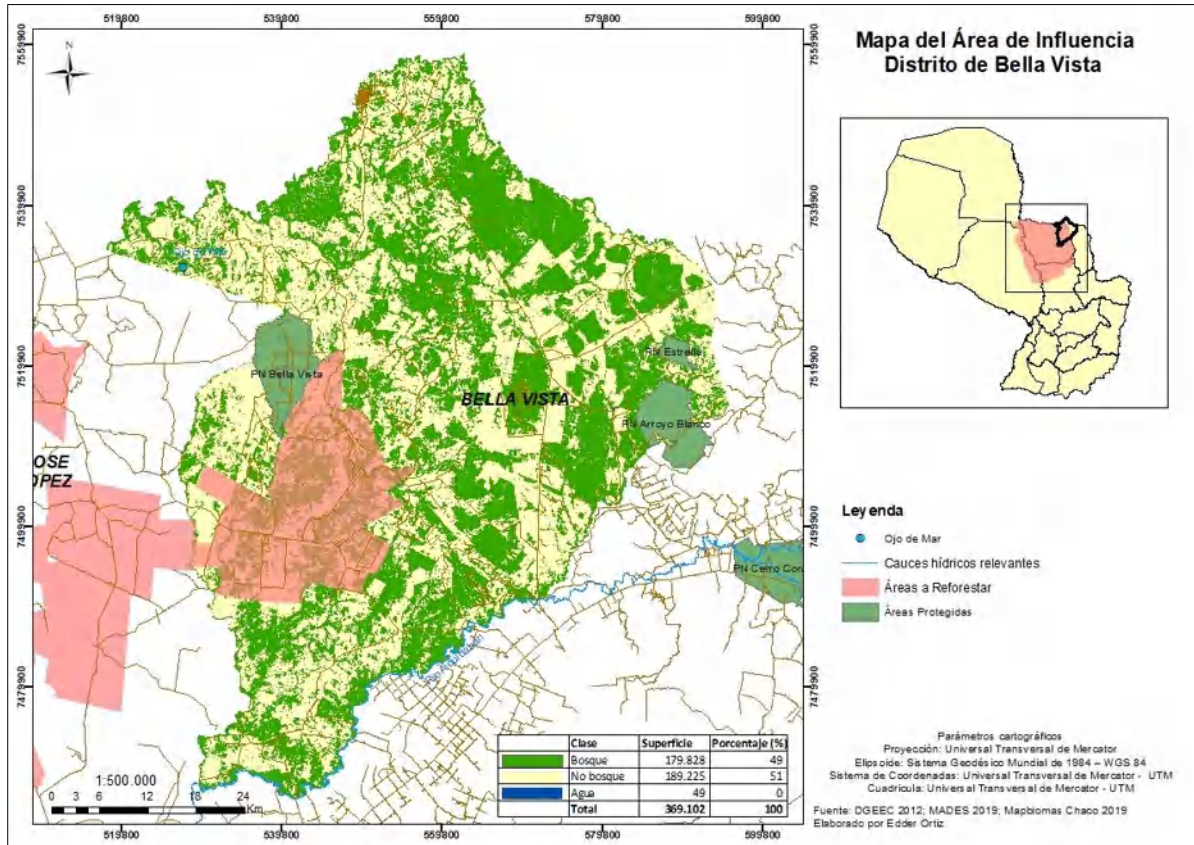


Fig. 6. Bella Vista Norte district, where the Bella Vista National Park can be observed (adjacent to one of the forest fields), which shows alterations in its natural dynamics due to extraction and encroachment. Also illustrated are two private nature reserves: Arroyo Blanco and Estrella, all of them more than 30 km away from the forestry fields.

It presents a historical area called Paso Macaco, on the Apa River, where General Bernardino Caballero was taken prisoner. Likewise, this district and Pedro Juan Caballero are part of the so-called Campaña de la Cordillera de Amambay, due to López's self-sacrificing retreat to the Cerro Cora area (approximately 60 km from the forest fields), while he was pursued by the Allied troops under the command of Correia da Câmara, up to Cerro Cora (Spanish and Guaraní Cerro Korá: site "surrounded by hills"), a place chosen by López to present resistance. The Cerro Cora Combat was more of a massacre than a combat, if one takes into account the enormous disparity of troops and resources: 2,600 well-armed Brazilians against 409 Paraguayan defenders¹².

¹²https://es.wikipedia.org/wiki/Campa%C3%B1a_de_las_Cordilleras



Fig. 7. Its cultural and natural heritage is given by the presence of natural sites of geological and paleontological importance, highlighting the site called Ojo de Mar⁷, which is located on private property and far away from the project areas (more than 16 km).

3. PROCESS RECOMMENDATIONS FOR A PREVENTIVE MANAGEMENT OF THE CULTURAL AND NATURAL HERITAGE OF THE PROJECT AREAS.

- Although the social significance of impacts on heritage is low in both components (industrial and production), in the districts involved, it is planned to promote actions that help to achieve a visible presence of tangible heritage and, eventually, to minimize its impact, as well as to respect the intangible heritage, present in the way of life and culture of the population settled in the study areas (Paracel/SS, 2021).
- Except for the districts of José Félix López, San Alfredo and Bella Vista Norte (and even if it was from the AID San Carlos del Apa), where the potential impacts on the natural and cultural heritage present could be significant, not so in the other districts of Paso Barreto, and Arroyito, which have a low surface relevance, However, earthworks and other movements affecting the subsoil could eventually prove otherwise, as this entire region was part of the historical events of the War of the Triple Alliance (1864-1870). (Fig. 2). The territorial presence of major geological phenomena, such as the Tagatiya stream, which is similar to the Bonito region (Brazil), with its crystalline water sources, which requires greater attention; however, it is located far from the project's production areas. (Fig. 4)
- The territorial presence towards the northwest of the forest parcels, of geological phenomena and caverns of the first order at a regional level, with proven presence of fossils, and, in addition, the crystalline waters of the Tagatiya stream, which maintains a

⁷ Geological formation (unique) that could be a cenote or some type of lake with subway tributaries. It is located 58 km. from the center of the municipality, in a company called "Rinconada"... and is accessed by the road that connects Bella Vista Norte with Sargento José Félix López (Puentesíño).

Ojo de mar Ojo de Mar is the name given to this mysterious place in Paraguay by the locals, which became famous in the last decade. Geologically it could be a cenote or some kind of lake with subway tributaries. There are myths about a couple of white crocodiles that inhabit this place and that rarely came to the surface, although there has never been scientific confirmation or evidence, therefore, as many say, we could let our imagination run wild and feed the legend. Available in: <https://www.bienvenidoaparaguay.com/showdata.php?xmlcity=208&xmldestino=297#sthash.HQmD6Ovm.dpuf>

similarity with the region of Bonito (Brazil), requires more attention and studies. This complex of caves and geological formation are more than 40 km distant from the forest production areas.

- Therefore, in view of the low presence of cultural entities on the surface, it is recommended that a PROTOCOL OF ACTION IN PREVENTIVE ARCHAEOLOGY be drawn up for the industrial and production area of the project, as the guiding document to be used in earth/soil movements, as well as biomass associated with natural and cultural dynamics, given the need to protect and safeguard archaeological, paleontological and historical remains of the Great War and events that still linger in the local imaginary, as well as other relevant ones that may be found by chance⁸ in the course of the programmed works, as a mechanism of methodological intervention "in situ", and to promote its appropriation.
- Due to the above, in attention to the low presence of cultural entities on the surface, but of regional importance due to historical events that marked the local imagination, as well as the presence of first-order geological formations (which include flora and fauna fossils), and before the little reference literature that certifies its presence, it is recommended the development of a PROTOCOL OF ACTION IN PREVENTIVE ARCHAEOLOGY, which will aim to: Guide actions for the conservation and protection of archaeological, paleontological heritage and assets of cultural and religious interest present in the area of influence of the Paracel project. (Annex 2)
- As a guiding document for the Program for the Protection and Valorization of the Cultural Heritage of the Project (PGE / ES.CF), it will have different phases of action throughout the project (training, prospecting, rescue, monitoring and dissemination), aligned with the PGS and the Resolution SNC 1104/2019, guaranteeing its public and social character, and establishing actions that make the fulfillment of its object effective. This document, in its guiding nature for preventive actions, will be set forth as part of the Agreement to be signed, and in which the conversations with the SNC are in progress for support and joint work to achieve this objective (Annex 1).
- The training and induction in preventive archeology to the project staff (managerial, administrative, technical and field), as well as to different institutional actors of the sector at the local level, will allow dimensioning their fields of responsibilities, the chain of intervention and communication, the regulations and the procedures to be assumed for the preventive protection of the cultural and natural heritage present, as well as the fortuitous discoveries that may eventually occur in the different stages of the project, as a mechanism of methodological intervention "in situ", and promoting an appropriation of the same.
- The Protocol of Action in Preventive Archeology of the project, foresees the participation of the National Secretariat of Culture, accompanying the entire process and the approval of the preventive management instrument, as well as that of the local governments, as the

⁸ What is a chance find? It is the unforeseen finding of archaeological materials such as vessels or fragments thereof, lithics (stones or rocks), animal or human bones, figurines, wooden or metal utensils, or any other (ancient) archaeological element.

case may be, in order to that the project promote the revaluation and enhancement of the tangible and intangible heritage of the department of Concepción and part of Amambay, as well as their cultural identity. For this purpose, it has been coordinating with the SNC, in order to sign a Process Memory Help, which allows support and guidance according to the cultural and natural heritage present, as the case may be.

4. REFERENCE SOURCES

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5. ACRONYMS AND ABBREVIATIONS

AID	Direct Influence Area All Area of Indirect Influence
All	Area of Indirect Influence
EIA	Environmental Impact Evaluation
DGEEC	General Directorate of Statistics, Surveys and Censuses
DEAAP	Directorate of Anthropology, Archaeology and Paleontology Studies
DIA	Environmental Impact Statement or Environmental License
SS	Paracel Social Studies
km	Kilometers unit of measure
MADES	Ministry of Environment and Sustainable Development
MAG	Ministry of Agriculture and Livestock
PGS	Paracel's Social Studies Social Management Plan
PNCC	Cerro Cora National Park
PNSL	San Luis National Park
NSC	National Secretariat of Culture

6. ANNEX

Annex 1. Institutional empowerment process between Paracel and the SNC, for the safeguarding of the cultural and natural heritage of the project area.



Asunción, 14 de enero de 2021

Rubén Capdevila Yampey
Ministro Secretario Ejecutivo
Secretaría Nacional de Cultura
Presente:

Paracel es una empresa paraguaya, con capital procedente de instituciones financieras nacionales e internacionales, que nace con el objetivo de desarrollar un proyecto único en el país: construir y operar una planta de pulpa de eucalipto de clase mundial; el mayor emprendimiento privado de la historia del Paraguay.

Con un presupuesto estimado de US\$ 3.200 millones, lo que representa el 2,5% del PIB del país, su implementación, constituirá a Paracel como una de las empresas más grandes del Paraguay. Además, el proyecto abre un nuevo rubro de exportación a nivel nacional, abordando la creciente demanda de celulosa a nivel mundial.

Por ello, uno de sus ejes centrales es la promoción de una producción sustentable para aportar en el desarrollo socioambiental del país y del mundo, a través de un uso óptimo de los recursos y la integración de soluciones amigables con el medioambiente.

Asimismo, la compañía espera contribuir en el progreso socioeconómico de Paraguay con la creación de alrededor de 4.000 trabajos directos en la planta industrial y en las plantaciones y 36.000 nuevos trabajos indirectos para las personas de la región de Concepción, una de las zonas con mayor índice de pobreza del país

En esta etapa del proyecto Paracel trabaja en la planificación de abordajes a través de Programas Sociales y Ambientales, entre ellos se encuentra el “Programa de resguardo y valorización del patrimonio cultural del área directamente afectada”, con el objetivo de velar por una gestión sostenible del patrimonio, de Concepción.

Por lo mencionado, hemos identificado a la Secretaría Nacional de Cultura como aliado estratégico, y solicitamos que designe un representante para armar una mesa de trabajo.

Confiados en que la institución valorará esta solicitud, nos despedimos a la espera de una respuesta favorable.

Atentos saludos



Latifi Chelala
Gerente de Comunicación y Sustentabilidad Social
Paracel S.A.

Contacto: Latifi Chelala, teléfono 0984 50 12 90, correo: Latifi.chelala@paracel.com.py

SESQUICENTENARIO DE LA EPOPEYA NACIONAL 1864-1870



TETĀ
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SĀMBYHYHA
SECRETARÍA
NACIONAL
DE CULTURA



TETĀ REKUÁI
GOBIERNO NACIONAL

Paraguay
de la gente

Asunción, 25 de enero de 2021

Nota SNC/SG N° 97 /2021

Señora

Latifi Chelala, Gerente de Comunicación y Sustentabilidad Social
Paracel S.A.

Presente

Tengo el agrado de dirigirme a usted en ocasión de acusar recibo a su atenta nota de fecha 14 de enero de 2021, ingresada a la Secretaría Nacional de Cultura bajo expediente SNC N° 0066, a través de la cual informa que se encuentran abocados a la realización del "Programa de resguardo y valorización del patrimonio cultural del área directamente afectada" y a la cual cursa cordial invitación a esta Secretaría de Estado para conformar una mesa de trabajo.

Al respecto, tengo a bien informar que he designado a la señora María Teresita Silvero, Directora de Cooperación Nacional e Internacional, cuyo número de teléfono es el (021) 442515 int. (108), celular (0972)105.606, correo cooperacionsnc.19@gmail.com y a la Arq. Clarisse Insfrán, Directora de Registro de Patrimonio, contacto (0981) 931.058, correo electrónico clarisseinsfran@gmail.com para participar en dicha instancia.

Deseando éxitos al proyecto, hago propicia la oportunidad para saludarla con estima y consideración.



TETĀ
ARANDUPY
SĀMBYHYHA
SECRETARÍA
NACIONAL
DE CULTURA

Rubén Capdevila
Ministro – Secretario Ejecutivo



"SESQUICENTENARIO DE LA EPOPEYA NACIONAL: 1864 – 1870"



TETĀ REKUĀI
GOBIERNO NACIONAL

Paraguay
de la gente



PARACEL

**CONVENIO MARCO DE COOPERACIÓN INTERINSTITUCIONAL
ENTRE
LA SECRETARÍA NACIONAL DE CULTURA Y LA EMPRESA PARACEL S.A.**

La Secretaría Nacional de Cultura, en adelante la "SNC", y la empresa PARACEL S.A. en adelante la "EMPRESA", y en lo sucesivo en adelante denominados "las Partes";

RECONOCIENDO QUE:

La **SNC**, con domicilio en la calle Estados Unidos 284, de la ciudad de Asunción - Paraguay, representada en este acto por el Ministro - Secretario Ejecutivo, señor **RUBÉN CAPDEVILA YAMPEY**, designado por Decreto N° 100 del 23 de agosto de 2018.

La **SNC** es la institución rectora de las políticas culturales del Paraguay, dependiente de la Presidencia de la República, creada por Ley 3051/08 "Nacional de Cultura", encargada de promover el respeto a la diversidad, la creación e innovación de las artes, así como de garantizar la participación e inclusión, protegiendo la cultura material e inmaterial, rescatando nuestra historia, costumbres, tradiciones y elementos identitarios en todo el territorio Nacional y el mundo.

La **EMPRESA**, con RUC N° 80106417-1, y domicilio legal en la calle Facundo Machain, N° 6426 de la ciudad de Asunción - Paraguay, representada en este acto por el Señor **NILS GRAFSTRÖM**, en su carácter de apoderado.

PARACEL es una empresa paraguaya, con capital procedente de instituciones nacionales e internacionales, que nace con el objetivo de desarrollar un proyecto único en el país: construir y operar una planta de celulosa de eucalipto de clase mundial; el mayor emprendimiento privado de la historia del Paraguay.

Las Partes desearon coordinar y promover acciones conjuntas para lograr un fluido relacionamiento institucional, a fin de estrechar los lazos en pos de una cooperación interinstitucional, **HAN CONVENIDO** lo siguiente:

CLÁUSULA PRIMERA: OBJETO

El presente Convenio tiene por objeto establecer las bases para una relación interinstitucional de cooperación mutua en el ámbito de competencia de cada una de las Partes, tendiente al desarrollo de políticas públicas destinadas a promover, coordinar y ejecutar planes, programas, proyectos y lineamientos en las áreas de revalorización y puesta en valor del Patrimonio Cultural y Arqueológico en el área de influencia del proyecto PARACEL.

CLÁUSULA SEGUNDA: EJECUCIÓN DEL CONVENIO

La ejecución de las acciones en el marco de este convenio, se realizarán a través de acuerdos específicos o anexos suscritos entre las Partes, los que serán especialmente redactados en cada caso, y que serán aprobados y firmados por las autoridades respectivas de cada parte. Los acuerdos específicos y/o anexos detallarán el presupuesto necesario para la implementación del Acuerdo específico o Anexo en cuestión, según disponibilidad presupuestaria de la SNC, y con el fin de que el mismo sea programado en el periodo siguiente inmediato, en caso de que no esté previsto en el ejercicio fiscal en curso.

En cada Acuerdo específico y/o Anexo se establecerán asimismo las responsabilidades de cada parte, los reglamentos y procedimientos aplicables según sea el objeto de cada acuerdo, además de la obligatoriedad de la presentación de los informes correspondientes, los cuales se elaborarán en forma conjunta y de acuerdo con las necesidades de cada Acuerdo específico y/o Anexo.

Página 1 de 3



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de la gente



PARACEL

En cada caso se nombrará a un representante titular y a un representante suplente, por cada una de las partes, quienes oficiarán de nexo entre ambas entidades para la planificación y la coordinación de las actividades a ser desarrolladas y que sean objeto del Acuerdo Específico o del Anexo, y cuyas designaciones serán notificadas vía nota a la otra Parte.

Cualquier aspecto referente a las funciones, obligaciones y/o responsabilidades entre las Partes, que no esté contemplado en el presente Convenio Interinstitucional, así como dudas de cualquier tipo o diferencias, serán definidas amistosamente a través de acuerdos complementarios firmados por representantes autorizados de cada parte.

CLÁUSULA TERCERA: RECURSOS HUMANOS

Los recursos humanos designados por cada una de las partes, para cumplir las actividades previstas en los Acuerdos Específicos y/o Anexos, no tendrán ningún tipo de vinculación laboral con la otra parte. Quedará a cargo exclusivo de cada parte la responsabilidad laboral íntegra en la que se refiere a los derechos y obligaciones de sus empleados asignados para la ejecución de este Convenio.

CLÁUSULA CUARTA: PROTECCIÓN Y UTILIZACIÓN DE LOS RESULTADOS

La confidencialidad o la difusión de los resultados de los trabajos que se encaren de forma conjunta, deberán ser determinadas por las Partes de acuerdo a una estrategia de transferencia de tecnología, consistente con la naturaleza pública o privada del bien a transferir. En el marco de dicha estrategia, las Partes deberán establecer los límites sobre la utilización de dichos resultados. Los derechos sobre eventuales resultados científicos y/o técnicos obtenidos durante la ejecución de los proyectos relativos a la propiedad intelectual, se definirán con antelación en el Acuerdo Específico o Anexo, los cuales serán respetados íntegramente por las Partes.

CLÁUSULA QUINTA: AUTONOMÍA DE LAS PARTES

En toda circunstancia o hecho que tenga relación con este instrumento, las Partes mantendrán la individualidad y autonomía de sus respectivas estructuras técnicas y administrativas y asumirán particularmente, en consecuencia, las responsabilidades derivadas de sus actuaciones, dentro del ámbito de su competencia. El presente Convenio no excluye la firma de Acuerdos y Convenios bilaterales y/o multilaterales entre las entidades que suscriben el mismo y otros organismos públicos o privados, nacionales o internacionales, para la realización de actividades similares y/o complementarias al presente Convenio.

CLÁUSULA SEXTA: NOTIFICACIONES

Las partes constituyen domicilio especial en los lugares indicados en el primer párrafo del presente Convenio, los que son válidos para las comunicaciones respectivas y cuestiones legales emergentes.

CLÁUSULA SÉPTIMA: SOLUCIÓN DE CONTROVERSIAS

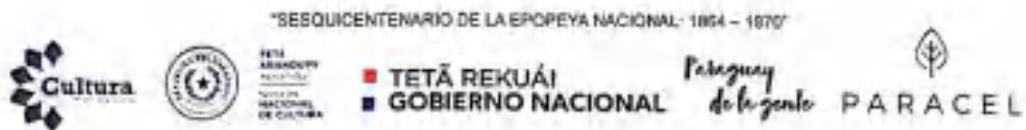
Cualquier conflicto de intereses que pudiera originarse de la interpretación del presente convenio y/o de la ejecución de los emprendimientos previstos en el mismo se resolverá entre las partes conforme a la buena fe, las prácticas de buen gobierno institucional y la concordia.

Si las Partes no lograren una solución por los medios precedentemente referidos, entonces podrán recurrir a los Juzgados y Tribunales civiles ordinarios de la capital de la República del Paraguay.

CLÁUSULA OCTAVA: ENTRADA EN VIGOR, DURACIÓN, TERMINACIÓN Y ENMIENDA

El presente Convenio entrará en vigor en la fecha de su firma y tendrá una duración de cinco (5) años, transcurridos los cuales se considerará renovado automáticamente por las Partes por un periodo igual si no mediare una comunicación escrita en contrario por alguna de las Partes cursada con al menos 60 (sesenta) días de anticipación al vencimiento del plazo inicial.

Página 2 de 3



La solicitud de rescisión del presente Convenio Marco no interferirá con las actividades que se estuvieran realizando al momento de la recepción de la solicitud de rescisión y éstas continuarán hasta su culminación.

Sin perjuicio de lo establecido en el párrafo precedente, cualquiera de las Partes podrá dar por terminado anticipadamente el presente Convenio sin causa y sin responsabilidad alguna, mediante notificación escrita dirigida a la otra Parte, con, por lo menos, sesenta (60) días de antelación a la fecha prevista de rescisión. La rescisión anticipada no interferirá con las actividades en curso de realización al momento de la recepción de la solicitud de rescisión, las que continuarán hasta su culminación.

CLÁUSULA NOVENA: INCUMPLIMIENTOS

En caso de incumplimiento de lo pactado en el Convenio Marco, los Anexos o Acuerdos Específicos por una de las Partes, la otra Parte, podrá solicitar, por escrito, que en el plazo de 15 (quince) días corridos se subsane la situación. Si no lo hiciere, la Parte que no incurrió en incumplimiento podrá rescindir inmediatamente el Convenio con la simple comunicación escrita a la otra. La parte incumplidora tendrá responsabilidad indemnizatoria respecto a la otra parte, debido al incumplimiento sea por pagos, transferencias efectuadas o gastos realizados o cualquier otro incumplimiento de lo establecido en el presente Convenio Marco y sus documentos integrantes.

El presente Convenio podrá ser modificado y/o enmendado por mutuo consentimiento de las Partes, mediante la firma de Adendas.

FIRMADO en la ciudad de Asunción, a los días del mes de de 2021, en dos ejemplares originales, siendo ambos textos igualmente auténticos y válidos, de un mismo tenor y a un solo efecto.

<p>_____</p> <p>Nils Grafström Apoderado PARACEL S.A.</p>	<div style="text-align: center;">  <p>TETĀ ARANDUPY SAMETHOYA SECRETARÍA NACIONAL DE CULTURA</p> </div> <div style="text-align: center;">  <p>Rubén Capdevila Yampey Ministro-Secretario Ejecutivo SNC</p> </div>
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1	Introduction	
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5	Action programs tangible and intangible heritage	
	<ul style="list-style-type: none"> → Protection Program → Monitoring Program → Fortuite findings procedure → Training and education program → Outreach program → Preventive conservation and storage 	aligned with IFPS8 and its intervention guidelines
6	Schedule of activities	Aligned ES/PGS.CF
7	Process considerations and recommendations	
8	Reference bibliography	
9	Annexes	

ANEXO 3. Listado de patrimonio cultural y natural relevante ajustado a su posicionamiento geográfico de acuerdo a las parcelas del proyecto

Distances	Heritage sites	District	Department
10,1 - 20 km	Ojo del mar	Bella Vista	Amambay
	Kururu kua	Bella Vista	Amambay
	Belencue	Horqueta	Concepción
	Salinas Cue	Horqueta	Concepción
20,1 - 30 km	Horqueta City	Horqueta	Concepción
	City of Loreto	Loreto	Concepción
	San Alfredo City	San Alfredo	Concepción
30,1 - 50 km	Concepción City	Concepción	Concepción
	Rincón	Concepción	Concepción
	Belén	Belén	Concepción
	Fuerte San Carlos del Apa	San Carlos del Apa	Concepción
	Cerro Cora	Pedro J. Caballero	Amambay
	Bellavista	Bellavista	Amambay
50,1 - 100 km	Caverna Ykua Pa'i	San Lázaro	Concepción
	Caverna Kamba Hopo	San Lázaro	Concepción
	Caverna 14 de Julio t Santa Caverna	San Lázaro	Concepción
	Vallemí	San Lázaro	Concepción
	Cagata	Yvy Ya'u	Concepción

Distances	Protected areas	Public	Private
0-10 km	Bella Vista National Park	X	
	Paso Bravo National Park	X	
	Cerrados del Tagatiya Natural reserve		X
10,1 - 20 km	Tagatiya-mi Natural reserve		X
	Serranía San Luis National Park	X	
20,1 - 30 km	Arroyo Blanco Natural reserve		X
30,1 - 50 km	Arrecife Natural reserve		X
	Cerro Cora National Park	X	
	Estrella Natural reserve		X
	Guayacan I II III Natural reserve		X

ENVIROMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

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Date 31.07.2021
Reference N. 109002841-001-0000-E-1500

Page 1


EUCALYPTUS PLANTATION
Departments of Concepción and Amambay – Paraguay
VOLUME III – IMPACT IDENTIFICATION AND ANALYSIS

Content	7	IMPACT IDENTIFICATION AND ANALYSIS
	8	INTEGRATED ANALYSIS OF ENVIRONMENTAL IMPACTS (CUMMULATIVE IMPACT ANALYSIS)

Annexes

Distribution	
PARACEL	E
PÖYRY	-

Orig.	31/07/21 – hbo	31/07/21 – bvv	31/07/21 – hfw	31/07/21 – hfw	For information
Rev.	Date/Author	Date/Verified	Date/Aproved	Date/Authorized	Observacion
a	20/08/21 – hbo	20/08/21 – bvv	20/08/21 – hfw	20/08/21 – hfw	For information
b	13/10/21 – hbo	13/10/21 – bvv	13/10/21 – hfw	13/10/21 – hfw	For information

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7 IMPACT IDENTIFICATION AND ANALYSIS

7.1 Impact Assessment Methodology

This document consists of the Environmental and Social Impact Assessment (ESIA) for the implementation of PARACEL plantation areas, within approximately 190,000 ha of plantation lands which will be acquired in Concepción and Amambay Departments, in Paraguay.

The planting and harvesting of eucalyptus are an essential activity for the production of the wood, necessary for the pulp mill with expected production of 1.5 million (M) air dried tons (ADt) of bleached eucalyptus pulp per year. It should be noted that PARACEL's pulp mill, despite being designed to produce 1,500,000 tons per year, it will be able to produce up to 1,800,000 tons per year of bleached pulp as a result of a greater overall efficiency of the plant, as well as higher equipment performance without the need to increase the constructed area or include new additional equipment.

It is noteworthy mentioning that nursery services is a third party that does not fall within the scope of this ESIA. However, all third parties will abide by Paracel ESMS which has a strong sustainable process bases that requires strict standards to all of its own employees and subcontractors, ensuring the best environmental practices and a safe and healthy working environment.

The eucalyptus forestry areas can undergo changes resulting from the planting, harvesting and transportation of wood, both in own and leased farms of PARACEL. Therefore, it can be said that since there might be changes in the environmental aspects, this ESIA should be evaluated. According to Article 1 of Law # 294/93:

“Environmental impact, for legal purposes, shall be understood as any modification of the environment caused by human works or activities that have as a positive or negative consequence, directly or indirectly, to affect life in general, biodiversity, the quality or a significant quantity of natural or environmental resources and their use, welfare, health, personal safety, habits and customs, cultural heritage, legitimate livelihoods.”

The methods and criteria used for the evaluation of impacts consist of the analysis of the impacts derived from the enterprise's actions in each environmental component (physical, biological and anthropic), being detailed according to the minimum content established in article 3 from Law 294/93.

Other than that, this document is in line with what established by the Performance Standards (PS) of the IFC:

- IFC PS 1 on "Evaluation and management of environmental and social risks and impacts";
- IFC PS 2 on “Labor and working conditions”;
- IFC PS 3 on “Resource Efficiency and Pollution Prevention”;
- IFC PS 4 on “Community Health and Safety”;
- IFC PS 5 on “Land Acquisition and Involuntary Resettlement”;
- IFC PS 6 on “Biodiversity Conservation and Sustainable Management of Living Natural Resources”;

- IFC PS 7 on “Indigenous People”;
- IFC PS 8 on “Cultural Heritage”.

Therefore, the diagnosis of the area of influence provided greater knowledge of the region, allowing a prognosis related to its future development. Having said this, the knowledge of the characteristics of the project and the environmental aspects of its area of influence made it possible to identify and evaluate the possible consequences for the natural or anthropic environment based on an appropriate methodology. For the analysis of these consequences, the structure of the document was based on the following items:

- Identification of impact generating activities;
- Methodology for environmental impacts assessment;
- Identification of environmental impacts;
- Environmental impact assessment;
- Evaluation summary tables.

The conclusions obtained in the impact assessment phase allowed us to propose mitigation measures, when negative impacts are involved, as well as ways maximize impacts, when positive impacts are involved, thus optimizing the benefits generated by PARACEL's company.

7.1.1 Identification of impact-generating activities

In order to identify the activities that generate environmental impact, a survey was carried out of the actions to be carried out in the different stages of the project: planning, implantation and operation. At each of these stages, due to the actions taken, there may be changes in the environment, which must be recorded and evaluated.

The main impacts generated from activities (generating factor) identified for each phase of the forestry process were:

Planning, implantation and operation phase

- Land acquisition;
- Cleaning the land;
- Vegetation removal;
- Opening accesses and roads;
- Water consumption;
- Generation of sanitary sewage;
- Generation of solid waste;
- Vehicle traffic;
- Vehicle maintenance;
- Transport of chemical products;
- Use of agricultural inputs, such as fertilizers, herbicides, fungicides and insecticides;
- Eucalyptus plantation;
- Eucalyptus harvesting;
- Formation of the eucalyptus forest;
- New economic sector;
- Hiring labor force;
- Hiring outsourced services.

7.1.2 Methodology for environmental impacts assessment

Currently, there are several methodological lines developed for environmental impact assessment: spontaneous methodologies (Ad hoc), checklists, interaction matrices, interaction networks, quantitative methodologies, simulation models, overlay maps, scenario projection, among others.

PÖYRY has a multidisciplinary team with extensive experience and has conducted numerous environmental studies in various segments, and especially in the paper and pulp sector including eucalyptus forestry. Thus, over the years, through the accumulation of experience and the increase in the repertoire of technical and scientific works, PÖYRY has developed its own methodology for the identification and evaluation of impacts.

This methodology is based on the development of a checklist (which in turn already includes interaction matrices), in which the factors generating impacts (activities) and the aspects leading to impacts on the environmental components are listed in the various project phases.

The impact assessment methodology was also based on legal provisions such as Law no. 294/93 and therefore presupposes temporal and spatial scales of impacts. In this study, the planning, implantation and operation phases were used as the temporal scales, and for the spatial scales the area directly affected, the area of direct influence and the area of indirect influence were used. The evaluation was consolidated through discussion among the members of the multidisciplinary technical team.

Thus, impacts were evaluated, qualifying them according to their specificities and indicating their spatial magnitude (qualitative measure) and degree of importance depending on how long they remain in the environment. According to these criteria, the main impacts were characterized by the following attributes:

- The **nature**: indicates whether the impact has beneficial/positive (P) or adverse/negative (N) effects;
- The **form of incidence**: indicates if the impact affects the environmental factor direct (D) or indirect (I);
- The **area of spatial coverage**: can be local (L), when the impact spread in the directly affected area at plantation lands and/or in the area of direct influence; regional (R), when the impact is spread in the municipality of Concepción and/or spreads to the Department of Concepción and Amambay; or strategic (E), when the impact is interconnected with local and/or regional development strategies;
- The **probability of occurrence**: whether the impact is a certain event (C) to occur, or possible (P);
- The **moment of occurrence**: if the impact occurs after the start of the generating activities in an immediate way (I) / short term (CP); medium term (MP) and long term (LP);
- The **temporality or duration**: refers to the duration of the impact on the environment, which can be temporary (T), when it occurs in a determined period, permanent (P), when it occurs throughout the life of the company, and cyclical (C), when the effect is manifested in certain intervals of time;

- The **degree of reversibility**: reversible (R), when the affected environmental factor tends to return to the original conditions, or partially reversible (PR) and irreversible (I), when the factor does not return to the original conditions;
- With respect to **accumulation**: when the impact is established as simple (S), accumulation Type I (I), accumulation Type II (II), and accumulation Type III (III);
 - Simple (S): is not characterized by bioaccumulation or biomagnification processes; does not accumulate in time or space; does not induce or enhance any other impact; does not interact in any way with other impact(s); and does not increase in past and present actions (European Commission, 2001);
 - Type I (I) accumulation: accumulation by bioaccumulation;
 - Type II (II) accumulation: accumulation by repetition or overlap, accumulating in time and/or space;
 - Type III (III) accumulation: accumulation by interactivity or synergy.
- The **magnitude**: refers to the degree of impact on the studied element, which can be low (B), medium (M) or high (A), depending on the area of spatial coverage reached;
- In relation to the **possibilities of mitigation**: possible impact to be mitigated (M), partially mitigated (PM) and not mitigated (NM)
- Regarding **importance**: it establishes as small (P), medium (M) or large (G), taking into account the magnitude and possibilities of mitigation of the environmental factors affected by the impact. In order to establish a combined rule for the attributes of magnitude and mitigation for the definition of importance, the following Table was drawn up

Table 1 – Criteria for environment impact assessment

Importance	Criteria
Small	- Low and mitigated magnitude (or low degree of enhancement for positive impacts) - Low and partially mitigated magnitude (or medium degree of enhancement for positive impacts) - Medium magnitude and mitigated (or low degree of enhancement for positive impacts)
Medium	- Low and unmitigated magnitude (or a high degree of enhancement for positive impacts) - Medium and partially mitigated magnitude (or medium degree of enhancement for positive impacts) - High and mitigated magnitude (or low degree of enhancement for positive impacts)
Large	- Medium and unmitigated magnitude (or high degree of enhancement for positive impacts)

Importance	Criteria
	<ul style="list-style-type: none"> - High and partially mitigated magnitude (or medium degree of enhancement for positive impacts) - High and unmitigated magnitude (or high degree of enhancement for positive impacts)

* Except when the impact, despite being small or medium and mitigable, is of extreme environmental and/or social importance.
Source: Pöyry, 2018.

Degree of resolution of the measures proposed to reduce or enhance a given impact: low (B), medium (M) or high (A).

In this methodology, the mitigation measures, in the case of negative impacts, or the strengthening of positive impacts are already predicted and related, and their degree of resolution (high, medium or low) is evaluated after implementation.

From the measurement of the impact and the resolution of the proposed measure it was possible to define the degree of importance of the impact, taking into account the environmental situation before the implementation of the company.

In the case of positive (beneficial) impacts, measures must be taken to make the most of the benefits generated; these are the so-called enhancing or compatible measures.

And in the case of impacts that are partially mitigated or not possible to mitigate, compensatory measures are proposed.

Having said that, the qualitative evaluation of each impact was carried out according to the Table below, which explains the attributes that were characterized during the analysis

Table 2 – Basic procedure for the assessment of potential environmental impacts and their mitigation measures

Potential environmental impact
Impacts that can cause changes in the environment.
Environmental aspect
Elements of a company's activities, products or services that can interact with the environment, causing or likely to cause environmental impacts, positive or negative.
Potential impact factor
Any form of matter or energy resulting from human activities that directly or indirectly affect the health, safety, well-being of populations, social, economic activities and infrastructure, and/or biota.
Technical justification
Impact analysis, with the technical-scientific basis for evaluation.
Characterization of the impact
The characterization of environmental impacts is carried out in accordance with the environmental legislation in force and is indicated according to the following specificities and attributes:

Nature:	positive/beneficial or negative/adverse
Form of incidence:	direct or indirect
Area of spatial coverage:	local, regional, strategic
Probability of occurrence:	certain, possible
Time of occurrence:	short term, medium term or long term
Timing or duration:	temporary, permanent or cyclical
Degree of reversibility:	reversible, partially reversible or irreversible
Accumulation:	simple, type I accumulation, type II accumulation and type III accumulation
Magnitude:	high, medium or low
Mitigation possibilities:	mitigated, partially mitigated or unmitigated
Importance:	high, medium or small
Potential for enhancement:	high, medium or low
Degree of resolution of measures:	low, medium or high

Mitigation or enhancement measures

Actions that will reduce or minimize negative impacts or enhance positive impacts.

Responsibility for the implementation of the measures

Indicates the person responsible for the implementation of the measures.

Forecast after implementation of measures

Impact analysis after the implementation of measures

The quantitative evaluation of the impacts was carried out through analyses of the magnitude associated with the area of spatial coverage, probability of occurrence and duration of the actions and the importance of the impacts on the environmental factors associated with the action, temporality/duration and degree of reversibility of the action. Therefore, the greater the impact, the higher the assessment. The assessment uses 1 to 3 following the methodology of Leopold et. (1971) so that even the least significant impact is considered in the assessment.

The following Table shows the values of each impact characterization attribute:

Table 3 – Values for each attribute of impact characterization

Spatial coverage area		
Local	Regional	Strategic
1	2	3
Occurrence probability		
Possible	Certain	
1	2	
Occurrence moment		
Short term	Medium term	Long term
1	2	3

Timing/Length		
Transitory	Cyclical	Permanent
1	2	3
Reversibility degree		
Reversible	Irreversible	
1	2	
Magnitude		
Small	medium	Large
1	2	3
Importance		
Low	Medium	High
1	2	3

Individually, each impact will have a sum corresponding to the criteria presented above. For positive impacts the values are positive (+), for negative impacts the values are negative (-) and for positive and negative impacts the values are cancelled.

After this individual stage, the results obtained for all impacts are added up, obtaining the total sum of the impact assessment.

The total sum of the quantitative impact assessment is compared with the maximum achievable score (number of impacts x maximum impact score) corresponding to 100%.

The result of the comparison with the maximum score, in %, was assessed according to the following criteria:

- Up to 50%: enterprise is feasible;
- Between 50 and 80%: the enterprise is feasible with the implementation of new mitigation measures, which have not been contemplated in the evaluation;
- Between 80 and 100%: enterprise is not feasible.

7.1.3 Identification of environmental impacts

Based on the characterization of the project and based on the environmental diagnosis in the area of influence, the identification of environmental impacts generated in the physical, biotic and socioeconomic environments for the different phases of the project was performed: planning, implantation and operation.

For the identification of impacts, the environmental components studied in the environmental diagnosis were considered, listed in the following Table:

Table 4 – Environmental components subject to impact

PHYSICAL ENVIRONMENT	Soil
	Water
	Air

BIOTIC ENVIRONMENT	Flora
	Terrestrial Fauna
	Aquatic fauna
SOCIO-ECONOMIC ENVIRONMENT	Urban and rural structure
	Production and economic structure
	Social structure
	Road Infrastructure
	Public finance
	Cultural Heritage

As mentioned, the main mechanism used to identify the impacts was the use of the Interaction Matrix along with the checklist, which contains the list of the main actions associated with the phases of the project that can generate environmental impacts.

The analysis between the impacting actions and their interactions with the environmental components, for the different phases of the project, allowed through the Interaction Matrix the identification of environmental impacts, as described in the methodology.

With the use of this Matrix it was possible to identify 34 environmental impacts on the environmental components in the project's areas of influence, as follows:

Planning, implantation and operation

- Socio-economic Impact to Land Acquisition and Displacement
- Climate Change Long Term Physical Risk Assessment
- Climate Change Short Term Risk Assessment
- Physical Environment Impact to Air
- Physical Environment Impact to Water
- Physical Environment Impact from Effluents
- Physical Environment Impact from Runoff
- Physical Environment Impact to Streams and Morphology
- Physical Environment Impact to Soil
- Physical Environment Impact to Noise
- Biological Environment Impact to Flora
- Biological Environment Impact to Fauna
- Biological Environment Use of Ecosystem Services
- Biological Environment Impacts to Critical, Natural and Modified Habitats

- Biological Environment Impacts to Protected and Internationally Recognized Areas
- Biological Environment Fragmentation of the natural landscape
- Biological Environment Dust generation and suppression of local vegetation
- Biological Environment Noise related disturbance on Fauna
- Biological Environment Eutrophication of rivers due to improper fertilization
- Biological Environment Indirect impacts of pesticide use (fipronil) on community bee keeping
- Biological Environment Harassment of workers to wild fauna and flora
- Biological Environment Spread of invasive species along new roads and fire breaks
- Biological Environment Risk of fire
- Socio-economic Impact to Employment
- Socio-economic Impact to Indigenous Communities and Livelihoods
- Socio-economic Impact to Community health and safety through vector borne and communicable diseases
- Socio-economic Impact to Impact to Community Health, Safety and Security
- Socio-economic Impact to Worker Influx Increase
- Socio-economic Impact to Labor and Working Conditions
- Socio-economic Impact to Human Rights
- Socio-economic Impact to Landscape and Visual
- Socio-economic Impact to Cultural Heritage
- Socio-economic Impact to Community Uses and Dependencies on Ecosystem Services

In the Interaction Matrix, the potential impacts identified are distributed by environmental component. The list of identified impacts, due to project actions, is found in the following table.

Table 5 – Check list of identified impacts

Phases	Component	Activity (Generating factor)	Environmental Aspect	Impact
Planning	Socioeconomic	Land Acquisition	- Increase of land prices - (Physical or economic) Displacement and/or isolation of small properties	Impact to Land Acquisition and Displacement
	Climate Change	Formation of the eucalyptus forest	Global warming	Climate Change Long Term Physical Risk Assessment
		Formation of the eucalyptus forest	Global warming	Climate Change Short Term Risk Assessment
Implantation/Operation	Physical	Movement of vehicles and machines	Dust generation	Impact to Air
		Water consumption	Availability of superficial and ground water	Impact to Water
		Inadequate disposal of effluent and sanitary sewage	Effluent generation	Impact from Effluent
		- Opening accesses and roads - Formation of the eucalyptus forest	Forest Management Practices	Impact from Runoff
		Formation of the eucalyptus forest	Eucalyptus plantation in appropriate places	Impact to Streams and Morphology
		- Use of agricultural inputs, such as fertilizers, herbicides, fungicides and insecticides. - Formation of the eucalyptus forest	- Inappropriate disposal of solid waste - Loss of soil nutrients	Impact to Soil

Phases	Component	Activity (Generating factor)	Environmental Aspect	Impact
Implantation/Operation	Physical	Movement of vehicles and machines	Noise generation	Impact to Noise
		- Formation of the eucalyptus forest	Replacement of pasture and/or other plantations areas with eucalyptus forestry planted areas	Impact to Terrestrial and aquatic flora
	Biotic	- Opening accesses and roads - Formation of the eucalyptus forest	- Risk of running over animals - Hunting risk - Habitat loss	Impact to Fauna
		Formation of the eucalyptus forest	Ecological balance	Use of Ecosystem Services
		Formation of the eucalyptus forest	Replacement of Habitats with eucalyptus forestry planted areas	Impact to Critical, Natural and Modified Habitats
		Formation of the eucalyptus forest	Replacement of Habitats with eucalyptus forestry planted areas	Impact to Legally Protected and Internationally Recognized Areas
		Formation of the eucalyptus forest	Replacement of Habitats with eucalyptus forestry planted areas	Fragmentation of the natural landscape
		Formation of the eucalyptus forest	Replacement of Habitats with eucalyptus forestry planted areas	Dust generation and suppression of local vegetation
		Formation of the eucalyptus forest	Replacement of Habitats with eucalyptus forestry planted areas	Noise related disturbance on fauna

Phases	Component	Activity (Generating factor)	Environmental Aspect	Impact
Implantation/Operation	Biotic	Inadequate use of fertilizer	Use of fertilizer	Eutrophication of rivers due to improper fertilization
		Inadequate use of pesticide	Use of pesticide	Indirect impacts of pesticide use (fipronil) on community bee keeping
		Opening accesses and roads and Formation of the eucalyptus forest	Risk of running over animals and Hunting risk	Harassment of workers to wild fauna and flora
		Opening accesses and roads and Formation of the eucalyptus forest	Risk of spread of invasive species	Spread of invasive species along new roads and fire breaks
		Opening accesses and roads and Formation of the eucalyptus forest	Risk of fire	Risk of fire
	Socioeconomic	Manpower demand for the eucalyptus formation	Hiring of manpower for eucalyptus formation	Impact to Employment
		Land use for eucalyptus plantation	Possibility of affecting cultural indigenous resources	Impact to Indigenous Communities and Livelihoods
		- Cleaning the land - Opening accesses and roads	Accumulation of standing water	Community health and safety through vector borne and communicable diseases
		Mobilization of workforce	Impact the infrastructure services	Impact to Community Health, Safety and Security
		Mobilization of workforce	Impact the infrastructure services	Worker influx Increase

Phases	Component	Activity (Generating factor)	Environmental Aspect	Impact
Implantation/Operation	Socioeconomic	Mobilization of workforce	Compliance with applicable legislation and sustainable standards principles (ISO 45.001 and the IFC Performance Standards)	Impact to Labor and Working Conditions
		Mobilization of workforce	Governance	Impact to Human Rights
		Formation of the eucalyptus forest	Land use change	Impact to Landscape and visual
		- Earth moving activities - Formation of the eucalyptus forest	Possibility of affecting cultural heritage sites	Impact to Cultural Heritage
		Land use for eucalyptus plantation	Possibility of affecting ecosystem resources	Community Uses and Dependencies on Ecosystem Services

7.1.4 Environmental Impact Assessment

After defining the generating activities that causes impacts and the environmental impacts methodology, a qualitative and quantitative evaluation of the environmental impacts was carried out.

Qualitative Assessment

In the qualitative evaluation, the impacts were considered in the different phases of the project: planning, implantation and operation; and mitigation or enhancement measures were proposed according to the degree of alteration that occurred in the physical, biotic and anthropic environments, described in the technical base, as follows.

7.1.4.1 Planning phase

7.1.4.1.1 Socio-economic Impacts

7.1.4.1.1.1 Land Acquisition and Displacement

Environmental aspect

Increase of land prices and Displacement and/or isolation of small properties.

Impact-Generating Factor

Land Acquisition.

Technical justification

The demand for wood purchase was based on mill production line curve as shown in the figure below:

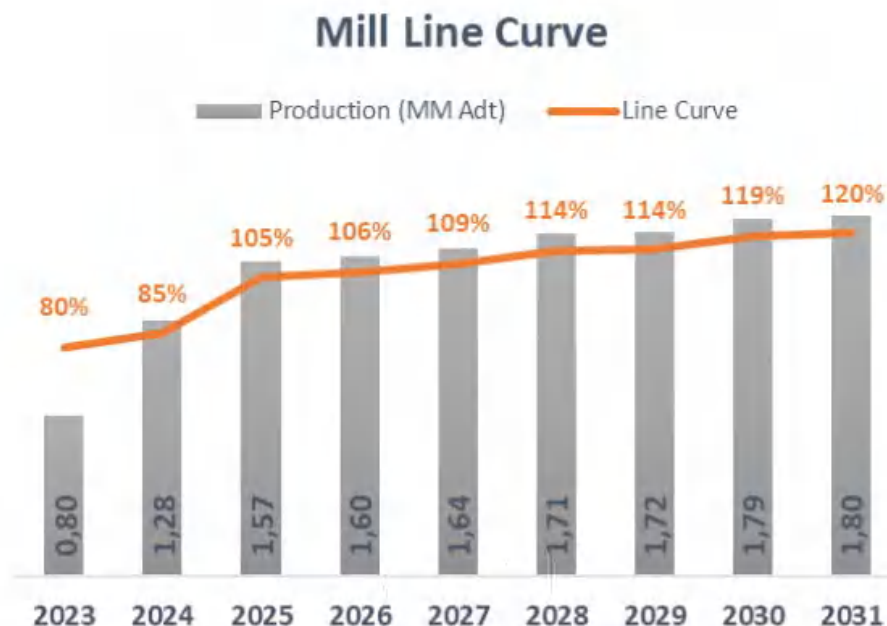


Figure 1 – Mill production line curve.

To supply the mill in the first 6 years, it'll be necessary to buy 30 million m³ of wood, of which: 70% will come from Brazil, 20% from Argentina and 10% from Paraguay.

In order to obtain greater autonomy in the wood demand, PARACEL has purchased 190,000 hectares (ha) of former cattle ranch lands in the Departments of Concepción and Amambay that will be converted to eucalyptus plantations to supply the mill in future years.

By 2029, the mill will be supplied with wood primarily from the Project's own plantations, which will be FSC certified, and a number of out-growers. As mentioned above, PARACEL's purchased plantation lands, approximately 190,000 ha in area, which are former cattle ranches (estancias). PARACEL will develop eucalyptus plantations on the former ranch lands in a phased planting program; 6 years of growth is required to reach suitable size for harvest. Hence, during early operation from 2023 to 2028, PARACEL will obtain early wood supply from existing eucalyptus plantations in Brazil, Argentina, and to a lesser extent Paraguay. PARACEL is in the process of identifying potential early supplier sources and recognizes that not all candidates for early wood supply will be fully FSC certified. As a result, PARACEL plans to produce pulp under the FSC Mix label in the early years.

Products that bear the FSC Mix label are typically made using a mixture of materials from FSC-certified forests, recycled materials, and/or FSC Controlled Wood. The FSC Mix label allows mixing of FSC certified wood with Controlled Wood at a ratio of 70 percent FSC certified / 30 percent Controlled Wood.

There are two FSC certifications required for the Controlled Wood designation: Controlled Wood and Chain of Custody. PARACEL has committed to assure both incoming streams of early supply.

PARACEL has acquired large areas of land and all the transactions made were all based on purchases with private sector, willing seller/willing buyer transactions.

The aspects of infrastructure available in the region, as well as logistics, especially the distance from plantation and existence of protected forest areas, were the fundamental importance for land acquisition.

In response to the PS5, it should be noted that the PARACEL project, both in its industrial component and in its forestry component, does not occupy lands with population settlements, or overlap with any indigenous territories and does not require the physical displacement of any person, family, group or community. There is a possibility of economic displacement in some areas where Paracel properties partly overlap with commonly accessed areas for provisioning ecosystem services. It is developed on territory with a history of human intervention including cattle farming on natural grasslands and improved pastures and logging or clearance of natural forests. It does not overlap with any legally protected areas¹, and buffer zones will be established and protected where Paracel properties are adjacent to National Parks. Notwithstanding this, it proposes measures for the conservation and protection of natural habitats on its properties, and revegetation and management programs in historically degraded forest areas.

The land acquisition in the municipalities of the influence area should be planned not to lead the isolation of rural properties by large massifs of eucalyptus planting in the surroundings. Therefore, PARACEL will establish criteria for buying and leasing lands in its planning department, also avoiding the isolation of properties.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local	1
Probability of occurrence:	Possible	1
Time of occurrence:	Medium term	2
Timing or length:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Simple	

¹ Portions of the buffer zone of the Rio Apa Biosphere Reserve overlap with some Paracel properties but the buffer zone is not a legally protected area.

Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA	

Mitigation measures

Establish criteria for buying and leasing lands in the company strategic planning for wood supply, avoiding the isolation of properties.

Compromise not to occupy lands with population settlements, and that does not require the physical or economic displacement of any person, family, group or community.

Prioritize the development of eucalyptus plantations on territory where cumulative human interventions such as cattle ranching have created Modified Habitat. Totally avoid plantation development in or adjacent to legally protected areas, or on forest and wetland natural habitats, and avoid planting the good condition natural Cerrado habitat complexes.

Undertake an Ecosystem Services Review to establish the extent of potential displacement of access to Priority ecosystem services (i.e., those upon which communities have a high dependence) because of the Parcel project. Mitigate any significant impact if found.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

Not occupying lands with population settlements, and that does not require the physical displacement of any person, family, group or community, as well as prioritizing the development of plantations in anthropized with cattle farming areas, not occupying legally protected areas, forest and wetland natural habitats and the best condition natural Cerrado habitat, as well as avoid the isolation of properties, will bring confidence and satisfaction to the population regarding the implementation of the project, contributing to the good image and transparency of the company. Natural habitats avoided and protected within Parcel properties (and possibly beyond if offsets are implemented) will improve future security of access to provision ecosystem services that indigenous communities derive from lands outside their territories.

7.1.4.1.2 Climate Risk Assessment

7.1.4.1.2.1 Climate Change Long Term Physical Risk Assessment

Environmental aspect

Global warming.

Impact-Generating Factor

Formation of the eucalyptus forest.

Technical justification

Nowadays, climate change attributed to the effects of anthropogenic-originated greenhouse gases (GHG), currently represents the greatest environmental, social, and economic threat on the planet. The accumulated level of GHGs in the atmosphere is constantly growing with population and economic activities. If measures are not taken today, it will be increasingly difficult and costly for countries to adapt themselves to the effects of climate change in the present and in the future.

Taking urgent measures to combat climate change and its effects is one of the current sustainable development objectives of the United Nations. In that way, the knowledge of the individual contribution of GHG to climate change through the quantification of emissions, which is known as “carbon footprint”, is important to apply measures that reduce it and thus combat climate change.

From the above mentioned, a growing number of social, business, and political groups are becoming increasingly interested and convinced about the importance of incorporating in their activity’s measures, which aim to a sustainable development. Thus, GHG emissions quantification and reduction has become a common pattern for companies and institutions as an essential part of their corporate social and environmental responsibility programs.

According to the latest GHG Inventory of Paraguay (2015), the Agriculture and Livestock sector is responsible for the 59.89 % of total emissions (27,132 Kt CO₂eq), land use, land use change and forestry for the 30.72 % (15,755 Kt CO₂eq), and for IPPU (industry processes, product use), 1.82% is reported (931 Kt CO₂ eq).

PARACEL is committed to managing and developing its business with the highest international standards of environmental, social and economic sustainability. There is an awareness that this is not only achieved by providing products that satisfy customers, but that production must be done by operating in a socially friendly way, without endangering the environment.

Thus, Master Environmental Engineer Claudia Gómez and Forest Engineer Lourdes González Soria, performed greenhouse gases emissions and capture balance report for PARACEL project, including forestry and industrial component.

The Forestry component considered the following emissions sources:

- Planting and maintenance of clonal plantations of *E. urograndis*: consumption of fossil fuels and application of nitrogen fertilizers.

- Harvesting and debarking: use of fossil fuels by harvesters.
- Forwarding: consumption of fossil fuels for wood cargo.
- Trucking: use of fossil fuels to transport the debarked wood to the industrial plant.

The fundamental formula for estimating the amount of GHG emissions can be expressed as the multiplication of the activity data (AD); by the emission factor (EF), as seen in expression:

$$\text{Emissions GHG} = \text{AD} \times \text{EF}$$

In the case of fossil fuels, its equivalent in energy used (in gigajoules, GJ) is considered as activity data, this energy is calculated from the amount of heat, a value that depends on each type of fuel².

Apart from carbon dioxide (CO₂), other greenhouse gases such as methane (CH₄) and nitrous oxide (N₂O) are also emitted during the burning of fuels. Each of these gases has a different emission factor depending on the type of fuel.

Additionally, for gases different from CO₂, global warming potential (GWP) values are used.

In the case of the forestry component, apart from the use of fossil fuels, another source of N₂O emission is the application of synthetic fertilizers. Therefore, the activity data corresponded to the dose, amount of application and nitrogen content of the fertilizers to be applied. With this data the amount of N₂O that will be emitted, and its equivalent in CO₂, was calculated.

The term emission is also used to sequestration/capture, since by convention the capture of carbon or CO₂ is understood as negative emissions, and is calculated according to expression above.

The estimation of carbon sequestration satisfies a very simple rule. In the case of forest plantations, as well as in forests, the level of activity corresponds to the area (hectares) of the species (or forest type) that exists in a year, and the emission factor corresponds to the capture rate (measured in tCO₂ ha⁻¹ year⁻¹) of each surface unit.

The annual plantation area, of the company's plantation plan, was assumed as the activity data component; and the capture rate (tCO₂ ha⁻¹ year⁻¹), which constitutes the emission factor component, was estimated.

As we can see in Figure below, there is an evolution of emissions from afforestation for each year of plantation plan, caused by the variation in the amount of fuel (diesel) that will be used each year. This is due to the fact that the plantations are carried out progressively year after year until reaching the 130 thousand hectares required to supply the demand for eucalyptus wood to the pulp mill, and while this required surface is reached, the raw material is imported, which it means longer trips (more fossil fuel consumption). However, in fact, the total plantation area will be 190 thousand hectares.

Therefore, the forestry component, due to silviculture, harvesting, debarking, forwarding, and transport activities, 114,825 tCO₂eq will be emitted annually (Table below). This value corresponds to the self-sufficient stage of the company

in terms of provision of debarked wood, that is, from the moment when raw material is no longer imported.

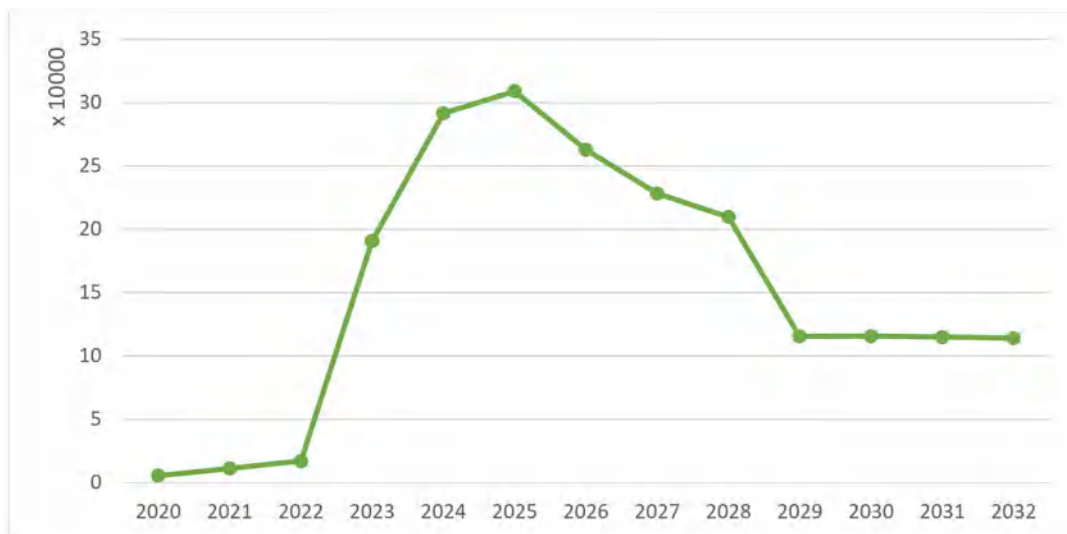


Figure 2 – Evolution of GHG emission (total tCO₂eq/year).

Table 6 – Forestry component GHG emissions

Source of GHG emission	GHG emissions (tCO ₂ eq)	
	Annual average*	KgCO ₂ .ADt ⁻¹
Synthetic fertilizer application	3,793	2.53
Acidity correction	781	0.52
Forestry	13,321	8.88
Harvesting	13,873	9.25
Forwarding	6,148	4.10
Trucking	76,123	50.75
TOTAL	114,825	76.60

An evolution of carbon sequestration is estimated through the years, due to the progressive planting of Eucalyptus, until reaching 130 thousand hectares necessary for the supply of debarked wood to the industrial plant.

In total, a cumulative sequestration of 15.43 Mt of carbon is expected, which is equivalent to 56.58 MtCO₂ for the total surface to be planted (Table below).

Table 7 – Carbon retention and CO₂ removal by forest plantations

Component	Biomass C (t ha ⁻¹)	CO ₂ (t ha ⁻¹)	Cumulative in 130mil ha	
			Biomass C (Mt)	CO ₂ eq (Mt)
<i>Eucalyptus urograndis</i> plantation	118.72	435.29	15.43	56.58

With that known, under Task 1b and in alignment with EP4 requirements, ERM conducted a climate change physical risk assessment and screening of the Project following TCFD guidance. A physical risk assessment up to the year 2050 was performed based on the latest versions of climate model projections under a business as usual scenario.

For the asset level screening of physical climate risks, were used downscaled models and extracted climate variables using the latest version of the climate model simulations for the “business as usual” climate scenario (SSP3-RCP7) in three periods: historic (2000s), 2030s, and 2050s. The screening assessment was conducted for climate risk indicators of: climate variability (change in monthly and seasonal variability of temperature and rainfall), extreme cold, extreme heat, extreme rainfall (pluvial flooding), riverine flooding (fluvial flooding), water stress, water supply, water demand, water seasonal variability, drought, landslide, hurricanes, and sea level rise & land subsidence.

On average, annual total rainfall and monthly spread of rainfall is not projected to significantly change by 2050s compared to the historic base case, although there are some monthly variations with as much as a 40% decrease in July and August rainfall by 2050s. The range of annual amount of rainfall and monthly amount of rainfall remains almost the same as the historic base case and within the optimal range (1,000 millimeters [mm] – 1, 800 mm) for eucalyptus growth.

Total annual rainfall is not predicted to change significantly by the 2050s. However, seasonal variability of available water is considered to be a high risk, that is projected to change by a large amount. This means even though total annual rainfall is not predicted to change significantly, the seasonal distribution of rainfall will be more variable (hence less predictable) than it was historically. It is noteworthy that these estimates do not take into account the potential change in future effects of human activities.

The optimal growth temperature range for eucalyptus is between 18 °C - 22°C while extreme temperature range of tolerance is between -3 °C and 40°C. It is expected that on average the annual number of days with temperature within the optimal growth range of eucalyptus decrease by about 20 days (from 61 days to 42 days annually) by 2050. However, the maximum temperatures (even though increasing) is expected to remain under 40°C.

Although not modeled, with the predicted decrease in monthly rainfall in the months of July and August by almost 40% in combination with the prediction of medium to very high risk of extreme heat, the fire risks could increase in the Project region.

Table 8 – Potential Change in Number of Days within Eucalyptus Optimal and Maximum Range of Temperatures

<p>Optimal growth temperature range for Eucalyptus species in general is between 18 and 22 C Extreme temperature range of tolerance for Eucalyptus in general is between -3 and 40 C Optimal annual range of precipitation for Eucalyptus in general is between 1000 - 1800 mm</p>	
<p>Annual number of days when temperature is between 18 and 22C will potential decrease by ~ 20 days by 2050s</p>	
Historic (2000s)	61
2030s	47
2050s	42
<p>Annual number of days when maximum temperature is greater than 40C will potential increase by 4 days by 2050</p>	
Historic	1
2030s	3
2050s	4

Average temperature in the Project region is projected to increase by 1.7°C, considered a large amount, by 2050s compared to the historic base case (2000s). Even though monthly maximum temperature is not projected to increase beyond the heat stress tolerance range of eucalyptus (40°C), the frequency and intensity of extreme heat events (consecutive number of very hot days) is expected to increase for all the sites. This could potentially impact plantations even though monthly maximum temperatures may remain under 40°C, but the continuous exposure to longer periods of hot days could eventually cause heat stress and impact eucalyptus optimal growth. The minimum temperature is also projected to increase by a large amount (more than 1.5°C) by 2050s. This means plantations may not have a chance to release the heat and cool down during the night. Heat stress events could also have significant impacts on farmers and animals, water reservoirs, as well as soil moisture and the health of other vegetation in the region.

The table below presents the final risk scores for 2050s.

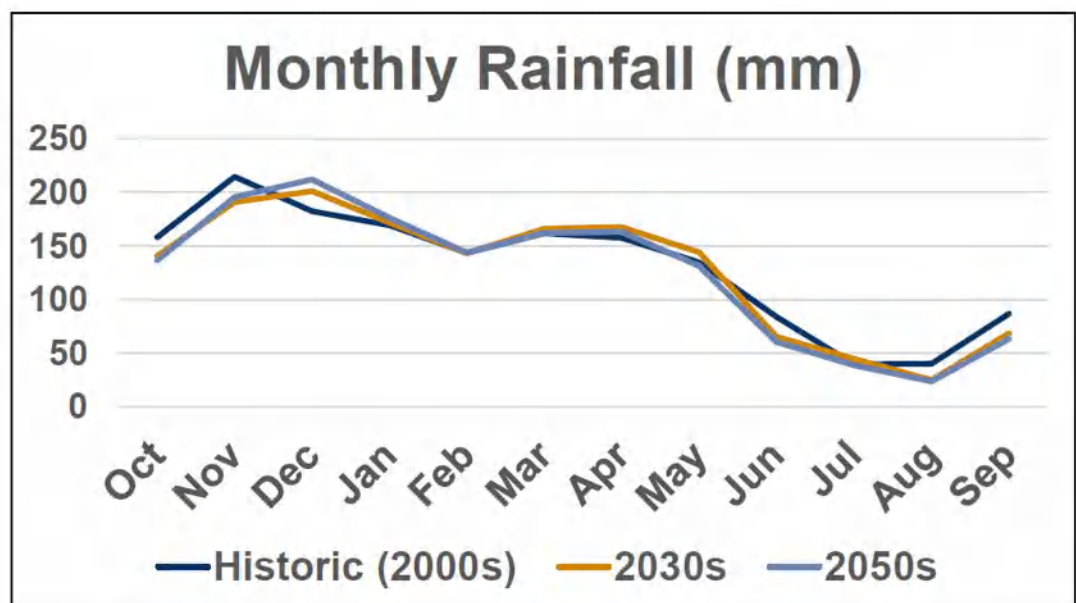
Table 9 – Potential Climate Risk by 2050

Project Feature	Extreme Cold	Extreme Heat	Extreme Rainfall (pluvial flooding)	Riverine Flooding	Water Stress	Water Supply	Water Demand	Water Seasonal Variability	Drought	Landslide	Hurricanes	Sea level rise & land subsidence
Mill Site	Very Low	Very High	Low	High	Low	Low	Low	High	Low	Very Low	No risk	No risk
Cristo Rey Plantation	Very Low	Very High	Low	Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Gavilan Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Isla Alta Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Estancia La Blanca Plantation	Very Low	Very High	Low	Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
La Paraguaya Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Miechuca Cue Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Mandiyu Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Rancho Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Ronaldo Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Contorno Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Santa Teresa Plantation	Very Low	Very High	Low	Low	Low	Low	Low	High	Low	Medium	No risk	No risk
Siete Cabrillas Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Silva Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Soledad Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Trentemina Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Willers Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Zanja Morotti Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Zapallo Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Medium	No risk	No risk
Hermosa Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk

The screening assessment identified low or very low risk of extreme cold, extreme rainfall, water stress, water supply, water demand, and drought for the mill site and the 19 plantations by 2030s and 2050s. There is no risk of hurricanes or sea-level rise and land subsidence by 2030s and 2050s.

The main results from the climate change assessment are presented as follows:

- On average, annual total rainfall and monthly distribution of rainfall is not projected to significantly change by 2050 compared to historic records (Figure below). The predicted range of annual rainfall and monthly amount of rainfall remains virtually the same as the historic records and within the preferred annual range (1,000 mm – 1,800 mm) for eucalyptus plantations.
- Temperature is projected to increase by a large amount (1.5 °C) by 2050 compared to the historic records, and though maximum temperature is not projected to increase beyond the heat stress tolerance range of eucalyptus (40°C), the frequency and intensity of extreme heat events (consecutive number of very hot days) is expected to increase. This could potentially impact eucalyptus growth rates, as though maximum temperatures are predicted to remain under 40 °C, continuous exposure to longer periods of extreme hot days could eventually cause heat stress and impact optimal growth. In particular, minimum temperature is also projected to increase by a large amount (more than 1.5 °C). This means plantations may not have a chance to release heat and cool down during the night. Heat stress events could also have significant impacts on water resources, soil moisture, and the health of other vegetation in the region.

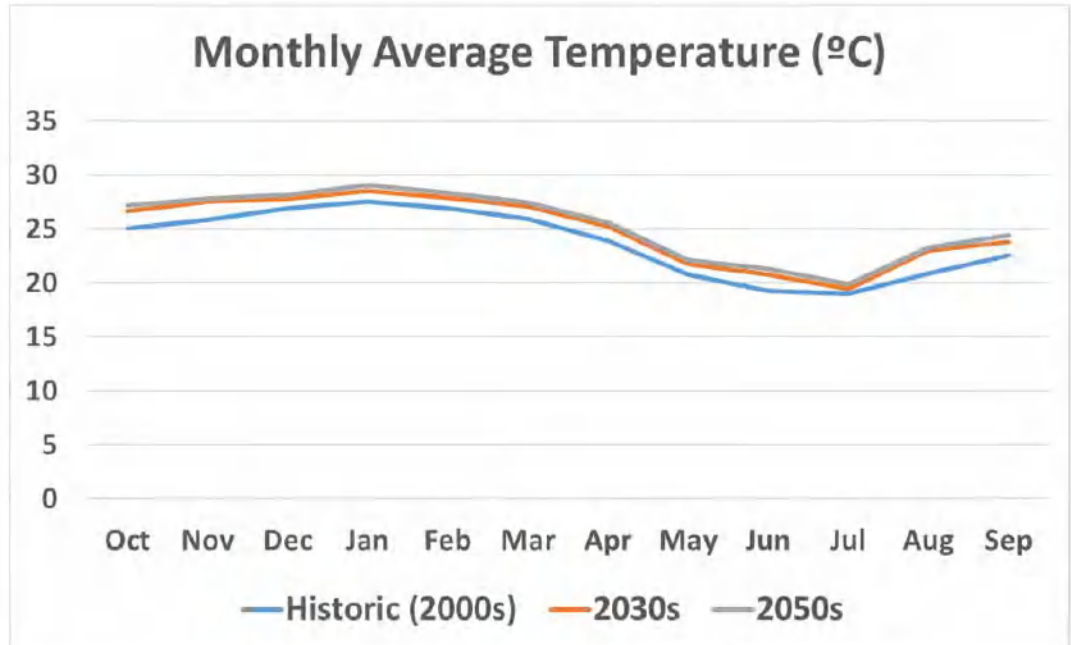


Source: ERM, 2021.

Figure 3 – Estimated Monthly Rainfall: Historic (2000s), 2030s, and 2050s

- Water stress, water supply, and water demand is not expected to change by 2050. However seasonal variability of available surface water is expected to change by a large amount. It is noteworthy that these estimates do not take into account the potential change in future impacts due to human activities.

- The predicted higher temperatures could increase fire risk in the plantation areas. Maintaining fire breaks of grassed areas is one method commonly used in forestry to reduce the spreading of fire.



Source: ERM, 2021.

Figure 4 – Estimated Monthly Average Temperature: Historic (2000s), 2030s and 2050s

- The eastern portion of Santa Teresa and southern portion of Zapallo plantations are located in a potential landslide hazard zone with a potential number of hazard days increasing in the future.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local	1
Probability of occurrence:	Possible	1
Time of occurrence:	Long term	3
Timing or length:	Permanent	3

Reversibility:	Irreversible	2
Accumulation:	Simple	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA	

Mitigation measures

Carry out periodic monitoring of GHG emissions and C capture in forest plantations, once established, using allometric equations for this specific case. Since the site index varies depending on different factors (such as the type and quality of soil, meteorological parameters, genetic material used, diseases and others), the aforementioned would be justified, if a more exact value is intended.

Establish criteria for buying and leasing lands in the company strategic planning for long term wood supply, avoiding the eastern portion of the Santa Teresa and the southern portion of the Zapallo areas, because the plantations are located in a potential landslide hazard zone with a medium potential risk of rainfall triggered landslides several times a year (4 days on average) by the 2030s.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

PARACEL project will contribute to the capture of carbon (net negative emissions) from the atmosphere and will be a source of energy with neutral emissions in terms of GHG. Not occupying lands with a potential landslide hazard zone with a medium potential risk of rainfall triggered landslides, lower the Company Climate Change Risk.

7.1.4.1.2.2 Climate Change Short Term Risk Assessment

Environmental aspect

Global warming.

Impact-Generating Factor

Formation of the eucalyptus forest.

Technical justification

The Climate Change Short Term Risk Assessment was based on the same methodology used in the Climate Change Long Physical Risk Assessment. Although it considered risk scores for 2030s instead of 2050s.

The table below presents the final risk scores for 2030s.

Project Feature	Extreme Cold	Extreme Heat	Extreme Rainfall (pluvial flooding)	Riverine Flooding	Water Stress	Water Supply	Water Demand	Water Seasonal Variability	Drought	Landslide	Hurricanes	Sea level rise & land subsidence
Mill Site	Very Low	Medium	Low	High	Low	Low	Low	High	Low	Very Low	No risk	No risk
Cristo Rey Plantation	Very Low	Medium	Low	Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Gavilan Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Isla Alta Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Estancia La Blanca Plantation	Very Low	Medium	Low	Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
La Paraguaya Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Machuca Cue Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Mandiyu Plantation	Very Low	Medium	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Rancho Plantation	Very Low	Medium	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Ronaldo Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Contorno Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Santa Teresa Plantation	Very Low	Very High	Low	Low	Low	Low	Low	High	Low	Medium	No risk	No risk
Siete Cabrillas Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Silva Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Soledad Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Trementina Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Willers Plantation	Very Low	High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Zanja Moroti Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk
Zapallo Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Medium	No risk	No risk
Hermosa Plantation	Very Low	Very High	Low	Very Low	Low	Low	Low	High	Low	Very Low	No risk	No risk

Figure 5 – Potential Climate Risk by 2030

The screening assessment identified low or very low risk of extreme cold, extreme rainfall, water stress, water supply, water demand, and drought for the mill site and the 19 plantations by 2030s. There is no risk of hurricanes or sea-level rise and land subsidence by 2030s.

It is worthy to mention that the predicted higher temperatures could increase due to fire risk in the plantation areas. So, maintaining fire breaks of grassed areas is one method commonly used in forestry to reduce the spreading of fire. By avoiding fire spread in forestry the Transitional Climate Change process may be slowed down.

The fire risk can be due to natural events (lightning), or accidental, caused by cleaning and renovation of pasture areas, aggravating in periods of drought and also due to criminal activities which PARACEL will strictly avoid.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local	1
Probability of occurrence:	Possible	1
Time of occurrence:	Short term	1

Timing or length:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Simple	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA	

Mitigation measures

Adopt firefighting procedures (observation towers, firebreaks, etc.) and constant training of brigade staff for these procedures.

Build firebreak capable of protecting and giving access to the planting areas due to the most common fire outbreaks.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

PARACEL will contribute to protect areas of plantations against fire, which may slow down the Transitional Climate Change process.

7.1.4.2 Implantation/Operation phase

7.1.4.2.1 Physical Environment

7.1.4.2.1.1 Impact to Air

Environmental aspect

Dust generation.

Impact-Generating Factor

Movement of vehicles and machines.

Technical justification

The forest road access comprises the activities of planning and opening accesses, constructing and maintaining dirt and/or gravel roads, to manage the best harvesting process, including protecting forest resources from fires and inputs and harvested wood transportation. The transport of gravel is carried out from the

places of production of gravel to the road’s construction sites, both on own or third-party properties.

So, the activities of Open Access Roads are carried out within other activities such as: Land Plantation Enabling, Production Planning, Harvesting, Mobilization and Transportation.

It should be noted that forestry transport is carried out in trucks, which transit both on public or private roads, whether they are gravel, dirt or with asphalt.

With that said, it is expected that during the plantation and harvesting processes, heavy vehicle traffic, such as machinery and trucks, will increase significantly in the access routes into the farms, since the work requires a great quantity of machinery. Regular maintenance of equipment and vehicles plays a key role in air emissions control and safety, as well as increasing the life span of machinery.

Vehicle traffic can generate dust, related to traffic on unpaved roads, and can carry dust depending on the wind conditions in the region. An important point is that the new internal roads will be wetted during the execution of the works whenever possible and gravel will be used whenever possible, making the passage of trucks, especially in the rainy season, safer and preventing dust spread.

In addition, trucks that transport all types of dusty material must have their cargo covered, preventing the release of particles and dust.

It should be noted that the area surrounding the company's areas is dominated by agricultural and livestock activities, not expecting to cause any impacts to communities due to dust generation. In case of existing people/communities present near those areas, dust control will be more rigorous, with more humidification on the access routes to the community, and more frequently.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Immediate	1
Time or duration:	Temporary	1
Reversibility:	Reversible	1
Accumulation:	Type II Accumulation	
Magnitude:	Low	1

Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Perform maintenance on the engines of machines, trucks and vehicles used by the company;

Humidify the internal circulation routes and use gravel on roads in order to make a safer access and preventing dust spread, whenever necessary;

Cover the trucks transporting earth, rocks and all powdery material with tarpaulins.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

It can be stated that, through the implementation of mitigation measures, air quality will not be changed, nor will be disturbances to people/community due to dust generation.

7.1.4.2.1.2 Impact to Water

Environmental aspect

Availability of superficial and ground water.

Impact-Generating Factor

Water consumption.

Technical justification

Eucalyptus plantation needs water for its development. Irrigation can be done in the hottest periods of the year, intermittently and occasionally, especially if prolonged drought occurs during the execution of the planting program, i.e. the first year. However, due to the economic impacts and the importance of reducing water consumption, irrigation is carried out only eventually, in drought periods, since the plantations should be carried out in the most favorable period of rain and humidity. On average, 2 to 3 liters per plant per irrigation are used.

In general, after the planting stage, the rainwater is sufficient to ensure the development of the trees, not needing irrigation.

It is worth mentioning that the water consumption by eucalyptus plants is lower than some traditional crops, as shown in the following table.

Table 10 – Water consumption by eucalyptus plantation compared to other traditional crops

Culture / Coverage	Efficiency in water use
Potato	1 kg potato / 2.000 liters
Corn	1 kg de corn / 1.000 liters
Sugarcane	1 kg sugarcane/ 500 liters
Cerrado	1 kg cerrado wood / 2.500 liters
Eucalyptus	1 kg eucalyptus wood / 350 liters

Source: Calder et al. (1992) and Lima (1993).

Compared to other crops, eucalyptus cultivation is less harmful to the environment due to the following characteristics:

- Vegetation cover and minimum crop use giving greater protection to the soil;
- Longer rotation cycle;
- Less need of soil preparation, due to the long period of crop rotation;
- Less use of fertilizers;
- Greater crop tolerance to the attack of pests and diseases, resulting in less need of chemical pesticides use.

Regarding the roots, the edaficatic characteristics (fertility, soil density, soil compaction, porosity, aerating and groundwater depth), in most cases, may or may not limit the root growth system of plants in general. In the case of eucalyptus, depending on the genetic material and the form of propagation used in the production of seedlings, plants may have root systems also with different characteristics. Studies conducted by Schumacher (1989), Schumacher et al. (2004), Neves (2000), Gonçalves & Mello (2004), indicate that on average the roots of eucalyptus are located at depths of 1.5 m to 2.5 m. However, it is noteworthy that the vast majority of fine roots (< 2.0 mm), that are largely responsible for the absorption of water and nutrients, are located in the first 20 cm soil depth.

In planted forests, rainwater infiltrates into the soil easily. In addition, forests contribute to the reduction of the speed of surface water runoff, providing soil conservation and avoiding the occurrence of erosive processes.

Considering, the water availability in the region of the project, measures such as the adoption of larger spacings, as well as the direction of expansion areas to the regions with the highest rainfall in the region and adapt the plantation

management at the rotation crop period should be taken. Besides, adopting forest management with water-saving strategies.

It is also emphasized that the planted forest has a greater control of water consumption than smaller vegetation, due to its peculiar characteristics such as height, extension and perennial aspects.

A plantation plan in the Aquidaban and Apa River basins, and their sub-basins (Arroyo Pytanohaga, Arroyo Trementina, Arroyo Negla, Arroyo Paso Bravo) with economically viable mosaics should also be performed. Developing a water availability-demand study in the sub-basins aiming to define and propose measures to reduce conflicts between water uses and users.

The areas with differentiated management plantation should be defined through monitoring of water micro basin, and at least two paired water micro basins should be monitored (one planted forest and one of natural forest).

These measures aim to adapt the water consumption by the planted forest with the water availability of the region, avoid conflicts between users and ensure the viability of plantings and maintenance of the watercourses flow over the time and helps the trees development.

In addition, there will be effective protection of riparian forests and Permanent Preservation Areas, especially around springs, which were previously used for agriculture and extensive livestock weren't preserved.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative/Positive	- +
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Immediate	1
Time or duration:	Permanent	3
Reversibility:	Reversible	1
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	

Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation and potentiation measures

Direct the expansion areas to the regions with highest rainfall index in the region.

Adapt the management plantation to the crop rotation period.

Adopt forest management with water-saving strategies.

Plan plantations in the Aquidaban and Apa River basins, and their sub-basins (Arroyo Pytanohaga, Arroyo Trementina, Arroyo Negla, Arroyo Paso Bravo) with economically viable mosaics.

Develop a water availability-demand study in the sub-basins aiming to define and propose measures to reduce conflicts between water uses and users.

Develop micro basins monitoring, involving ecosystems formed by planted and native forests.

Consolidate the monitoring of surface water, water use in its farms and surroundings, especially with regard to water quality.

Study the best spacing of the eucalyptus plantation in certain areas with greater water and soil restriction and the increase of native vegetation areas.

Pre-determine the native areas conversion or not based on PS06.

Protect riparian areas in properties especially upstream of water intake for human demand.

Develop a water availability-demand study to estimate water usage before and after planting of Eucalyptus on grassland, and potential impacts to water supply on surrounding wetlands.

Perform Biodiversity Action Plan, water management program, surface and ground water quality monitoring program and Biodiversity Monitoring & Evaluation Plan;

Meet IFC EHS Guidelines for Perennial Crop Production.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The reduction of water consumption in eucalyptus plantation, the plantation plan in mosaic form and the preservation of legal reserve areas and permanent preserved areas (including riparian areas) reduce possible interferences in water availability in the region of the projects' farms.

7.1.4.2.1.3 Impact from Effluent

Environmental aspect

Effluent generation.

Impact-Generating Factor

Inadequate disposal of effluent and sanitary sewage.

Technical justification

The generation of liquid effluent in the forestry areas basically consists of sanitary sewage generation at workers camps.

The temporary workers camps will consist of a fenced area with a guard, surveillance, first aid system, bedrooms, bathrooms, cafeterias, leisure area, internal roads, electricity and drinking water supply, trash collection system, treatment (type of modular station), and disposal of sanitary effluents and firefighting system.

It should be noted that PARACEL’s plantation areas worker accommodations for third party workers are expected to be temporary, modular structures that mobilize following Project work fronts. The design, construction, and maintenance of these worker accommodations would be responsibility of future plantation contractors, but PARACEL will supervise to assure the accommodations meet the Applicable Standards (including IFC/EBRD 2009).

Highlighting that the triple washing of pesticide packages (as recommended) does not generate liquid effluent, because the washing water will be mixed together with the pesticides in the application tank provided with waterproof surface.

On the farm area and on workers camps there is no maintenance workshop, in this way there is also no generation of oily liquid effluent.

It is noteworthy mentioning that nursery services is a third party that does not fall within the scope of this ESIA. However, all third parties will abide by Paracel ESMS which has a strong sustainable process bases that requires strict standards to all of its own employees and subcontractors, ensuring a safe and healthy working environment and the best environmental practices, such as the correct treatment and disposal of effluents and sanitary sewage.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local	1
Probability of occurrence:	Possible	1

Moment of occurrence:	Immediate	1
Time or duration:	Permanent	3
Reversibility:	Reversible	1
Accumulation:	Type II Accumulation	
Magnitude:	Low	1
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Take measures to certify that the company hired to collect the sanitary sewage from the workers camps is properly regulated, and that the wastewater is disposed of in an environmentally sound manner;

Perform the maintenance of vehicles, machines and equipment in properly authorized locations;

The agricultural inputs, must meet the specifications of use;

Implement containment boxes with waterproof surface in the storage tanks.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

It can be stated that there will be no change in the quality of surface water or groundwaters, since the sanitary sewage generated during the works will be duly treated and disposed of in an environmentally appropriate manner and in accordance with the legislation in force.

7.1.4.2.1.4 Impact from Runoff

Environmental aspect

Forest Management Practices.

Impact-Generating Factor

Opening accesses and roads and Formation of the eucalyptus forest.

Technical justification

For opening accesses and roads activities, the following minimum guidelines should be considered:

- The street must follow the existing inclination of the terrain;
- Adjust the ramps according to the elevations of the plateaus;
- Coating with gravel, with a minimum inclination of 2% from the shaft on both sides, whenever possible.

The planning of routes/ access roads of machines and trucks for the exit of the wood, contemplates the harvest plans in a time horizon of one year or more, having as a background the planning at the technical and strategic level, of greater deadlines. It covers the activities of roads access planning, opening of sashes and Forest Chain of Custody planning in general. In order to protect properly the soil, the water, the community and the company's resources, being that the planning system defines the type of equipment to be used in each work, the planning of road paths and delimitation of the areas to be harvested.

By planning carefully, with location diagnosis the access paths on the farms and in the surroundings, carried out on a detailed scale, to propose actions on the established route, the opening of roads and their respective drainage systems, will prevent the road system from functioning as the preferred path of the flood.

Besides the opening accesses and roads, the formation of the eucalyptus forest may also impact the runoff water in the region.

Currently, in the preparation of soil for the purposes of forest plantations, uses the minimum cultivation practice associated with other conservation practices for erosion control. The activities are carried out in the blocks where eucalyptus seedlings will be planted.

With minimal cultivation practice there is soil revolving in the planting line. The planting line is subsolated till the recommended depth, which varies according to the clay content in the soil and the occurrence of soil densification and compaction.

A preventive approach to soil conservation work since the beginning of the farm implementation prevents erosions.

Later, with the closure of the canopy, the forest itself decreases the impact of the rain. Road conservation works and water management are also carried out to the interior of the farm blocks in order to prevent erosion forming from inside and outside the block.

In general, eucalyptus plantation allows greater water absorption by the soil when compared to livestock. Thus, this practice does not make the soil waterproof.

It is worthy to mention that the farm has extensive areas of Legal Reserve (RL) areas and Permanent Preservation Areas (APP), which also contribute to soil conservation and facilitate the absorption of water by the soil.

Highlighting that the crop in planted forests induces greater soil protection against erosion, compared to the pastures planted due to the:

- Suppression of cattle trampled;
- Rooting of planted forest;
- Increased soil cover with increased amount of organic matter;

Possibility of establishing native vegetation near the farms is a good practice, but depends on the previous use conditions of the area.

Fertilization, together with the increase in soil organic matter (compared to pasture areas), can cause an increase in the amount of nutrients in the soil in medium- and long-term periods. Specially because PARACEL eucalyptus logs will be debarked in the forests, and this organic matter will cover the farm soil.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative/Positive	- +
Form of incidence:	Direct	
Area of spatial coverage:	Local	1
Probability of occurrence:	Certain	2
Moment of occurrence:	Immediate	1
Time or duration:	Permanent	3
Reversibility:	Reversible	1
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation and potentiation measures

Remove plant cover from soil only in places where forest planting is strictly necessary.

Protect water bodies with dams, to avoid hauling land.

Rationalization of access opening, soil restoration, implementation of the drainage system and restoration of plant cover.

Perform slope protection and stabilization, with drainage channels and vegetation planting.

Perform erosion control at soil monitoring program.

Reducing soil preparation and planting in curves levels, avoiding surface runoff of rainwater.

Maintaining plant cover between plantation lines.

Keep debarked materials in the forests, to cover the farm soil with organic matter.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

With the adoption of the planting and soil conservation practices performed by PARACEL, there will be no increase on susceptibility to erosion, soil compaction and waterproofing, not interfering significantly on runoff.

7.1.4.2.1.5 Impact to Streams and Morphology

Environmental aspect

Eucalyptus plantation in appropriate places.

Impact-Generating Factor

Formation of the eucalyptus forest.

Technical justification

PARACEL will adopt the best forest management practices, certified according to FSC standards, ensuring the maintenance of conservation areas, until their own certificate Paracel plans to acquire wood only from FSC certificated areas;

Springs and/or water courses (and the riparian vegetation zone) are characterized as Permanent Preservation Areas (APP) and thus will be preserved as such.

The actions that will be adopted by PARACEL to preserve the conservation areas of its forests are described below:

Protection of Conservation Areas

In these places (identified by the Plantation Development Management Plan and its micro-planning criteria), as well as potential Biodiversity Offset areas in addition to the conservation areas within the Paracel properties, there will be intensified protection measures through various actions such as: hunting, logging and fishing prohibition (with the potential exception of sustainable use activities by indigenous communities), patrolling by forest surveillance, actions to preserve and mitigate forest fires, reduce the speed of drivers, control of invasive species, etc.

Research in Conservation Areas

As part of the Biodiversity Action Plan, PARACEL will promote studies and research in the conservation areas, which will make a valuable contribution to the understanding of Cerrado ecosystems in the country and whose results will be shared with the scientific community through theses, dissertations, articles and participation in congresses.

Recovery of Existing Degraded Areas

Following Paraguayan forest protection law liabilities incurred by previous property owners, PARACEL plans to invest in restoring areas of forest habitat degraded since 1986 on their acquired properties (identified with the aid of historic satellite imagery) - in particular riparian corridors and possible corridors to improve connectivity between forest patches. PARACEL will monitor existing degraded areas of forest habitats to observe the success of unassisted natural regeneration for a period of at least five years, and maintaining the native plants where necessary. If the occurrence of significant natural regeneration is not verified within this timeframe, then active restoration will take place by planting with an appropriate choice of regional species.

However, given the high conservation value of the Cerrado ecosystem within which the Project is located (see Section 7.1.4.2.2.4 covering the probable Critical Habitat status of the ecosystem), PARACEL will preserve less degraded areas of the dry Cerrado savanna habitat types (i.e. Campo Cerrado, Campo Sucio and High Savanna) from eucalyptus plantation development. This will provide conservation outcomes because they will be allowed to recover from degradation due to historic burning and grazing. Some of these areas could be used as natural fire breaks and/or buffers to the National Parks or Protected Areas depending on location. As part of the post ESIA workplan, a Biodiversity Action Plan will be developed which will include protocols for identification of the less degraded, better condition dry savanna Cerrado habitat types. These protocols will be implemented through the Plantation Development Management Plan.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local	1
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3

Time or duration:	Permanent	3
Reversibility:	Reversible	1
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Adopt methods to restore degraded or destroyed natural forests, including riparian zones of up to 100 m either side of rivers or smaller tributaries;

Properly store, treat and dispose of solid waste in accordance with current legislation;

Perform qualitative-quantitative monitoring program for water resources;

Training and qualification of workers regarding conservation of preserved areas;

Preservation and recovery of degraded areas of dry Cerrado savanna habitats that remain in better condition;

Implement the Biodiversity Action Plan and Biodiversity Monitoring and Evaluation Plan.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

One of the solutions to meet the demand to mitigate the problem of deforestation, as well as a strategy for the conservation and recovery of existing degraded land in the tropics, is the establishment of forest plantations and agroforestry systems designed under sustainability criteria. Besides complying with IFC Performance Standards which assure no net loss to Natural Habitats and a Net Gain to the biodiversity features for which Critical Habitat is designated, PARACEL owned plantations will be FSC certified and so will avoid areas of High Conservation Value as defined at the national level under FSC criteria.

7.1.4.2.1.6 Impact to Soil

Environmental aspect

Inappropriate disposal of solid waste and loss of soil nutrients.

Impact-Generating Factor

Use of agricultural inputs and formation of the eucalyptus forest.

Technical justification

During the implantation and operation of the eucalyptus forest, solid wastes will be generated. One source of solid waste generation is from worker accommodations areas, another is from equipment maintenance workshop and another is from pesticide packages.

It should be noted that PARACEL's plantation areas worker accommodations for third party workers are expected to be temporary, modular structures that mobilize following Project work fronts. The design, construction, and maintenance of these worker accommodations would be responsibility of future plantation contractors, but PARACEL will supervise to assure the accommodations meet the Applicable Standards (including IFC/EBRD 2009) and the Workers Accommodation Plan.

Other than that, on the farm area and the workers camps there will not be equipment maintenance workshop. Those maintenance workshop will be located in a duly licensed area by third party which will be responsible for store, treat and dispose the solid waste in accordance with current legislation, and PARACEL will supervise those actions.

The use of pesticides is an important tool for the good management of forests, but requires differentiated control attention. In the selection of products used by PARACEL there will be always consideration on the legal aspects related to the use of pesticides and the safety of employees and the environment. Priority is given, whenever possible to the use of toxicological green grade products (practically non-toxic to humans). Employees will be always qualified for application of those products and be protected through the use of personal protective equipment (PPE) suitable for maximum safety.

PARACEL will follow the *Forest Stewardship Council (FSC)* pesticide use policy, which certifies its forest plantations.

The agricultural inputs should be properly stored within a waterproof pavement in a duly licensed area that will be managed by a company specialized in this service.

With regard to empty agricultural inputs packages, PARACEL has procedures for the management of pesticide package generated in the operational activities at the farms, in accordance with current standards and legislations within its Agrochemical Management Program. In general, these procedures consist of the triple washing the empty pesticide packages, where the technique is applicable. Then, the washed packages are sent to the empty packaging tank, where they are stored in a tank of empty packages of pesticides. Then, those empty washed packages will be delivered to an appropriate licensed final disposal.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Immediate	1
Time or duration:	Permanent	3
Reversibility:	Reversible	1
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Supervise the collection, packaging, storage and transport of solid waste in accordance with current legislation from worker accommodations areas.

Perform Workers Accommodation Plan.

Perform the maintenance of vehicles, machines and equipment in duly authorized locations.

Promote the training of staff involved in forestry activities, especially those involved with pesticides uses.

Use the agricultural inputs, such as fertilizers, herbicides, fungicides and insecticides, according to the specifications of use.

Perform triple washing of empty packages, before their duly licensed destination.

Forward empty packets to the receiving center of the region duly licensed.

Empty packages of plant protection products must be collected and delivered to their return point.

Perform waste management plan against soil contamination by solid waste.

Perform agrochemicals management program and hazardous materials management program, in order to prevent risks to the environment.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The soil, groundwater and/or surface water quality will not change, due to the adoption of measures for the use of pesticides and management of their packaging.

7.1.4.2.1.7 Impact to Noise

Environmental aspect

Noise generation.

Impact-Generating Factor

Movement of vehicles and machines.

Technical justification

On PARACEL's farms the generation of noise is due to the forest operation that consists of planting, maintenance and harvesting stages, in which machines, equipment and vehicles are used.

Thus, it is expected that during those stages, the traffic of vehicles, such as machines, trucks and buses on the access roads will increase, as the work will require an amount of material, equipment and machinery.

One impact of the increased vehicle traffic on the roads relates to noise generation.

Regular maintenance of equipment and vehicles plays a key role in noise control and safety, as well as increasing the life span of machinery. The causes of increased noise emissions from machines in use are: wear and tear of gears, bearings, poor lubrication, imbalance of rotating elements, clogging of air pipes, unsharp cutting devices, clogged and damaged silencers, removal of the noise attenuation device, etc. (BISTAFA, 2011).

Therefore, PARACEL will require the maintenance of machinery engines, trucks and vehicles.

It is noteworthy that this impact is not significant within the farms, because the surroundings of the farm are basically composed of extensive areas of plantations of different crops or cattle raising. In addition, this impact is punctual and temporary, since the stages of planting, maintenance and harvesting occur with an interval of 6-7 years in the same place.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Possible	1
Moment of occurrence:	Medium term	2
Time or duration:	Temporary	1
Reversibility:	Reversible	1
Accumulation:	Type II Accumulation	
Magnitude:	Low	1
Importance:	Low	1
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Carry out maintenance on machine, truck and vehicle engines;

Carry out activities in the area predominantly in the work daytime period.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

It can be said that, through the implementation of mitigation measures, there will be no significant noise disturbance.

7.1.4.2.2 Biological Environment

7.1.4.2.2.1 Terrestrial and Aquatic Flora

Environmental aspect

Replacement of Natural or Critical Habitat with eucalyptus forestry planted areas or access roads.

Impact-Generating Factor

Formation of the eucalyptus forest or access roads in areas of high conservation value.

Technical justification

The eucalyptus plantation could influence the biological diversity of the Cerrado ecosystem persisting in the area.

Existing converted areas within the landscape (pasture and eucalyptus plantation established prior to Paracel's operations) constitute potential barriers to movement and gene flow natural Cerrado biodiversity.

This is because although some animal species frequent the eucalypt plantations, and although some species of the flora reach the reproductive phase in this environment, the converted areas represent a selective filter of potential pollinators and dispersers, and their extension can exceed the displacement radius of many animal species.

In order to increase biological permeability and in compliance with national law, PARACEL has committed to protect all areas of existing native forest within their approximately 190,000 ha of owned plantation lands (this includes forest, riparian ('gallery') forest and Cerradón), as well as to reforest and/or restore riparian gallery forest with native species within a 100 m buffer along rivers and smaller tributaries. PARACEL estimates that approximately 40 percent of their owned plantation lands support native forest, and the other 60 percent non-forest (i.e., savanna Cerrado grasslands, wetlands or exotic pasture and other anthropogenic land covers).

PARACEL has also committed to establish 1 km wide buffers along the border with the two National Parks (Paso Bravo & Bella Vista) adjacent to three plantations (Soledad and Zanja Moroti, and Zapallo). It has also committed to appropriately manage the Río Apa Biosphere Reserve buffer zone in consultation with stakeholders, which overlaps portions of three plantations (Zapallo, Santa Teresa, and by a very minor amount, Hermosa). As of September 2021, the Biosphere Reserve is yet to have a management plan and the legal status of the buffer zone is unclear (Cartes & Yanosky 2020²).

Together, these commitments if effectively managed and implemented, will contribute significantly to the protection of the biodiversity of the Aquidabán ecoregion, provide greater landscape connectivity for flora and fauna, and protect water resources and some ecosystem services.

PARACEL will also examine maximizing the use of internal plantation roads and property perimeters and/or buffers to serve as fire breaks to minimize natural habitat fragmentation.

Preserving and/or recovering areas beyond those required by law is a good practice that will be adopted by PARACEL. The selection of priority areas for

² Cartes, J.L. & Yanosky, A.A. 2020, Tropical Journal of Environmental Science Vol 54(2), pp147-64

conservation will be implemented by protocols in the Plantation Development Management Plan according to the strategic priorities and targets set out by the Biodiversity Action Plan (BAP). The BAP will enable conservation of a representative diversity of Cerrado habitats, preserving forest organisms as well as those of open areas.

If rare or threatened flora species are found in areas identified for conversion to plantation, individuals will be translocated to a conservation area. If it is not possible to translocate (e.g. larger trees) then seeds or other material will be collected for propagation.

Before planting eucalypts, any rare or threatened fauna will be either scared out of the area or rescued and placed in a conservation area. For small animals, pitfall traps can be used to rescue them.

The details of species rescued and/or relocation plans will be in specific management plans referred to by the Biodiversity Action Plan.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Conduct road open planning to minimize natural habitat fragmentation; avoid developing roads or services in watercourse, wetland, forest or good condition savanna Cerrado areas;

Delimitate firebreaks to protect permanent preservation areas;

Remove natural tree/shrub cover only where strictly necessary;

Carry out detailed territorial planning (Planting Development Management Plan), avoiding disturbance of natural vegetation or soils in the Riparian Zones; and restoring with species native to the ecosystem any riparian and spring areas where vegetation has been degraded or erosion is occurring;

Implement a landscape ecology design, ensuring conservation areas (i.e., avoidance zones / set-asides and Biodiversity Offsets) and restoration areas (restoring impacts not associated with Paracel so also contributing to the Biodiversity Offset strategy) create ecological corridors and a preserve a representative mosaic of Cerrado habitats where possible;

Eliminate/cut any eucalypt specimens spread into conservation areas, preventing the formation of eucalyptus forests outside plantation areas;

Implement the Biodiversity Action Plan & Biodiversity Monitoring & Evaluation Plan.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL will preserve all wetlands, floodable savanna and riparian zones as well as all areas of native forest vegetation with a patch size of ≥ 1 ha. Better condition savanna Cerrado habitats will also be preserved toward attaining a No Net Loss or Net Gain biodiversity target.

7.1.4.2.2.2 Fauna

Environmental aspect

Risk of running over animals, dust, noise, harmful chemicals, hunting risk and habitat loss.

Impact-Generating Factor

Opening accesses and roads and Formation of the eucalyptus forest.

Technical justification

During planting, maintenance and especially harvesting it is estimated that several truck journeys are required daily to transport eucalyptus logs to the pulp mill.

On the opening roads activities, it should be considered a wildlife rescue program. An increase in vehicle traffic increases the risk of animals being run over on the access roads.

Losses of animals due to being run over are certain and frequent, mainly in similar rural environments where, on the one hand, the scarcity of native vegetation represents, among other aspects, the need for the transit of animals in relatively large areas to look for food and/or for procreation, simultaneous to the lack of shelter for the movement of these same animals. On the other hand, the network of secondary roads that cross the extensive and continuous cultivation areas, constitutes a scenario of inherent risk.

Therefore, the increase in traffic will lead to an increase in the frequency of being run over, with the consequent loss of wild animals.

Environmental education work, which addresses the issue of "wildlife running over" is extremely important for driver awareness and the application of traffic signs will provide a significant reduction in the risk of animals being run over.

Due to increased access to the region, roads could induce an increase in hunting and capturing of animals in this region.

The presence of people in the area may result in possible pressure to hunt and capture wild animals, both for the consumption and illegal trade of these animals.

Besides, environmental education work to make population aware of this fact, PARACEL should avoid fragmentation by roads in the Cerrado areas because, in addition to facilitate the displacement and entry of hunters, it also increases the risk of animals run over, as well as may influence some small species that considers this road a barrier to displacement. In order to avoid animals hunting PARACEL should consider to carry out inspection on farms mainly on weekends and holidays.

In some areas, Paracel will improve connectivity for faunal species through the passive and active restoration (removal of grazing, and, plantings) of natural forest areas as well as the conservation of some contiguous better condition savannah Cerrado areas.

Preserving and/or recovering areas beyond those required by law is a good practice that will be adopted by PARACEL to align with IFC Performance Standards. The selection of priority areas for conservation over and above legal requirements will be done according to strategies and protocols to be developed in the Biodiversity Action Plan (BAP). The BAP will ensure the preservation of a representative range of the diverse physiognomies (along the gradient from forest to open savanna) of Cerrado habitats to retain the diversity of fauna that use either or both forest and open areas.

Paracel's BAP will be the overarching document to detail the biodiversity strategy, targets and management programme. It will refer to specific management plans that will include detailed implementation protocols for the following objectives:

- * 1 km buffer zone from protected areas.
- * Conservation of riparian forests.
- * Conservation of existing forests patches and some existing savanna Cerrado patches in better condition and/or in optimal spatial configuration with other habitats.

- * Restoration of corridors between forest patches.
- * Regeneration of riparian forests where they were removed.
- * Fauna relocation
- * Training on the protection of biodiversity in the forest area upon entry of each own staff, upon hiring of each contractor.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	High	3
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Perform wildlife monitoring/research and rescue/relocation program, prior to works;

Install signs on the main access routes to the planted areas through the wildlife safety and alert program, including installation of fauna passageways;

Intensify surveillance activities in partnership with local authorities and neighbors to prohibit hunting and logging in Parcel properties;

Perform worker education on hunting prohibition;

Consider the mosaics and characteristics of native habitats in the Plantation Development Management Plan;

Proceed planting by mosaics blocks, so that the land is prepared in places strictly necessary for the implementation of forest plantation;

Perform the restoration of forests in riparian zones;

Recover currently degraded forest areas;

In addition to conservation approaches applicable to the Parcel properties in general, commit to establish buffers along the border with the National Parks adjacent to two plantations (Soledad and Zanja Moroti) and to pay special attention to managing the biosphere reserve buffer area, which overlaps portions of three plantations (Zapato, Santa Teresa, and Hermosa), in accordance with affected stakeholder consultations in the absence of an existing management plan for the Biosphere Reserve..

Perform Biodiversity Management Program as per the BAP.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

It can be stated that the risk on local fauna will be minimized by the implementation of the proposed mitigation measures.

7.1.4.2.2.3 Use of Ecosystem Services

Environmental aspect

Ecological balance.

Impact-Generating Factor

Formation of the eucalyptus forest.

Technical justification

Ecosystem services are the benefits that people, including businesses, derive from ecosystems (IFC Performance Standard 6). There are four types of ecosystem services (IFC, 2012): (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulation services, which are the benefits that people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the non-material benefits that people obtain from ecosystems, and (iv) support services. For this study, provisioning, culture and regulation are considered.

IFC PS 4, on “Community Health and Safety”, establishes that the decline or degradation of natural resources, such as adverse impacts on the quality, quantity and availability of fresh water, can cause risks and impacts related to the health of the communities. Considering that the implantation of the project's forest fields

takes place mainly in the Aquidabán river basin, the AID communities could be affected by project activities that potentially impact on water resources.

According to Natán report, the ecosystem services of water used in the DIA are mainly those of provisioning and cultural. During field surveys, in perception studies, many people have expressed the use of water resources for recreation/recreation (bathing, beach, fishing), highlighting the Aquidabán river. Likewise; it is common in the DIA to practice fishing, both for sale and for self-consumption (for example, the towns of Paso Barreto, Paso Mbutu, Islería). In addition, the existing drinking water supply systems are supplied by groundwater, and, as for the communities that still do not have access to drinking water systems, the majority are supplied from deep wells, springs, cutwaters, rivers and streams.

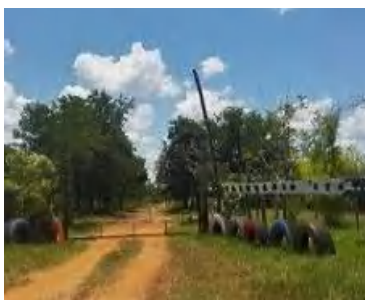
Tourist attractions linked to water resources

As indicated in the section "Tourism and Culture in DIA" of this document, there are numerous tourist attractions in the area, particularly those related to water resources such as rivers and streams; these make it possible to carry out sports activities in the open air, walks, navigation, fishing, among others.



Figure 6 – Picture Registry of Economic Activities

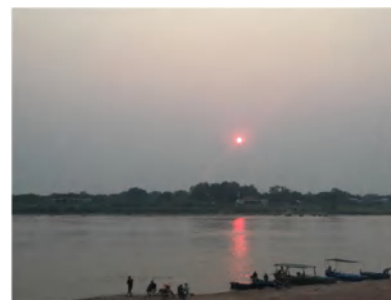
SOURCE: VARIED SUPPLY IN THE NORTH ABC (2016)



Source: Picture record of field work Consulting Team. Concepción. August-September 2020.



Source: Concepción News (2017).³



Source: Picture record of field work Consulting Team. Concepción. August-September 2020.

Figure 7 – Picture Record of Economic Activities

3 Available at: <https://www.Concepción-py.com/2017/12/Concepción-ofrecen-bellas-playas-para.html?m=1>

Wetlands

Still in the context of water resources, wetlands are important ecosystems, protected by the Ramsar Convention, a Convention on Wetlands of International Importance, which is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and sustainable use of wetlands and their resources (WCRP, 2014). The characteristics of the natural resources of the Río de la Plata Basin indicate that the wetlands represent the main ecosystems of the region (WCPI, 2014).

These wetland areas are recognized as highly productive ecosystems and one of the most obvious indicators of their wealth and diversity are the wetland birds; these birds constitute a natural resource of great intrinsic human and ecological value, throughout history they have appeared prominently in human culture, as a source of food or ornamentation as well as in the folkloric sense (PMCIC, 2014).

These ecosystems perform extremely important functions such as: water reserve and purification, flood buffering, carbon sinks, sediment, organic matter and nutrient storage and/or export sites. In addition, they play a critical role in the life cycle of numerous species of fauna and flora and support trophic chains of adjacent ecosystems (WCPI, 2014).

Other than that, hunting and fishing are some of the main sources of food for the families of the indigenous communities, being an important ecosystem services provisioning and cultural use for livelihoods. Some of indigenous communities use self-made tools, such as bows, arrows, and spears, while other families use firearms. Some families use trained domestic dogs for hunting, which warn their owners where the prey is located and the possible dangers that may exist.

The frequency of which hunting activities are carried out depends on the indigenous families; most of the people consulted stated that they hunt once or up to three times a week. It is important to mention that the animals they hunt and fish are used for their own consumption.

Hunting and fishing activities are one of the main sources of food for some indigenous families. 92.12% of the country's indigenous communities declare that they practice these activities. It is recognized that since the pre-colonial period, the indigenous people of the region lived in egalitarian societies and did not produce surpluses, the forest provided them with everything they needed for their subsistence. They traveled large areas to collect, hunt and fish, in addition to meeting their needs for clothing and tools. Hence the importance of these activities for people of indigenous communities.

In relation to hunting and fishing, the knowledge and practice of these activities are directly related to food. The communities hunt only edible animals and in the amount that is indispensable for feeding the community and family, avoiding indiscriminate hunting and respecting the fauna's breeding season. The main animals available for hunting within the IIA are armadillo, pig, fish, deer, coati, lizard, bird, turtle, anteater, monkey, capybara, and ostrich.

The forests are important because they provide ecosystem services also for the whole community in the influence area, providing them with timber (used for house construction), fauna (for subsistence hunting), flora (for food and traditional medicine), and harvested foods such as honey and fruit.

Seven mammal species of hunting interest can be included in this category. *D. novemcinctus* (Nine-banded armadillo) is considered, together with the limpet, the tastiest and appreciated wild animal meat by hunters (Sigrist, 2012). Similarly, *Dasyprocta* sp. (Aguti); *H. hydrochaeris* (capybara) and *M. gouazoubira* (brown brocket deer) are usually hunted for sport or as a source of food.

C. thous (Crab-eating fox); *L. pardalis* (ocelot) and *L. tigrinus* (oncilla) are under hunting pressure to obtain and market their skins.

From the 64 sampled fish species, ten species are used as subsistence fishing, while nine are used in commercial fishing and 23 are used for ornamental purposes, according to the table below:

Table 11 – Usage of recorded species in different fishing practices.

N	Scientific names	Subsistence	Commercial	Ornamental
1	<i>Acestrorhynchus pantaneiro</i>	X	X	
2	<i>Serrasalmus marginatus</i>	X	X	
3	<i>Paradon nasus</i>			X
4	<i>Megaleporinus obtusidens</i>	X	X	
5	<i>Steindachnerina brevipinna</i>			X
6	<i>Potamorhina squamoralevis</i>	X		
7	<i>Hoplias misionera</i>	X	X	
8	<i>Pyrrhulina australis</i>			
9	<i>Triportheus pantanensis</i>			X
10	<i>Charax leticiae</i>			
11	<i>Astyanax lacustris</i>			X
12	<i>Astyanax lineatus</i>			X
13	<i>Psellogrammus kennedyi</i>			
14	<i>Hemigrammus ulreyi</i>			X
15	<i>Bryconamericus exodon</i>			X
16	<i>Moenkhausia dichroua</i>			X
17	<i>Moenkhausia bonita</i>			X
18	<i>Moenkhausia sanctaefilomenae</i>			X
19	<i>Odontostilbe pequirá</i>			X
20	<i>Gymnocorymbus ternetzi</i>			X
21	<i>Poptella paraguayensis</i>			
22	<i>Tetragonopterus argenteus</i>			
23	<i>Hyphessobrycon eques</i>			X
24	<i>Aphyocharax anisitsi</i>			X
25	<i>Aphyocharax rathbuni</i>			X
26	<i>Characidium</i> sp.			
27	<i>Characidium</i> sp.1			
28	<i>Characidium</i> sp.2			
29	<i>Trachelyopterus galeatus</i>			
30	<i>Pterodoras granulosus</i>			
31	<i>Platydoras armatulus</i>			
32	<i>Pimelodella</i> sp.	X	X	
33	<i>Pimelodella</i> sp.1	X	X	
34	<i>Rhamdia</i> sp.	X		
35	<i>Rhamdia quelen</i>	X		

N	Scientific names	Subsistence	Commercial	Ornamental
36	<i>Amaralia oviraptor</i>			X
37	<i>Corydoras aurofrenatus</i>			
38	<i>Corydoras aeneus</i>			X
39	<i>Corydoras hastatus</i>			X
40	<i>Ancistrus pirareta</i>			X
41	<i>Rineloricaria aurata</i>			
42	<i>Otocinclus sp.</i>			X
43	<i>Eigenmannia trilineata</i>			
44	<i>Brachyhyopomus gauderio</i>			
45	<i>Gymnotus pantanal</i>		X	
46	<i>Potamorrhaphis eigenmanni</i>			
47	<i>Bujurquina vittata</i>			X
48	<i>Cichlasoma dimerus</i>			X
49	<i>Crenicichla lepidota</i>			
50	<i>Gymnogeophagus balzanii</i>			X
51	<i>Pseudopimelodus sp.</i>	X		
52	<i>Crenicichla mandelburgeri</i>			
53	<i>Gymnorhamphichthys britskii</i>			
54	<i>Rineloricaria lanceolata</i>			
55	<i>Loricaria sp.</i>			
56	<i>Hypostomus sp.</i>			
57	<i>Pimelodella gracilis</i>		X	
58	<i>Microglanis carlae</i>			
59	<i>Pimelodus maculatus</i>		X	
60	<i>Serrapinnus sp.</i>			
61	<i>Curimatopsis sp</i>			
62	<i>Bryconops melanurus</i>			
63	<i>Otothyropsis sp.</i>			
64	<i>Paravandellia oxyptera</i>			

The activities of gathering wild fruits are also carried out by the indigenous families of the communities to provide themselves with food sources at different times of the year to complement their diet. In the country, 88.6% of indigenous communities declare that they practice gathering food from the forest, field or other places. The main sources of collection in the area are wild honey, coconut, guavira, yvaviju, pakuri and beans.

The manufacture of handicrafts is a cultural and economic activity for many communities. In the country, 75.2% of indigenous communities declare that they dedicate themselves to this activity, with a greater participation of women, which represent 68.2% of indigenous artisans. Although the manufacture of handicrafts is considered as underdeveloped compared to the activities of agriculture, livestock, gathering, hunting and fishing in the area, it is an activity of interest to artisans that not only provides them with income, but is also a source of leisure that contributes to their overall well-being. The raw materials that are usually used for the manufacture of indigenous crafts in the departments of Concepción, San Pedro and Amambay are karaguata, takuara, seeds, wool, guembepi, karanday, feathers and soft woods.

Most of the population alternates agriculture and livestock with the production of handicrafts; These populations have always lived in conditions of extreme poverty with little support from the government and from organizations that channel their productive work towards the achievement of their needs and interests. Many of the artisan trades and their products have disappeared and consumption has drastically decreased as a result of the processes of migration and rural depopulation.

Traditional medicine activities are a constitutive element of the identity of indigenous communities, as it is linked, on the one hand, to the relation between health and disease and, on the other hand, to their worldview and magical, religious and empirical knowledge. For the practice of traditional medicine, indigenous people collect medicinal plants from their environment, known as *pohã ñana*, and perform prayers, songs and dances. In most cases tobacco is used as a primary plant for healing rituals carried out by spiritual leaders.

During and after the use of chemical products (fertilizers, pesticides), both during the plantations and in the maintenance stage, these could be carried by runoff to the surface water courses of the area and/or infiltrated into groundwater. Fertilizers could cause exceptional fertilization processes of surface waters, with consequent degradation of the quality and habitat of the fauna for fishing, not to mention that the current use of land for grazing will be replaced by afforestation, and according to FAO data, livestock is the human activity that generates the greatest impact on water quality (Paracel, 2021), so although this potential impact could be considered on a smaller scale compared to the current situation of land areas, to intervene by the project, pesticides that could reach watercourses and/or groundwater would also degrade the quality of the water and the habitat of fauna. In all cases, these events represent a direct risk to the health of the population through the consumption of water and fishery products, contact with potentially contaminated water, and a risk of decreased fishery productivity. Likewise, recreational activities would also impact due to the fear that contamination risks could instill in the population. Also, although to a lesser extent, the management of solid waste (containers, packaging, rags, papers, obsolete personal protection equipment, earth, sand, sawdust, etc.), and derived effluents (washing implements in contact with agrochemicals), the use of chemical products may cause these effects on water resources, with their economic, health and social consequences.

Although, according to the experience in Mato Grosso do Sul -Brazil and in Uruguay, afforestation with eucalyptus reduces erosive processes in relation to the grazed pasture or deforested area (Paracel, 2021), the tillage activity could eventually cause erosive processes in the time with drag; both soil and chemical products applied to surface water courses. Soil sedimentation in waterways could decrease the quality of drinking water, the productivity of fishing, and the recreational attractiveness of smaller waterways.

Likewise, during the road adaptation and maintenance works and the construction and maintenance of drainage works, there may be risks of sedimentation and alteration of the hydrological regime of the surrounding water courses, which in turn are used by the communities of the area for various purposes.

According to studies carried out in plantations in the MS-Brazil area, eucalyptus plantations present a water balance similar to that of the Cerrado native forest, and other studies carried out in Uruguay show that there are no significant differences in water availability in similar plots of grazing versus forested with eucalyptus (Paracel, 2021). However, it is considered that, at the stage of implementation and maintenance of forest plantations, the consumption of water from these plantations could compete with the consumption used by the communities that use groundwater, especially in cases where a shortage at certain times of the year is already observed. Although not only forest plantations absorb water -but also other agricultural and native forest uses-, specific studies to monitor water levels will be undertaken by the project, in order to confirm that the resources are not affected, or failing that, implement additional mitigation measures throughout the project cycle, not to mention that in Paraguay there is data that indicates that the water table remains the same or even increases in the presence of eucalyptus plantations (Paracel, 2021).

Controlled burning, in the event of being used, could affect the ecosystem services of the native or implanted forest reserve areas, both in the Paracel fields (riparian forests, reserve), and in reserve areas (private / public) adjacent to some of the fields with extensive current vegetation coverage (Paso Bravo Public Protected Wild Area and Bella Vista Private Reserve).

All the potential impacts mentioned will be prevented and/or reduced with strict measures of good practices in the field and of appropriate design (in the case of roads and drains). Furthermore, periodic monitoring of the actual occurrence and perception of the occurrence of these potential impacts will be crucial to implement the corresponding mitigation measures.

Finally, regarding the ecosystem service of supply of raw materials for artisan production and sale; It is possible that the forestry component of the project could affect the populations of karanday (*Copernicia alba*) that grow naturally in the fields of the AID area and that are used as raw material for the production and sale of objects woven with vegetable fiber. In the field survey, in the AID communities (Isla Hermosa, Domínguez Nigó, Anderí, Paso Mbutu, Paso Barreto), karanday crafts have been manifested as one of the main income-generating activities and there are artisan organizations.

Paracel also plans to monitor the quality of the water; likewise, permanent monitoring of perception in the communities would be carried out, these being addressed in the Project's Environmental Management Plan, complemented by the PGS.

Other measures to preserve water resources are:

Maintain high forests and riparian forests. These forests hold rich biodiversity, and they allow connectivity with the units of conservation of the area and offer environmental services, among them water capture and filtration for its sustainability in terms of water quantity and quality. Thus, preserving hunting and fish species. By preserving forests, they can provide ecosystem services for the whole community in the influence area, providing them with

timber (used for house construction), fauna (for subsistence hunting), flora (for food and traditional medicine), and harvested foods such as honey and fruit.

Maintain representative samples of forest interconnected with the other types of Cerrado (Cerradón, “dirty and clean grasslands” - campos sucios y limpios). Wetlands in these types of habitats could serve as representative samples and would not affect the potential area of plantation.

Monitor the Cerrado biodiversity. Given the Cerrado degradation and fragmentation and the changes in the environmental and climatic is dynamics, the Cerrado is subject to different processes; therefore, it is important to monitor annually the biodiversity using indicator and flagship species. This monitoring should also evaluate the scope of the connectivity and its effectiveness, thus preserving wild fruits and hunting species.

Planning of plantations. Together with the recommended in the previous paragraphs, maintain high forests and riparian forests, maintain representative samples interconnected and monitor the Cerrado biodiversity, planning plantations should avoid harvest during breeding period, species chasing, thus preserving forests areas because they provide ecosystem services.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	High	3
Mitigation possibilities:	Mitigated	

Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Maintain high forests and riparian forests.

Maintain representative forest samples interconnected with the other types of Cerrado.

Monitor the Cerrado biodiversity.

Planning of plantations.

Implement an Ecosystem Services Review to establish the level of dependency vulnerable communities have on the Ecosystem Services which are derived from within the Paracel properties. Evaluate the net impacts of Paracel's road network improvements, plantations and conservation activities upon the 'Priority ecosystem services' (i.e., those upon which vulnerable communities have high levels of dependence for their well-being) and design mitigation measures as appropriate.

It is noted that the reduction in cattle grazing because of Paracel plantations establishment could reduce an important source of protein for some families in the Indigenous communities and increase their reliance on hunting, because previous landowners of Paracel's estancias used to share part of the cattle slaughter with IP.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL to preserve the areas of native vegetation, with all types of Cerrado, riparian permanent persevered areas and legal reserve of its own forest lands, in addition to the legal requirement, will aim not to impact significantly in the ecosystem services.

7.1.4.2.2.4 Impacts to Critical and Natural Habitats

Environmental aspect

Potential conversion of Critical and Natural Habitats with eucalyptus forestry planted areas.

Impact-Generating Factor

Formation of the eucalyptus forest on less degraded non-forest areas.

Technical justification

The Critical Habitat and Natural Habitat concepts as defined by International Finance Corporation (IFC) Performance Standard 6 (PS6)⁴ require specific attention to establish the nature and significance of impacts, and to assure outcomes of no net loss and net gain respectively.

APPROACH TO CRITICAL HABITAT SCREENING

Biodiversity which potentially meets the thresholds for Critical Habitat (IFC updated Guidance Note, 2019) was determined by:

1. Identifying an appropriate Area of Analysis (AoA);
2. Desk-top collation and verification of available information on biodiversity from the ESIA baseline surveys, literature review, and global data-base analysis; and
3. Assessment against IFC criteria and thresholds for species and ecosystems to identify which biodiversity features may qualify the area as Critical Habitat.

These three steps are described in detail below.

Identifying an appropriate Area of Analysis

A CH-screening against the five IFC criteria was carried out at the landscape scale, to define an *'ecologically appropriate area of analysis to determine the presence of Critical Habitat for each species with regular occurrence in the project's area of influence, or ecosystem, covered by Criteria 1-4'*. *'The boundaries of this area take into account the distribution of species or ecosystems (within and sometimes extending beyond the project's area of influence) and the ecological patterns, processes, features and functions that are necessary for maintaining them'* (GN 59 in IFC (2019)). An Area of Analysis (AoA) is identified at a landscape scale, considering large-scale ecological patterns, and so is often much larger than the project site or impact area itself. This precautionary approach ensures all potential risks are taken into consideration and demonstrates transparency to relevant stakeholders.

The AoA is *not* a management unit and there are no management obligations on the project within this area implied by its use for assessing risk.

A preliminary review of the region's ecology identifies an appropriate AoA as the Aquidabán Ecoregion (after MADES, Resolution 614/2013) of Paraguay (with an approximate area of 1,700,000ha or 17,000 km²). The Parcel properties extend across approximately half of this ecoregion in both the north-south and east-west axes, and their total area sums to a significant proportion (c. 10%) of its coverage. The AoA highlights any potential CH-qualifying biodiversity which might be present in the Project area of influence, complementing the Project ESIA baseline data, and putting the importance of the area of influence for biodiversity conservation into context. The AoA is designed to ensure that the significance of the Project landscape is appropriately evaluated from the

⁴ IFC (2012) Performance Standards on Environmental and Social Sustainability - 2012 version. International Finance Corporation, Washington DC, USA.

perspective of maintenance of a representative range of the Cerrado biodiversity as expressed in the local Aquidabán Ecoregion.

Collect and verify available biodiversity information

The information on species confirmed to be present in the baseline (either by observation or eDNA) was complemented by a preliminary scoping of additional species that may be present by a search of the Integrated Biodiversity Assessment Tool (IBAT) records for an area⁵ comprising most of the AoA. The resulting 'longlist' of biodiversity features were screened against applicable criteria and thresholds (IFC 2019) by using global databases (e.g. the IUCN Red List spatial data layers⁶) to produce a candidate list of potential Critical Habitat-qualifying features within the AoA based on their known or suspected presence, their threatened status and their mapped distribution.

Apply IFC Criteria for Critical Habitat

The potential CH-qualifying biodiversity features were screened against the applicable criteria and thresholds (IFC 2019). Appropriate population surrogates, including extent of occurrence or known sites of occurrence (mainly derived from the IUCN Red List data, and also GBIF records), were used to determine threshold status with respect to the global population (see IFC (2019) Guidance Note 77)⁷. Nature Positive's expert opinion and professional knowledge were used to make a reasonable judgement of likely threshold status.

In this screening, CH qualification uses a scale of probability based on expert interpretation of a desk-top analysis of current knowledge. Four categories describe the screening outcomes for potentially qualifying features:

- **Qualifying:** sufficient evidence that:
 - The feature is confirmed present in the AoA (through Project baseline studies, ESIA research, or data-base searches); AND
 - The feature likely triggers the CH threshold (at levels that meet/approach the threshold) based on the size of the AoA as a proportion of the geographic distribution data as a proxy for population estimate (when population data is not available)

- **Likely:** There is reasonable evidence that
 - The biodiversity feature is present in the AoA; AND
 - At levels that meets/approaches the threshold

- **Possible:**

⁵ Citibank IBAT search using a radius of 75km from a central point in the project area of influence

⁶ Note that IUCN range maps are not available for all species, subspecies and populations on the Red List, inaccuracies and uncertainties are inherent and many do not reflect the latest information. The IUCN Red List is not an exhaustive list - many species, subspecies and populations have not yet been assessed under IUCN Red List criteria and therefore do not have threat status assigned to them; for example, there are very few global distribution maps available for the plants which are assessed on the Red List.

⁷ Note that Paraguayan National threatened status has only triggered screening in this study where the species is endemic and no global red list assessment has been made. Further investigation is required to confirm if national species threat lists have been derived following IUCN guidelines for application for red list criteria at regional levels.

- Low evidence that the feature is present in the AoA but if confirmed likely to meet the threshold; *OR*
 - Good evidence that the feature is present in the AoA but unclear if it would meet the threshold
- **Unlikely:**
- Reasonable evidence that the species, although present, does not meet the threshold

Constraints and limitations of this CH-screening

This CH-screening is based on the best data available at the time of analysis (September 2021). This includes publicly available information found through online searches, global biodiversity data obtained through IBAT, GBIF, IUCN, and other on-line resources, and Project-related baseline data. It is noted that on-line conservation status data can sometimes be out of date or incomplete, and the Project baseline data sampling did not cover all of the land area within the properties so is not exhaustive (although species accumulation curves indicate the majority of species present in the groups surveyed were detected). Also baseline data were not collected with the intention of being used for a CH-screening, so there are no quantitative data to indicate population sizes for those species found to be present. Species listed as Nationally Threatened were only screened in detail if they are endemic and had no IUCN global threat assessment, although all such species were rapidly screened for their Paraguayan populations not being isolated – a full Critical Habitat Assessment should return to these species to investigate their national listing basis and importance in more detail.

CRITICAL HABITAT SCREENING FINDINGS

The Critical Habitat (CH) screening of biodiversity features of importance finds that the AoA most probably qualifies as Critical Habitat due to possible qualifying features under IFC CH Criteria 1, 2, and likely qualification under Criterion 4. The findings result from: a) confirmed or likely presence of globally threatened and restricted range species but with uncertainty on population size, and, b) the confirmed presence of good condition habitat representative of the local Cerrado ecosystem which has an uncertain IUCN Red List status but is very likely threatened. With the data available, no features were definitively confirmed to qualify.

Summary results of the screening are presented per Criterion below. Detailed justifications for the five species with the highest likelihood of qualifying the AoA as CH are given in Table 14. For all species considered, summary justifications for assignment of screening categories among the four grades of ‘potential to qualify’ (see descriptions above) are provided in Table 51. Features for which available information clearly indicates that the species will not meet any of the CH criteria or thresholds were deemed to have no potential to qualify and so were classified as non-qualifying; justifications for these screening judgements are not provided.

Criterion 1: Critically-Endangered and Endangered species

Three bird species possibly qualify the AoA as Critical Habitat under Criterion 1 (Table 12). See Table 14 for justifications.

Table 12 – Criterion 1 CH-qualifying features

Taxa	Scientific name	English name	IUCN status	Confirmed by the baseline ¹	Presence in AoA ²	CH screening result
Bird	<i>Amazona vinacea</i>	Vinaceous-breasted Amazon	EN	No	Potential	Possible
	<i>Buteogallus coronatus</i>	Crowned solitary eagle	EN	No	Confirmed	Possible
	<i>Sporophila palustris</i>	Marsh seedeater	EN	No	Potential	Possible

Criterion 2: Endemic and Restricted-range species⁸

One reptile, and one frog species possibly qualify the AoA as Critical Habitat under Criterion 2 (Table 13). See Table 14 for justifications.

Table 13 – Criterion 2 CH-qualifying features

Taxa	Scientific name	English name	IUCN status	Confirmed by the baseline ¹	Presence in AoA ²	CH screening result
Reptiles	<i>Phalotris nigrilatus</i>	-	EN	No	Potential	Possible
Amphibian	<i>Rhinella scitula</i>	Cope’s toad	DD	Yes (<i>Genus</i> ⁹)	Potential	Possible

Footnotes:

¹ Confirmed by the baseline = Presence confirmed by the Volume II, Book II Poyry ESIA Baseline report via observations or eDNA.

² Presence in AoA: Confirmed = presence confirmed beyond a reasonable doubt through previous surveys, monitoring data in the AoA and/or bibliographic sources; Potential = presence considered possible given the overlap between AoA

⁸ For the purposes of IFC PS6, endemic is defined by thresholds of extent of occurrence by species groups and does not refer to nationally endemic species. Note the baseline report mistakenly identifies several species as nationally endemic which have broad distributions including other countries.

⁹ The eDNA analysis shows that there is evidence of to *Rhinella* sp., but it does not identify the species

and species range and/or suitability of habitats or record found but cannot be established beyond a reasonable doubt that the record is valid and reliable. Data sources: IUCN; GBIF, eBird, Birdlife, Poyry baseline report.

Criterion 3: Migratory and Congregatory species

Birds

No migratory species were observed as occurring within Parcel project area and recorded in the ESIA's and post on the field surveys.

There are no Ramsar sites within the AoA. The closest Ramsar Site is the National Park Estero Milagro, downstream of the Project and 60 km south of the city of Concepción. Estero Milagro provides excellent habitat for wildlife and is one of the most important aquatic environments in Paraguay, important for several endangered species, migratory birds and five threatened plant species.

There are two Important Bird Areas (IBAs) within the AoA:

- Arroyo Tagatiya which sits greater than 15 km west of the Soledad plantation; and
- Cerrados de Concepción which overlaps with both the UNESCO Biosphere Reserve and the PN Paso Bravo, and which borders three Parcel owned plantations: Soledad, Zanja Moroti, and Hermosa.

However, according to <http://datazone.birdlife.org/country/paraguay/ibas>, neither of these IBAs meet the criteria for being important sites for congregatory species; criteria A4 states that “the site is known or thought to hold congregations of > 1% of the global population of one or more species on a regular or predictable basis.

Bats

The Mexican greater funnel-eared bat (*Natalus stramineus*) is one of the rarest bats in Paraguay, and is associated to caves. The southernmost site where there are records of this bat being present is in Concepción, with most reports corresponding to Mexico and the Caribbean. There is no evidence that supports that the AoA sustains more than 1% of the global population of a migratory or congregatory bat species at any point of the species' lifecycle.

Fish

None of the fish species recorded qualify the AoA as Critical Habitat under Criterion 3. The ESIA reports one vulnerable species *Potamorhaphis eigenmanni*. GBIF shows a broad distributional range across Paraguay, Bolivia and Brazil. Based on the baseline studies or data-base searches, the AoA does not sustain on a cyclical or otherwise regular basis more than 1% of the global population of any migratory or congregatory fish species.

Based on the above, the project is not considered to be located in CH for migratory and/or congregatory species.

Criterion 4: Highly Threatened or Unique Ecosystems

The Cerrado is one of the largest and biologically richest tropical savanna regions in the world and as such is considered a global biodiversity ‘hotspot’ (Mittermeier et al. 2004¹⁰). It supports highly diverse biological communities with many species endemic not only to the hotspot, but also to single sites or ecosystems within it. Such species are highly vulnerable to habitat loss, hunting, poaching, pollution and other pressures.

Relatively little effort has been put into Cerrado deforestation monitoring compared to tropical evergreen rainforest ecosystems, however, the Cerrado biome as a whole has been assessed as threatened due to the pace and scale of habitat conversion - mainly because of expansion and intensification of agriculture and forestry with approximately 50% of the original habitat cover having been lost between 1965 & 2015 (CEPF 2018¹¹). It has been projected that the continuing uncontrolled activities of the Cerrado may lead to loss of 82% of the original vegetation cover of the biome by 2050 (Machado et al. 2004; Machado 2015¹²). The process of land-use change now extends from Brazil into Paraguay. Eastern Paraguay in particular has attracted a strong flow of direct foreign investment, in part because land on the Brazilian side of the Cerrado has become more expensive and because of emerging state and federal environmental restrictions in Brazil. Land-use change monitoring shows that conversion of natural habitats has been most pronounced in the Paraguayan Departments to the east and south of the AoA but that the process is intensifying and ongoing within the AoA, particularly outside of the protected areas and in closer proximity to the city of Concepción.

These regional and national patterns are important context for the Criterion 4 screening, but due to the enormous scale of the Cerrado biome, and consistent with the scale at which the Red List for Ecosystems has been assessed in other countries, it is appropriate to define a smaller scale than the entire Cerrado for consideration of the ecosystem threat concept. We consider the appropriate scale to be the Concepcion representation of Cerrado in Paraguay, which equates to the delimitation of the Aquidabán Ecoregion (after MADES, Resolution 614/2013) chosen for the AoA.

The classification of ecosystem types and mapping of their extent is under development in Paraguay and there is currently not a completed IUCN Red List of Ecosystems assessment for Paraguay. Criterion 4 establishes that areas not yet assessed by IUCN but determined to be of high priority for conservation by regional or national systematic conservation planning, need to be screened against IUCN Red List of Ecosystems (RLE) Criteria to identify potential CR/EN Ecosystems. According to the IUCN RLE Criterion A, subcriterion A1, which

¹⁰ Mittermeier, Russell A. *et al.* 2004. Hotspots revisited: earth’s biologically richest and most endangered terrestrial ecoregions. Washington, D.C.: Cemex

¹¹ Critical Ecosystem Partnership Fund 2018. Ecosystem profile Cerrado biodiversity hotspot: Supernova, Brasília.

¹² Machado, Ricardo B. *et al.* 2004. Análise de lacunas de proteção da biodiversidade no Cerrado – Brasil. In: Anais do IV Congresso Brasileiro de Unidades de Conservação, 2004. v. II – Seminários. Curitiba: Fundação O Boticário de Proteção à Natureza. p.29-38.

Machado, Ricardo. 2015. Unidades de Conservação no Cerrado. Presentation at the Seminário Bioma Cerrado: Normas de Conservação e Uso Sustentável, Chamber of Deputies, National Congress, Brasília, Sept. 17-18.

considers the reduction in geographic distribution, the Cerrado ecosystem could qualify for the category of EN, as there are indications that more than 50% of the ecosystem has been converted. The Parcel properties sum to 188,000 ha, which covers around 10% of the AoA Cerrado ecosystem.

There are no accurate data for the scale and pace of habitat loss in the AoA to make a definitive Criterion 4 assessment. Peter T. Clark in 2018¹³ reported on preliminary work toward a Paraguayan Red List of Ecosystems, asserting that historic habitat loss for Paraguayan Cerrado was 60% over a 50-year period. However, this assessment covered an area of 2,740,775 ha representing the AoA (Aquidabán ecoregion) as well as the Palmar de las Islas and Cerro Chaqueño area in the north of Paraguay occidental which has subsequently been reclassified as Cerrado chaqueño - a distinct ecosystem. A study by the University of Maryland¹⁴ analyzing forest cover change within the Cerrado ecosystem in Paraguay showed a 13.3% loss of natural vegetation cover between 1990 and 2000. Global Forest Watch on-line data¹⁵ show that between 2002 to 2020, the total area of humid primary forest in the Concepción Department decreased by 21%¹⁶ with a strong bias to the southern regions of the department (Concepción & Horqueta) - these being responsible for 69% of this loss compared to only 15% for northern regions of San Carlos and San Lázaro. Whilst these data use different methods, cover different, if overlapping, areas, and are only considering the forested habitats present in the Cerrado ecosystem, they do corroborate our preliminary analysis that the rate of loss indicates a likelihood that the Cerrado ecosystem represented in the AoA would qualify as having a Critically Endangered or Endangered classification under Criterion A1 of the IUCN Red List for Ecosystems.

Notwithstanding the screening analysis above, to make a definitive assessment of Criterion 4, further investigation and expert consultation is required to verify current understanding of ecosystem classifications and mapped extent in Paraguay and to examine the land-use change data available in more detail to assess temporal and spatial patterns.

Criterion 5: Areas associated with key evolutionary processes

The Cerrado shows high-levels of diversity which can be explained by broadscale evolutionary processes associated with the linkage Cerrado provides between the

¹³ <http://nationalparksofparaguay.blogspot.com/2018/01/developing-red-list-of-ecosystems-for.html>, also referencing Bonzi, V. R. & Hugo Cabral. 2017. Informe lista roja de ecosistemas amenazados del Paraguay

¹⁴ <http://mades.gov.py/sites/default/files/Evaluaci%C3%B3n%20de%20datos%20secundarios%20para%20la%20construcci%C3%B3n%20de%20Niveles%20de%20Referencia%20en%20Paraguay.pdf>

¹⁵ University of Maryland and World Resources Institute. "Global Primary Forest Loss". Accessed through Global Forest Watch on 08/09/2021 from www.globalforestwatch.org

¹⁶ This data set defines primary forests as "mature natural humid tropical forest cover that has not been completely cleared and regrown in recent history." Researchers classified Landsat images into primary forest data, using a separate algorithm for each region. Tree cover is defined as all vegetation taller than 5 meters in height as of 2000. The tree cover data set is a collaboration of the University of Maryland, Google, USGS, and NASA, and uses Landsat satellite images at 30-meter resolution. "Loss" indicates the removal or mortality of tree cover and can be due to a variety of factors, including mechanical harvesting, fire, disease, or storm damage. As such, "loss" does not equate to deforestation.

major South American forest types (Amazon and Atlantic Forest), the largest South American dry habitats (Chaco and Caatinga) and other biomes. However, the definition of key evolutionary processes in IFC PS6 refers to a relatively fine-scale rather than broad biogeographic regions (e.g. an unusual outcrop of a rock type that holds unique and endemic plant assemblages), and there is no evidence of the presence of such areas in the AoA.

Other species of conservation or stakeholder concern

Some species of ecological importance which are valued for the ecosystem services they provide, or those which have a Global IUCN threatened status but are present in quantities not meeting thresholds for CH qualification, or those which have been declared as Nationally Threatened, may nonetheless be of high stakeholder concern (e.g., the Jaguar, *Panthera onca*). It is good practice to include such taxon groups as priorities in the Project's Biodiversity Action Plan to ensure that appropriate monitoring or mitigation measures are developed and applied. In many cases mitigation measures that would already be in place to protect species' habitats will be sufficient and monitoring can confirm effectiveness, providing stakeholders with assurance.

Table 14 – Justifications for Critical Habitat Screening Results for IFC Criterion 1 & 2 species.

Scientific name	Common name	IUCN Cat.	Presence in the AoA ²	IFC CH Criteria	CH screening result	Justification
Birds						
<i>Amazona vinacea</i>	Vinaceous-breasted Amazon	EN	Potential	1a	Possible	<p>The global population estimates of this globally Endangered species is likely to be in the range of 1000-2499 mature individuals, with an Extent of Occurrence (EOO) (breeding/resident) of 1,230,000 km². The distribution range of the Vinaceous-breasted Amazon overlaps with the AoA, as shown by the IUCN Geographic range map, although it has been reported as possibly extinct in the AoA. eBird shows the distribution of <i>Amazona vinacea</i> in the AoA with a frequency of 0-2%. On the other hand, GBIF shows 1849 occurrences of this species, nearly all of them in southern Brazil and eastern Paraguay, None of them in the AoA.</p> <p>This species is classified as Endangered because recent population estimates indicate that the global population is very small, and has suffered a rapid decline owing to extensive habitat loss and fragmentation, compounded by trade, and rapid declines are projected to continue. Further clarification is needed as to whether any Brazilian subpopulations exceed 250 individuals (Birdlife). The Vinaceous-breasted Amazon is also present in the SEAM (Secretaría del Ambiente) Paraguay National list of Conservation Status as "En Peligro de Extinción" (Endangered/Critically Endangered).</p>
<i>Buteogallus coronatus</i>	Crowned solitary eagle	EN	Resident	1a	Possible	<p>Global population estimates of this Endangered species is thought to be in the range of 250-999 mature individuals, and decreasing. Its EOO (breeding/resident) is 6,590,000km². This species can be found in Argentina, Bolivia, Brazil and Paraguay, and it is not endemic to Paraguay.</p> <p>According to Birdlife, this species qualifies as Endangered because it has a very small, fragmented population, and the severity of the</p>

						<p>threats it faces strongly suggest a significant and continuing decline in numbers.</p> <p>The IBAT Citi Parcel report shows that <i>Buteogallus coronatus</i> are potentially found within 50km of the area of interest. According to the IUCN map of Geographic range, 0.1-0.5% of the global population of the Crowned solitary eagle may potentially overlap with the AoA. In Paraguay, it appears to be most numerous in the Cerrado of Concepción department. GBIF and eBird do not distribution of <i>Amazona vinacea</i> in the AoA.</p>
<i>Sporophila palustris</i>	Marsh seedeater	EN	Potential	1a	Possible	<p>The IUCN assessment states that there are 600-1700 mature individuals of this Endangered species, and its population is decreasing. According to Birdlife, trapping pressure and habitat loss are rapidly reducing the very small population of the Marsh seedeater, and its breeding habitat (and therefore the population) is fragmented. The IBAT Citi Parcel report shows that <i>Sporophila palustris</i> are potentially found within the area of interest. The overlap between the distribution range of a potentially non-breeding area with the AoA can be around 0.5%. GBIF shows a broad distributional range across Paraguay, Brazil, Uruguay and northern Argentina, with one record in the AoA. This species is nationally listed by the MADES as "En peligro de extinción".</p>
Reptiles						
<i>Phalotris nigrilatus</i>	-	EN	Potential	2	Possible	<p>The colubrid snake <i>Phalotris nigrilatus</i> is endemic to San Pedro Department (Paraguay), within 75 km of the AoA, and is known from a very few historical specimens. Limited information is available on the distribution and ecology of most species of <i>Phalotris</i> because of their fossorial behavior and the rarity with which they are encountered. (Cacciali et al., 2020).</p> <p><i>Phalotris nigrilatus</i> species is an Endangered species, and with an EOO potentially of less than 50,000km², if found in the AoA could possibly qualify the AoA as CH under criterion 2.</p>

Amphibians

<i>Rhinella scitula</i>	Cope's toad	DD	Potential	2	Possible	<p>This species is Data Deficient (IUCN), and is reported by the ESIA (Poyry) as an endemic species to the Cerrado, found exclusively within the Departments of Amambay, Concepción and San Pedro. This is one of the species only found in Amambay and Concepción, that are not found in any other region of the country, which suggests this area as an endemic center for anurans in Paraguay (Cabral et al., 2020). The IUCN only shows distribution in a very small area of Brazil, near the border with Paraguay and the AoA. GBIF also shows 102 occurrences of this species in the same areas of Brazil. The information available therefore shows that the EOO of this species may be of less than 50,000km², and if found in the AoA, it could possibly qualify the AoA as Critical Habitat.</p>
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IMPLICATIONS FOR THE PROJECT OF CRITICAL, NATURAL AND MODIFIED HABITAT DESIGNATIONS

The **Critical Habitat screening concludes that the Project is to be developed within an area likely to contain Critical Habitat.** This needs to be confirmed with a full Critical Habitat Assessment (CHA) focusing on analysis of historic land-use trends in the Aquidabán ecoregion and specialist consultation for some species of interest (particularly those that have been flagged as ‘potential’ in Tables 12 and 13). If important information gaps remain after CHA expert consultation and desk-top analyses, then further baseline or monitoring data collection (including ground-truthing for satellite imagery interpretation for example) may be recommended.

Baseline studies show the Project properties to contain many patches of Natural Habitat according to the IFC definition. These are areas where native species still dominate with fauna and flora communities characteristic of the original Cerrado ecosystem - including all of its forest, savanna and wetland habitat types that form its characteristically variable physiognomic mosaic. This means that in addition to the apparently less disturbed areas, many areas in the Parcel properties which look disturbed - having undergone alteration versus a ‘pristine’ state due to the centuries of historic human activities such as selective logging, cattle grazing and burning recorded in the area - would also be considered Natural Habitat.

The confirmed presence of Natural Habitat means the Project should pay special attention to the management and measurement of biodiversity impacts so that an overall No Net Loss (versus the no-project scenario)¹⁷ can be demonstrated. Natural Habitat patches are likely also to represent Critical Habitat.

If further analysis under a Critical Habitat Assessment (CHA) scope confirms the Critical Habitat status of these Natural Habitats, as indicated by the screening reported on herein, then an additional level of scrutiny should be applied to biodiversity mitigation planning, implementation, and assurance with the goal of demonstrating a Net Gain (versus the no-project scenario) for Critical Habitat-qualifying features.

Practically, a Net Gain goal implies an overall increase in the extent/condition in the habitats of concern within the AoA can be demonstrated by the Project such that an expert third party would have a high degree of confidence in the improved status compared to the forecast situation without the Project interventions.

Based on the existing mitigation measures committed to, it is highly likely that a Net Gain for forest and wetland habitat types of the local Cerrado ecosystem is already ‘designed-in’ to the Project. Further work will be required to assure the same outcome is achieved for the savanna-Cerrado habitats (i.e., Campo Cerrado, Campo Sucio, High Savanna, and possibly transitional Savanna Inundable). Such an outcome for this Project in this landscape is highly likely to include implementation of Biodiversity Offsets including land both within and beyond the boundaries of Parcel properties.

¹⁷ ‘No net loss is defined as the point at which project-related impacts on biodiversity are balanced by measures taken to avoid and minimize the project’s impacts, to undertake on-site restoration and finally to offset significant residual impacts, if any, on an appropriate geographic scale (e.g., local, landscape-level, national, regional).

The CHA should map the Critical / Natural Habitat to the feasible resolution at this large scale. This mapping will serve as the basis for a ‘residual impact assessment’ to semi-quantify¹⁸ the impacts to important biodiversity features (i.e., the species and habitats of concern) after mitigation measures are applied in accordance with the Mitigation Hierarchy¹⁹. The residual impact assessment results can be translated into the compensation targets for attainment of biodiversity NNL or NG outcomes goals as appropriate according to Critical-Natural habitat status. The development of the full Biodiversity Action Plan should describe the strategy, including a feasibility-tested Biodiversity Offsets strategy, for achieving NNL or NG aligned targets. Where the residual impact assessment determines potential impacts upon specific important biodiversity to be uncertain, then the BAP would include monitoring actions to determine status and impacts.

Conversion of Modified Habitat areas to Eucalypt plantation would not normally imply any compensatory biodiversity requirement. Extensive areas within the Properties that have undergone the most intensive human alteration including most obviously those areas that have been entirely converted to exotic pasture with African grasses, to food and fiber (short rotational Eucalypts) croplands, or various built environments, are de facto Modified Habitat.

There will also be areas that have not been entirely converted but which would also be considered Modified Habitat because they have been so degraded that regeneration back to a natural ecosystem would be unlikely to occur (e.g., where erosion is advanced or where exotic grasses are well established). This class of heavily degraded but not entirely converted Modified Habitat is much harder to identify, and remote sensing techniques are unlikely to achieve an accurate classification to distinguish grades of degradation. Based on the baseline information collected to date, it is not possible to reliably map Modified versus Natural habitats across the extensive landscape.

A recommended approach for evaluating the true extent of Modified Habitat within Parcel’s properties would be:

- a) further analysis of satellite imagery cross referenced with baseline data to resolve an improved habitat condition classification which can be used as a guideline for the Biodiversity Action Plan’s NNL / NG Strategy, and,
- b) progressive field verification using agreed species indicators & structural descriptors implemented through the ‘microplanificación’ protocols described in the Plantation Development Management Plan.

With this approach, the progressive verification of Modified (versus Natural) Habitat extent within each Parcel property parcel as the plantations are developed can be checked against the BAP Strategy to assure that NNL / NG outcomes for the whole Project remain feasible without adjustment of the Strategy.

In some cases, Modified Habitat can be considered Critical Habitat because despite being degraded it supports the persistence of important concentrations of threatened

¹⁸ Semi-quantification refers to the use of both empirical data and expert judgement.

¹⁹ <http://www.csbi.org.uk/our-work/mitigation-hierarchy-guide/>

species in a landscape. In this AoA it is likely that only Natural Habitats, in their natural mosaic formation, would support significant permanent populations of the biodiversity values that have been screened to potentially qualify as Critical Habitat; this would need to be confirmed through biodiversity monitoring.

Current knowledge of vegetation cover in the Project area

Preliminary analyses involving manual classification and digitization of satellite imagery have mapped the vegetation cover in the Project area into 5 classes type: native forest, riverside forest, Savanna/Floodable/Cerrado area, Grassland/Pasture/Agriculture area and Forest plantations (Figure 8). These classes do not directly translate to Natural or Modified habitat *sensu* IFC. This mapping is translated into absolute area (ha) and percentage of the Direct Impact Area (i.e., all the Parcel properties combined) in Table 15 below.

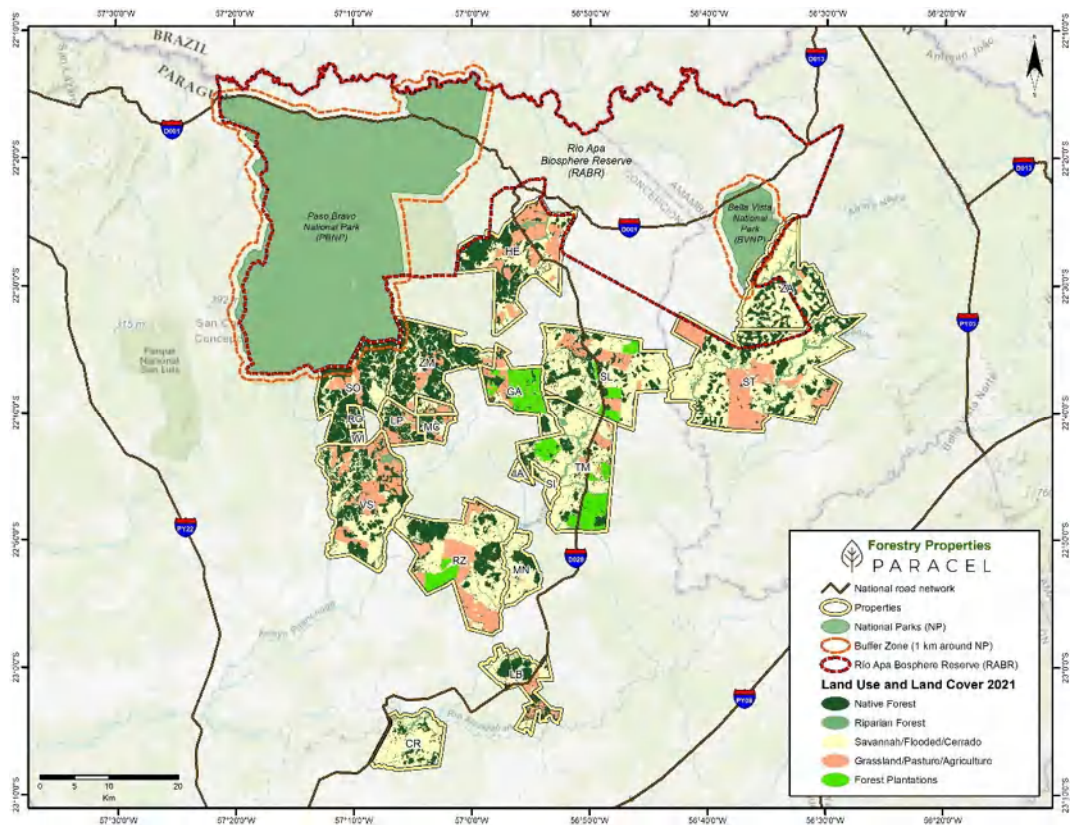


Figure 8 – Preliminary Land Use and Land Cover analysis by Parcel

Table 15 – Preliminary quantitative analysis of vegetation cover in Project area (all Parcel properties combined)

Class ID	Class type	Area (ha)	Percentage
1	Native forest	52697.11	28.5%
2	Riparian forest	8642.29	4.67%
3	Savanna/Floodable/Cerrado	83147.86	44.97%

4	Grassland/Pasture/Agriculture	31324.74	26.94%
5	Forest plantations	9105.05	4.92%
TOTAL		184,917.05	100%

Classes 4 & 5 of Table 15 represent Modified Habitat areas, including land-covers such as improved pasture implanted with African grasses, built environments, cleared areas, crop lands, agroforestry plantations, and roads. Class 3 - the savannah, seasonally inundated savanna and Cerrado habitat types – represents a gradient of disturbance and degradation including both Modified and Natural habitats: this is where further investigation is required to better determine habitat importance status *sensu* IFC. The two forest classes (1 & 2) represent the areas that the Project is already committed to avoid and protect; they include subhumid forests, riparian gallery forests, fragmented forests (which includes “Cerradón” open dry forests), and seasonal and herbaceous wetlands.

The biodiversity strategy and design criteria to deliver appropriate NNL/NG outcomes at the landscape scale will be covered in the Biodiversity Action Plan; this will provide assurance that any Natural or Critical Habitats that are converted can be appropriately compensated in terms of quality and quantity. On the ground protocols will be detailed in management plans including most importantly the Plantation Development Management Plan for the implementation of avoidance and minimization measures consistent with the Biodiversity Strategy. A Biodiversity Monitoring and Evaluation Plan will be developed to assure the strategic BAP outcomes are delivered with an adaptive management approach.

The presence of threatened, endemic species and strictly forest habits species, associated with the remnants of native forest in the DIA, point out the need for a continuous fauna monitoring, seeking a better understanding of the impacts that will be caused by PARACEL, through a Biodiversity Monitoring and Evaluation Plan.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	

Magnitude:	High	3
Importance:	High	3
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

A full Critical Habitat Assessment will be developed to spatially determine habitat importance (i.e., Critical, Natural, Modified) as per PS6 definitions.

Eucalyptus plantations will be designed to implement the Mitigation Hierarchy, avoiding Critical and Natural Habitats where feasible and implementing a Biodiversity Action Plan (BAP) designed to achieve Net Gain for biodiversity values designating Critical Habitat, and No Net Loss for values designating Natural Habitat. The BAP will include design of Biodiversity Offsets where necessary.

It is considered highly likely that Biodiversity Offsets will be required for the Project in its current configuration to align with IFC Performance Standard 6. A detailed feasibility study will be required to confirm the likelihood of possible offset strategies to achieve>NNL or NG outcomes, however preliminary assessment by Nature Positive indicates that there are both the potential mechanisms and scale to achieve such outcomes for target habitats in this landscape. Possible mechanisms include:

- Within Parcel properties:
 - Protection of set-asides
 - Recovery of set-asides
 - Restoration of degraded areas
- Outside of Parcel properties:
 - Improved management of Protected Areas, their buffer zones, and Indigenous People's territories

Commit to protect all areas of native forest within the owned plantation lands, as well as to reforest and/or restore riparian gallery forest with native species within a 100 m buffer along rivers and smaller tributaries.

Commit to establish buffers along the border with the National Parks adjacent to three plantations (Soledad, Zanja Moroti and Zapallo) and to manage the Biosphere Reserve buffer area, which overlaps portions of three plantations (Zapallo, Santa Teresa, and Hermosa). To appropriately manage the buffer zone, resolution 200/2001 Art. 31 regarding biosphere reserves will be considered, consultation with affected parties will need to occur and a management plan will need to be approved.

Maintain high forests and riparian forests in plantations farms.

Maintain a representative mosaic of interconnected Cerrado habitat types of Cerrado.

Monitor the Cerrado biodiversity within the farms.

Planning the plantations areas avoiding impacts on fauna and flora.

Perform Biodiversity Monitoring and Evaluation Plan to confirm outcomes described in the BAP.

To assist with implementing the Mitigation Hierarchy, Paracel commit to the criteria for establishing conservation vs planted areas in the plantations, as shown in the table below. Note that criteria for establishment of plantations in savanna Cerrado habitats in order to meet PS6 requirements are to be developed.

Table 16 – Paracel criteria for establishing conservation vs planted areas

Forest Management	Criteria
1km PNBV	Buffer area with a distance of 1 kilometer around the National Parks adjacent to the properties, where Paracel will not voluntarily make changes in the current use of the land, as a protection measure in the zone that continues to the protected area.
1km PNPB	
Biological Corridor	Area where Eucalyptus plantations will not be carried out. They do not correspond to areas of environmental liabilities, but will be conserved in its natural state or in confinement as a natural corridor area between the forest masses.
Non-plantable area	Area that includes areas of native forest, protective forests of water courses, or soils not suitable for planting (rocky, low flood zones, etc.)
Recomposition/Confinement	Areas of liability that must be restored (confined or recomposed) both by: 1) Zero Deforestation Law 6676/20 (a satellite image from 2005 was used); 2) Forest Law 422/73 (a satellite image from 1986 was used) and; 3) Law 4241/10 of Protective Forests of Water Channels (a buffer of 100 m was used on both sides of the water channels visualized in the current satellite image and the database of the National cartography of the National Institute of Statistics of the year 2012) .
Plantable area	Area available for Eucalyptus plantations without restrictions in environmental legislation. With the clarification that these are "potential" areas where prior soil analysis and on-site verification must be carried out to accurately determine their aptitude for planting.
RBRA - R�o Apa Biosphere Reserve	In the areas where the RBRA overlaps with Paracel's properties, resolution 200/2001 was taken into account in its Art. 31 regarding biosphere reserves. Art. 31 The following are characteristics of the areas with the Biosphere Reserve management category: a) The property (s) on which the area is based may be public or private property, as well as those in the municipal public or private domain. b) Production must be carried out through environmentally compatible systems, promoting sustainable production; c) Possess at least 50% of the surface with minimal anthropic alterations, or in natural conditions. d) Carrying out activities aimed at maintaining Environmental Services; e) Carrying out activities aimed at the restoration of ecosystems; Y f) The administration of the area will be exercised by the Enforcement Authority.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The mitigating measures, if effectively managed and implemented, should make an important contribution to the protection of the biodiversity of the region, provide greater landscape connectivity for flora and fauna, and protect water resources and ecosystem services.

7.1.4.2.2.5 Impacts to Legally Protected and Internationally Recognized Areas

Environmental aspect

Replacement or degradation of habitats

Impact-Generating Factor

Formation of the eucalyptus forest or indirect impacts

Technical justification

Legally protected areas are clearly defined areas proposed by the Paraguayan Government for any category of protection for the conservation of nature, ecosystem services or cultural values. Internationally Recognized Areas refer to those areas identified as priorities for conservation that may not benefit from legal protection, including UNESCO Natural World Heritage Sites, UNESCO Man and the Biosphere Reserves, Key Biodiversity Areas and Ramsar wetlands.

IFC Performance Standard 6 places special requirements on Projects located in or near such areas: that any development within such an area be legally permitted and act consistently with and government recognized management plans (gaining approval from the management authority), that stakeholders are consulted, and that if impacts are likely additional programs are put in place to enhance the effective management of the area. If these areas contain Critical or Natural Habitat and impacts are foreseen then the CH/NH compensatory requirements apply in addition.

Legally Protected Areas

There are three IUCN Category II national parks (Parques Nacionales – PN) in the vicinity of the plantations:

- PN Serrania San Luis is approximately 15 km west of the Soledad property;
- PN Paso Bravo borders two Paracel properties: Soledad and Zanja Moroti;
- PN Bella Vista borders the Zapallo property;

Note that the Paraguayan Law 352/94 indicating Protected Area buffer zones is ambiguous. It refers to a region adjacent to the entire perimeter of each Protected Area and leaves specific distances to be determined by the management plan. The buffer zones of the two National Parks bordering Paracel Properties need to be confirmed; the Project has committed to establishing a 1 km buffer of habitat protection where their Properties border.

Internationally Recognized Areas

There is one Biosphere Reserve, Cerrado del Río Apa, overlapping with the Project, established in 2001 by Executive Decree No. 14,431. The core areas of the reserve border two (Soledad and Zanja Moroti) and the buffer area overlaps with three (Zapallo, Hermosa and Santa Teresa) Parcel properties. The core areas of the reserve constitute the Paso Bravo and the Serrania San Luis National Parks, thus the National System of Protected Natural Areas (SINASIP) considers the core areas as officially protected areas, however the buffer zone (comprising an area of 174,224 ha that links the two-core zone National Parks) is not officially part of SINASIP and so has no formal protection.

There are two KBAs near Parcel plantations, qualifying due to their status as Important Bird Areas²⁰ (IBAs):

- Arroyo Tagatiya which sits greater than 15 km west of the Soledad plantation and has some protection from two private protected areas; and
- Cerrados de Concepción which overlaps with both the UNESCO Biosphere Reserve and the PNs Paso Bravo & Serrania San Luis, and, which borders three Parcel owned plantations: Soledad, Zanja Moroti, and Hermosa.

The IBA designation process involves an analysis of threats to the persistence of the biodiversity features present and notes the ongoing threats from deforestation, hunting, grazing, uncontrolled fires and the establishment of invasive African grass (particularly *Hyparrhenia rufa*).

There are no Ramsar sites within the Project nor surrounding areas. The closest Ramsar Site is the National Park Estero Milagro, 60 km downstream of the Project and south of the city of Concepción;

There are no World Heritage Sites nor Alliance for Zero Extinction sites near the Project.

For PARACEL project, KBAs are shown in the following map.

²⁰ Note that according to <http://datazone.birdlife.org/country/paraguay/ibas>, IBA's within PARACEL areas do not meet the criteria for being important sites for congregatory species.

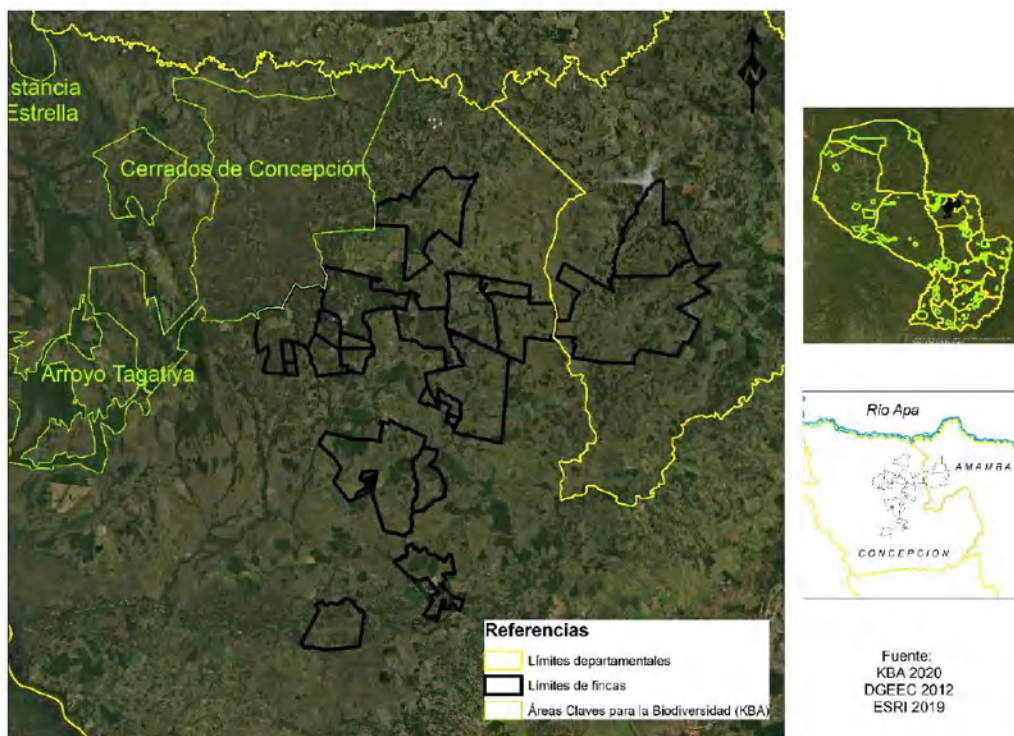


Figure 9 – Map of key areas for biodiversity conservation in relation to PARACEL properties. Produced with data from KBA (2020), DGEEC (2012)

Produced by S. Ríos y L. Rejalaga

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	High	3
Mitigation possibilities:	Partially mitigated	

Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Commit to protect all areas of native forest within the owned plantation lands, as well as to reforest and/or restore riparian gallery forest with native species within a 100 m buffer along rivers and smaller tributaries.

The Project is proposing to keep the Soledad and Zanja Moroti properties that border Paso Bravo National Park totally free of plantations and is considering doing the same for the contiguous Ronaldo plantation. All these properties have extensive habitats of high conservation value. The project has committed to establish 1 km buffers along the borders with the National Parks and the three adjacent properties.

It is recommended that the Biodiversity Offset strategy focus on considering actions to increase the management effectiveness of the Protected and Internationally Recognized Areas nearest the Parcel properties, including the core and buffer areas of the Biosphere Reserve.

A Biodiversity Offset feasibility study will evaluate whether it is feasible for any party to implement management actions to reduce the ongoing and future threats to the biodiversity features within the Protected and Internationally Recognized Areas. This evaluation of threats will involve an analysis of rates and drivers of land-use change and habitat degradation in the region which should be used to inform an assessment of the potential indirect impacts to the Protected and Internationally Recognized Areas from the Project (e.g., by facilitated access to the areas).

Parcel is (as of September 2021) negotiating an agreement with SENAD (the Paraguayan anti-drug agency) to establish a joint Parcel-SENAD work program to help prevent the cultivation of drugs and so protect plantations and natural habitats from encroachment by illicit crops.

Forecast after implementation of measures

The mitigating measures, if effectively managed and implemented, could make an important contribution to the protection of the biodiversity of the region, provide greater landscape connectivity for flora and fauna, and protect water resources and ecosystem services. The mitigation possibility category of 'partially mitigated' is applied owing to the uncertainty of both the potential adverse indirect impacts and positive (offsetting) impacts on these areas that are partially outside of the direct control of Parcel.

7.1.4.2.2.6 Fragmentation of the natural landscape

Environmental aspect

Replacement of Habitats with eucalyptus forestry planted areas.

Impact-Generating Factor

Formation of the eucalyptus forest.

Technical justification

The eucalyptus plantation, made within an extensive Cerrado area, can influence the Fragmentation of the natural landscape.

Both landscape elements (pasture and eucalyptus plantation) constitute potential barriers to gene flow for most plants and natural Cerrado animals.

This is because although some animal species frequent the plantations grove, and although some species of the flora reach the reproductive phase in this environment, these represent a selective filter of potential pollinators and dispersers, and their extension certainly exceeds the displacement radius of most of these animals.

Develop technical criteria for fauna and flora classification prior to plantation, performing occupation planning and territorial planning in addition to, if needed, prioritize the acquisition of pasture land if forestry expansion is needed, is really important to improve genetic flow.

By increasing connectivity with the creation of ecological corridors between Cerrado fragments and with differentiated management of eucalyptus, including a management in Forest Mosaics, it improves not only genetic flow but also soil recovery and does not significantly impact the micro-basin.

Preserving and/or recovering areas beyond those required by law is a good practice that will be adopted by PARACEL, however the selection of priority areas for conservation should be done carefully, contemplating different physiognomies of habitats to preserve as many forest organisms as well as those of open areas.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	

Area of influence:	ADA, DIA	
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Mitigation measures

Remove the tree/shrub cover from the ground only where strictly necessary;

Carry out planting territorial planning, marking the Riparian Zones in order to favor organized spatial occupation and cause minimal impacts;

Recovery of riverside areas and springs without vegetation or with erosion / sedimentation by planting endemic species in the region;

Conduct road open planning to avoid roads or services in areas of natural drainage and forest formation;

Plan plantation to improve connectivity.

Open areas not planted will be retired from grazing and so if free of invasive grasses will recover to improve connectivity.

Parcel plans to not establish plantations in some Properties will serve to protect natural mosaics of the full range of Cerrado habitats that are connected with the National Parks.

The Biodiversity Offset design should consider opportunities to reduce fragmentation and improve connectivity at the landscape scale, for example through sustainable management of the Biosphere Reserve buffer zone.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL preserve the areas of native vegetation, riparian permanent persevered areas and legal reserve of its own forest lands, in addition to the legal requirement, minimizes the impact. When compared to the non-project scenario of ongoing conversion and degradation of Natural Habitat throughout the Project landscape, well designed Biodiversity Offsets have the potential to have a Net-Gain with respect to fragmentation of the Cerrado habitats mosaic.

7.1.4.2.2.7 Dust generation and suppression of local vegetation

Environmental aspect

Replacement of Habitats with eucalyptus forestry planted areas.

Impact-Generating Factor

Formation of the eucalyptus forest.

Technical justification

An important factor in terms of machine movement is the increase in noise and dust at this time, and may impact the nearby population as the local fauna, driving it away.

As described in the characterization of the enterprise, the preparation of eucalyptus planting areas requires prior cleaning of the areas. Depending on the type and quality of vegetation, habitat loss for specialized or generalist fauna will occur, imposing its displacement to less disturbed areas.

In the phase of implementation and operation of forestry, there may be increased noise and dust from the movement of people, trucks and equipment, which can enhance the level of disturbance to the local fauna.

Thus, it is recommended to manage the cutting period and its spatial extension, in order to avoid or minimize the loss of populations occurrence such as arthropods and other animals with limited mobility and plan a management through Forest Mosaic, in order to favor the displacement of fauna species.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Short term	1
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Manage the cutting period and its spatial extension, in order to avoid or minimize the loss of populations occurrence such as arthropods and other animals with limited mobility.

Plan a management through Forest Mosaic, in order to favor the displacement of fauna species.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL preserve the areas of native vegetation, riparian permanent persevered areas and legal reserve of its own forest lands, in addition to the legal requirement, minimizes the impact.

7.1.4.2.2.8 Noise related disturbance on fauna

Environmental aspect

Replacement of Habitats with eucalyptus forestry planted areas.

Impact-Generating Factor

Formation of the eucalyptus forest.

Technical justification

An important factor in terms of machine movement is the increase in noise and dust at this time, and may impact the nearby population as the local fauna, driving it away.

As described in the characterization of the enterprise, the preparation of eucalyptus planting areas requires prior cleaning of the areas. Depending on the type and quality of vegetation, habitat loss for specialized or generalist fauna will occur, imposing its displacement to less disturbed areas.

In the phase of implementation and operation of forestry, there may be increased noise and dust from the movement of people, trucks and equipment, which can enhance the level of disturbance to the local fauna.

Thus, it is recommended to manage the cutting period and its spatial extension, in order to avoid or minimize the loss of populations occurrence such as arthropods and other animals with limited mobility and plan a management through Forest Mosaic, in order to favor the displacement of fauna species.

According to Study of hearing and quality of life in truck drivers, harvest bitrem truck similar to ones that will be use in the project emits about 74 dBA.

The perception of noise levels in the receivers varies depending on the distance from the emission source and is associated with other noises emitted in the area. The sum of the noises comprises the equivalent noise perceived by the receiver.

Noise emissions vary according to operations and development of the work. But, at first, they vary in the range of 70 to 100 dB (A), at source, for reference operations. However, the contribution in the increase of perceived noise in the receivers varies depending on the distance from the source.

In the open field, with each doubling of the distance the noise decreases by 6 dB (A). Since sound pressure is inversely proportional to the square of the distance, the decrease in intensity can be expressed by the equation:

$$\text{Noise reduction: } NPS (R 1) - NPS (R 2) = 10 \log R 2^2/R 1^2$$

Note: NPS = Sound Pressure Level

The NPS is expressed by $NPS = 10 \log I/I_0$, where I represent the average amount of energy transmitted by a sound wave in the unit of time by the surface unit and I_0 is a reference intensity (for air propagation has a value of 10^{-12} Watt/ m²).

Therefore, an equipment that emits a noise measured value of 74 dB (A) about 1.5 meters away will show the noise decrease according to the following table.

Distance in meters	1,5	3,0	6,0	12	24	50	100
Sound level dB(A)	74	68	62	56	50	44	38

Since, the generated noise drops fast and within 12 meters the machine emits about 56dBA, almost the same noise as croaking frog noise, it is possible to state that the generated noise will not impact significantly the fauna and neither the neighbors.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Short term	1
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Manage the cutting period and its spatial extension, and give preference to low noise emission machines, in order to avoid or minimize the disturbance in local fauna.

Avoid removal of vegetation and specially during nesting and breeding season of birds and fauna.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL will minimize the impact.

7.1.4.2.2.9 Eutrophication of rivers due to improper fertilization

Environmental aspect

Use of fertilizer.

Impact-Generating Factor

Inadequate use of fertilizer.

Technical justification

In addition to good preparation and establishment of planting and adequate choice of spacing, fertilization is yet another extremely important pillar in forest productivity, being responsible for significant gains in increasing the volume of wood (SANTANA et. Al., 2008).

The decision for any fertilization should always be based on economic and technical criteria. The strategy of a fertilization program consists of knowing the soil, its physical and morphological chemical characteristics, in short, its pedology, as well as the characteristics of the growth curve of the genetic material to be planted, its potential productivity and nutritional demand to support the expected yields.

The knowledge of the growth phases and rainfall distribution are fundamental to determine the fertilization operations, since the use of the fertilizer by the plant depends on its nutritional demands, as well as the availability of water in the soil to make nutrients accessible to the seedlings, that is, soil conditions and their portion explored by the roots.

The knowledge of the nutrient balance is also essential for the sustainability of forest production, which reinforces the need for adequate long-term management strategies. Thus, it is necessary to have knowledge of the relationship between the amount of nutrients that are exported and the bioavailability of nutrients at the place of cultivation, in order to be able to apply techniques aimed at sustainable forest management for several rotations (SANTANA et. Al., 2008).

Fertilization in general has the basic NPK formulation, which represents the main primary macro nutrients: Nitrogen, Phosphorus and Potassium. The NPK formulation can contain different combinations of concentration of these 3 elements, in order to meet the needs of each plant, according to its stage of development and soil fertility.

Nitrogen (N) is the component of greatest importance for the initial growth, as it is present in the composition of the most important biomolecules, such as ATP, NADH,

NADPH, chlorophyll, proteins and numerous enzymes (BREDEMEIER & MUNDSTOCK, 2000 apud MIFLIN & LEA, 1976; HARPER, 1994). This way, this is the most important nutrient for the first fertilization, carried out before planting. Phosphorus (P) is also essential for the initial growth, as it is directly related to energy storage and root formation. In turn, potassium (K) has direct responsibility for the development of plant tissue and assists in resisting water deficit by regulating the functions of opening and closing the stomata of the leaves, which in turn regulates the “loss” of water by plants.

Therefore, for the first fertilization, a higher dosage of N and P is recommended to guarantee the initial development of the plant, while in following fertilizations K becomes the key component in the growth and health of more adult plantations.

Although high levels of N might cause Eutrophication of rivers. Therefore, PARACEL will perform agrochemicals management program, as well as hazardous materials management program in order to prevent any accidental leakage risks to the environment and protect the health of all employees.

Other than that, PARACEL in compliance with the FSC pesticide policy on use of Highly Hazardous Pesticides - HHP (SCPOL-30-001 V3-0), PARACEL will exclude the use of all hazardous pesticides that contain or main contain active ingredients listed as prohibited by the FSC, as well as any agrochemicals whose active components are part of IDB Invest Exclusion List.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Medium term	2
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	

Area of influence:	ADA, DIA	
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Mitigation measures

Perform agrochemicals management program and hazardous materials management program, in order to prevent risks to the environment.

Exclude the use of all hazardous pesticides that contain or main contain active ingredients listed as prohibited by the FSC.

Monitor the leaching of nutrients and agrochemicals and their potential impacts on freshwater ecosystems.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL will minimize the impact.

7.1.4.2.2.10 Indirect impacts of pesticide use (fipronil) on community bee keeping

Environmental aspect

Use of pesticide.

Impact-Generating Factor

Inadequate use of pesticide.

Technical justification

At the operational level, at first, the highly hazardous pesticides are identified as prohibited, of highly restricted use or of restricted use, due to their hazardous level.

In compliance with the FSC policy on use of Highly Hazardous Pesticides - HHP (SCPOL-30-001 V3-0), PARACEL will exclude the use of all hazardous pesticides that contain or main contain active ingredients listed as prohibited by the FSC.

The HHP listed by the FSC as highly restricted can be used when there's no viable alternative methods, evidenced by analysis of costs, risks and social and environmental impacts.

The HHP listed by the FSC as restricted can be used as an auxiliary method to nonchemical treatments, subject to exhaustive analysis of environmental and social risks for the active ingredient to be used.

When the integrated pest management identifies the necessity of using a chemical pesticide as the last resource, an evaluation of social and environmental risk must be carried out on different levels to identify the nature and level of risk, as well as to define mitigation measures and requirements for impact monitoring.

PARACEL's policy on the use of pesticides highlights importance of monitoring the use of pesticides and the impact of the policy itself.

PARACEL will make efforts to investigate the products and control methods of weeds in order to diminish the use of HHP with a view to their complete eradication. Any HHP to be used will present legal registration with the competent authorities.

In alignment with FSC’s pesticide policy, PARACEL has the following short-term objectives:

- Promote the best practices in order to minimize risks to human health and the environment when using chemical pesticides;
- Reduce the volume and total number of pesticides in use;
- Eliminate the use of highly hazardous pesticides.

In the long term, PARACEL aims at complete eliminating the use of chemical pesticides in its management units.

This requirements applies to all PARACEL’s operation areas and to all organization, work groups and entities that provide services that can make use of pesticides inside PARACEL’s management areas, aiming to protect the natural vegetation, the human health and the native species. It includes all facilities and surfaces:

- Located inside or adjacent to the areas under PARACEL’s valid title or control, or operated by, or on behalf of PARACEL, in order to contribute to the management activities; and
- Located outside or in non-adjacent areas to those aforementioned areas, operated by PARACEL, or on behalf of PARACEL, in order to contribute to the management activities.

The present policy applies to all key contractors, split-off area of the management unit, biological control, pesticides used for purpose other than pest control in the management unit (e.g. as fertilizers), impurities in fertilizers and the use of pesticides once the forest products left the management area.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Medium term	2
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2

Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Perform agrochemicals management program, in order to prevent risks to the environment and protect the health of all employees.

Exclude the use of all hazardous pesticides that contain or main contain active ingredients listed as prohibited by the FSC.

Interview periodically the local bee keepers and compare their local bee colonies monitor data with the use of pesticide (fipronil).

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL will minimize the impact.

7.1.4.2.2.11 Harassment of workers to wild fauna and flora

Environmental aspect

Risk of running over animals and Hunting risk.

Impact-Generating Factor

Opening accesses and roads and Formation of the eucalyptus forest.

Technical justification

During planting, maintenance and especially harvesting it is estimated that several truck journeys are required daily to transport eucalyptus logs to the pulp mill.

On the opening roads activities, it should be considered a wildlife rescue program. An increase in vehicle traffic increases the risk of animals being run over on the access roads.

Losses of animals due to being run over are certain and frequent, mainly in similar rural environments where, on the one hand, the scarcity of native vegetation represents, among other aspects, the need for the transit of animals in relatively large areas to look for food and/or for procreation, simultaneous to the lack of shelter for the movement of these same animals. On the other hand, the network of secondary roads that cross the extensive and continuous cultivation areas, constitutes a scenario of inherent risk.

Therefore, the increase in traffic will lead to an increase in the frequency of being run over, with the consequent loss of wild animals.

Environmental education work, which addresses the issue of "wildlife running over" is extremely important for driver awareness and the application of traffic signs will provide a significant reduction in the risk of animals being run over.

Due to increased access to the roads in the region, to the areas of farms by third parties and surrounding population, can induce the activities of hunting and capturing animals in this region.

The presence of people in the area may result in possible pressure to hunt and capture wild animals, both for the consumption and illegal trade of these animals.

Besides, environmental education work to make population aware of this fact, PARACEL should avoid fragmentation by roads in the Cerrado areas because, in addition to facilitate the displacement and entry of hunters, it also increases the risk of animals run over, as well as may influence some small species that considers this road a barrier to displacement. In order to avoid animals hunting PARACEL should consider to carry out inspection on farms mainly on weekends and holidays.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Medium term	2
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Perform wildlife monitoring/research and rescue program;

Install signs on the main access routes to the planted areas through the wildlife safety and alert program, and police speed limits;

Intensify surveillance activities in partnership with local authorities and neighbors to avoid animal hunting and breaches of traffic control rules;

Prohibit hunting by workers and install signs prohibiting hunting.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

It can be stated that the risk on local fauna will be minimized by the implementation of the proposed mitigation measures.

7.1.4.2.2.12 Spread of invasive species along new roads and fire breaks

Environmental aspect

Risk of spread of invasive species.

Impact-Generating Factor

Opening accesses and roads and Formation of the eucalyptus forest.

Technical justification

The forestry enterprise, to a large extent, is already in altered areas by anthropic action through the various agricultural and livestock cycles practiced there. On the other hand, part of the areas did not undergo major changes.

As described in the characterization, the implementation of the areas for the planting of eucalyptus requires the prior cleaning of the land.

Although the plantations mitigate, at least for a certain period of time, the edge effects on the fragments, these two landscape elements (pasture and eucalyptus) constitute potential barriers to the gene flow of plants between fragments. This is because although some animal species frequent the understory of the plantations, and although some plant species reach the reproductive phase in this environment, these represent a selective filter of potential pollinators and dispersers and their extent certainly exceeds the flight radius of most of these animals.

Depending on the successional stage of the areas to be interfered with, the suppression of vegetation may imply the reduction of environments of the various Cerrado formations in a region marked by the decharacterization of its original vegetation cover.

In order not to have a spread of invasive species along new roads and fire breaks, a continuous monitoring should be performed.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2

Moment of occurrence:	Short term	1
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Monitor continuously the invasive species along new roads and fire breaks;

Plant native grasses within fire breaks.

Implement an Invasive Species Management Plan to avoid and control the spread of invasive species due to the plantation operations, focusing on invasive pasture grasses and machinery, fire breaks or road verges as means of transmission.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL will minimize the impact.

7.1.4.2.2.13 Risk of fire

Environmental aspect

Risk of fire.

Impact-Generating Factor

Opening accesses and roads and Formation of the eucalyptus forest.

Technical justification

Forest fires are characterized by the occurrence of uncontrolled fire. These are the most critical occurrences within the scope of forest protection, with environmental and social economic impacts.

The fire risks in the first year of planting tend to be low, as it is an area without large concentrations of vegetation and combustible material. The more mature the forest, the more significant the economic losses are, whether due to the forest itself, or the risks of imbalances in the supply plan of a market or an industry.

In order to avoid fire and its consequent losses, all actions must be mainly aimed at its prevention and control. However, corrective measures must be considered and be at full capacity if they have to be put into practice.

The occurrence of the fire depends on at least two factors: cause and condition. Preventive measures aim to eliminate or minimize at least one of these factors and can be listed at:

- Eliminate or reduce the combustible materials around the plantations, by keeping firebreaks free of combustible materials such as vegetation and vegetal, in order to avoid the start and propagation of fires. The fire breaks must be more intensively managed the greater the potential risk of fire, that is, where there is a greater intensity of traffic of vehicles, machines and other vehicles not related to the forest operation. This practice must be incorporated into forestry activities;
- Monitoring of local climatic conditions, which allows estimating the probability of fire occurrence. The variables to be monitored are: temperature, relative humidity, wind and lightning occurrence. These indexes guide the preventive mobilization of contingency resources;
- Communication and education of local communities and neighbors on the importance of avoiding using fire as a practice for cleaning vegetation, as well as develop, together with the communities, a communication system to alert the occurrence fire outbreaks;
- Develop of an efficient internal communication system, in order to guarantee the quick activation of the combat team in case of fire outbreaks;
- Construction of fire lookout towers, with the objective of increasing the effectiveness of monitoring fire outbreaks. The observation of changes in the landscape can be made by human observation or with the use of more advanced technologies, such as high-resolution cameras that automatically detect changes in the landscape, the presence of vehicles and other risk factors. The use of high-resolution cameras allows data to be communicated in real time to a control room that can immediately trigger firefighting brigades. In the case of human observation, binoculars and long-range visualization equipment help identifying fire outbreaks and risk factors, which are communicated via radio.

According to Venturi et.al., 2007, the implantation of a network of surveillance towers for the detection of forest fires requires studies of the topographic characteristics of the region, calculation of the visual range of the operators / cameras of the towers and analysis of maps of fire risk based on previous occurrence records. Therefore, it is important that the plots have climatology networks to assess humidity, temperature and wind speed, for the classification of potential risk areas.

Once preventive measures are taken, the likelihood of fire occurring decreases in the same proportion, but it is never possible to completely eliminate the risk of fire. In the event of a fire, the main measures to be taken are:

- Speed and effectiveness of the initial combat to the fire outbreak to prevent this outbreak from spreading and taking on large proportions. In order for the action time to be as short as possible, an efficient system for monitoring, detecting, communicating and mobilizing firefighting resources is necessary;
- Access conditions, this means that road and bridge conditions must not prevent combat resources from reaching the desired location quickly;

- Fire brigades, which consist of a water truck structure and pickup trucks with combat kits. It is recommended to have a structure of 1 (one) water truck and 1 (one) fire brigade for each 20 thousand hectares of forest plantation, for greater agility and effectiveness in combat;
- Annual training of the firefighting team, reviewing all combat concepts and techniques, such as the use of retardants, fire-fighting techniques, cleaning and opening fire breaks, safety during combat, the essential equipment for the activity and how to handle them, etc. When properly trained and well positioned, the combat team becomes able to quickly locate the outbreaks and effectively implement the communication and control measures, thus reducing the risk of fire propagation;
- Effective communication systems, as they guarantee the quick activation of the entire combat team and almost immediate action.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Short term	1
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	High	2
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Perform preventive measures aiming to eliminate or minimize cause and condition of fire.

Implantation of a network of surveillance towers for the detection of forest fires requires studies of the topographic characteristics of the region, calculation of the visual range

of the operators / cameras of the towers and analysis of maps of fire risk based on previous occurrence records.

In the event of a fire, the main measures to be taken are:

- Speed and effectiveness of the initial combat to the fire outbreak to prevent this outbreak from spreading and taking on large proportions. In order for the action time to be as short as possible, an efficient system for monitoring, detecting, communicating and mobilizing firefighting resources is necessary;
- Access conditions, this means that road and bridge conditions must not prevent combat resources from reaching the desired location quickly;
- Fire brigades, which consist of a water truck structure and pickup trucks with combat kits. It is recommended to have a structure of 1 (one) water truck and 1 (one) fire brigade for each 20 thousand hectares of forest plantation, for greater agility and effectiveness in combat;
- Annual training of the firefighting team, reviewing all combat concepts and techniques, such as the use of retardants, fire-fighting techniques, cleaning and opening fire breaks, safety during combat, the essential equipment for the activity and how to handle them, etc. When properly trained and well positioned, the combat team becomes able to quickly locate the outbreaks and effectively implement the communication and control measures, thus reducing the risk of fire propagation;
- Effective communication systems, as they guarantee the quick activation of the entire combat team and almost immediate action.

Take into account climate change predictions (drier and more extended dry season, and more extreme temperature frequency and duration) to ensure that fire-breaks between plantations and native forest patches are of sufficient width to avoid fire spread into the native forests.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The actions adopted by PARACEL will minimize the impact.

7.1.4.2.3 Socio-economic Impacts

7.1.4.2.3.1 Impact to Employment

Environmental aspect

Hiring of manpower for eucalyptus formation.

Impact-Generating Factor

Manpower demand for the eucalyptus formation.

Technical justification

Employment opportunities will be generated from the installation and operation of plantations and forest nurseries. According to the data provided by PARACEL, it will be required up to 70% unskilled labor, 20% qualified professionals and 10% qualified technicians. Up to 95% of the workforce is expected to be national; and of this, around 50% is local (from the Project's DIA), with the remaining 50% from the other

departments of the country (IIA and others). Part of the jobs will be continuous over time and part will be temporary and cyclical, according to the sub-stage of the forest production cycles.

It is estimated that the project will progressively employ a growing number of staff, so the flow of workers will also increase, directly and outsourced (hired, through intermediaries), from around 270, through 1,335, 2,545, 2,750 to 3,050 people in the different sub-stages of the installation phases - in a period of approximately 21 54 months - and operation - henceforth. Most of the jobs will be outsourced, between 94.44% and 98.36% as one moves from planning to operation. The project will comply with the principles of IFC PS 2 on “Labor and working conditions”, clearly defining the labor links, depending on whether the employees are direct workers, contracted (outsourced), or workers in the supply chain, as the case may be. Likewise, FSC Principle 4 on “Community relations and workers' rights” will be considered.

The jobs will be related to the different activities/processes of installation and operation of the forestry component, from planning to the transfer of wood to the industrial plant and the start of a new cycle of plantations. Likewise, it should be noted that not all forest fields will have exactly the same planting cycle simultaneously, so the number of workers in each field will vary at the same time.

According to the socioeconomic data, the people of the department of Concepción will be able to cover the demand for unskilled employment, since there is a large number of available ones. In the department of Concepción, a large part of the population is young; of which 72% are under 35 years of age, with an average of 7.61 years of studies. For its part, the department's working-age population (PET) is 186,627 people, of which 58.33% are economically active. The approximate total of the population of the 6 districts of the department of Concepción, within the DIA of the forestry component, is 111,950 people by 2020. With these data, it is estimated that a large part of the unskilled labor that will be employed by the project could be local, in the same department of Concepción.

To a lesser extent, the department of Concepción could also provide a certain amount of skilled labor. According to the data observed in the LBS (*Linea de Base Social – Social Baseline*), different types of technical courses are taught in the department with rapid job prospects, especially in the urban areas of the department, in various public and private training centers. The technical sectors of interest in which there are people trained in the department are: automotive, commercial, electricity, accounting, labor law, finance, taxation, information technology, computing, welding, metalworking, construction, plumbing, carpentry, light and heavy vehicle and machinery driving, safety in road works, painting, among others. In this sense, the project constitutes a job opportunity for unskilled labor that could come primarily from the DIA localities directly, neighboring the forest plantations; and technical manpower that could come from other districts within the department of Concepción.

The departments of Amambay and San Pedro, considered within the project's IIA, will also be able to provide labor, mainly unskilled, for the project. In both departments, most of the population is young, under 35 years of age (68% Amambay, 70% San Pedro); with averages of 8.48 and 7.21 years of study. The working age population (PET) is 127,915 and 330,995 people in Amambay and San Pedro, respectively; with an economically active population (EAP) of 64.03% and 63.11%.

21 PARACEL, Mampower, 2020.

The generation of jobs at the local level will contribute to the decrease in unemployment, which is 6.66% (about 7,247 people) in the department of Concepción, higher than the national average rate. And to the reduction of income poverty and structural poverty, which in the department of Concepción are high, of more than 40% in terms of income poverty and more than 50% in terms of at least one (1) Unsatisfied Basic Need (UBN), above the national average. Likewise, the creation of sources of employment, although mostly seasonal, may contribute to reducing the levels of migration from rural to urban areas observed in the department of Concepción, which are mainly motivated by work and study; and that also constitute another outstanding problem in the DIA. Unemployment, job insecurity, poverty and associated migration are four of the problems most highlighted by the people interviewed in the DIA.

Salaries for direct jobs generated by the project's forestry component are expected to be higher compared to current average salaries in DIA and IIA. However, this impact may be limited considering that the amount of direct labor (hired by PARACEL, without third parties as intermediaries) is between 5.55% (basic engineering stage), and 1.64% (operation stage) of the estimated total of jobs to be generated in the substages of the installation and operation stages. Most of the jobs will be outsourced (contract workers); likewise, PARACEL will guarantee compliance with current labor regulations, and in accordance with IFC's Performance Standard 2, to all personnel linked to the project.

In terms of direct jobs, the project could provide higher salaries than the current average per capita income in the IIA departments, taking into account the related national regulations and the profiles or qualifications demanded. The average per capita income is Gs 896,026 in Concepción, Gs 981,516 in San Pedro and Gs 1,530,906 in Amambay, all below the current legal minimum wage of Gs 2,192,839. Although the quintiles with the highest incomes make up more than 50% of the population, they are around the minimum wage in force in Concepción and a little more than the minimum wage in force in San Pedro. Furthermore, according to the economic characterization of the IIA, the total poverty level by income in Concepción and San Pedro is above 40%.

Most of the population of the three IIA departments is rural (Concepción 57%, San Pedro 80%, Amambay 33%); being agriculture and extensive livestock an important sector of employment of the population, although behind the tertiary sector (commerce and services). As for the population of the DIA districts, the majority is dedicated to activities in the primary sector, both for sale and for self-consumption, followed by the tertiary sector. Compared to these productive sectors, especially the primary one, the project is expected to offer better paid jobs.

It is considered a positive impact because of the increase in the level of income; a priori means an increase in the purchasing power and debt capacity of employed persons and their dependents, contributing to a greater consumption of goods and services and, therefore, to a greater development of the local economy and quality of life. Thus, a decrease in the level of poverty is expected, not only due to income, but also structural, which is high in the DIA districts, where between 49.1% (San Alfredo) and 89.4% (Sergeant José Félix López) of the population have at least one Unsatisfied Basic Need (UBN).

The possible loss of sources of employment and/or income would take place due to the change in land use, which will produce the implantation of forest plantations on sites that are currently dedicated to livestock production. This change in production will affect employees currently working in the establishments planned for the project, all linked to stays. The owners of the establishments are not considered, since they will have the freedom of decision and negotiation for the sale/lease of their land.

As indicated before, it is possible that the change in land use produces the geographical migration of workers accustomed to the livestock sector who would not/could not reconvert to the forestry sector. However, some workers are also likely to be unemployed, if they are unable to migrate to other establishments.

The project will train interested persons who will be able to be employed in both stages of the forestry component. This will be in order to counteract, to some extent, the lack of locally available skilled labor; and to strengthen the existing one according to the specific technical needs of the project in the area of forestry production. Along these lines, the training offered by the project will have a positive impact on the personal training of future workers in the forestry component; and at the level of hiring local labor.

In addition, the impact of leaving “installed capacity” in the project's area of influence, especially the DIA, in the medium and long term is considered positive. People who have been trained by the project and who have settled in the area and/or intend to settle in any of the DIA or IIA municipalities, will have greater possibilities of hiring in other enterprises in the area, or in those that are projected in the department of Concepción or San Pedro, especially, even more taking into account the possible development of more forestry production ventures that may take place in the future. It is highlighted that the project will establish alliances with the public and/or private technical training centers/institutions for rapid job opportunities in the DIA; Therefore, in addition to the people trained in the forestry component of the project, the capacities of the local technical training centers/institutions will be strengthened.

It is worth mentioning that in the surveys carried out among the population of the DIA localities, one of the most highlighted aspects as a problem for further development of the communities was the absence of training programs for young people. In relation to this, one of the expectations of the interviewees is the installation of technical training courses with possible job opportunities. In this context of need and expectation, the actions of the project, in this area, will generate a very important positive impact on local technical capacities.

Furthermore, the development of the project is expected to have multiplier effects, in the long term, on the development of other similar projects and on the economy in general of the area of influence, even beyond the DIA; and attract new investment. For this scenario, the installed capacity in the area would be key, and it is estimated that the items related to construction, nurseries and forest plantations, among others, could have a rapid labor insertion.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Positive	+
Form of incidence:	Direct and indirect	
Area of spatial coverage:	Local, regional and strategic	3
Probability of occurrence:	Certain	2
Time of occurrence:	Immediate	1

Timing or length:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type III Accumulation	
Magnitude:	Medium	2
Importance:	Great	3
Possibilities of potentiation:	High	
Degree of potentiation	High	
Degree of resolution of measures:	High	
Area of influence:	DIA and IIA	

Measures of enhancement

Promote a dissemination campaign to hire labor for the company through the Dissemination and Communication Program;

Articulate with professional education organizations and institutions for the professional training of the local population through the Program for the Development and Linking of Local Labor.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

Following the implementation of the enhancement measures, it can be assumed that PARACEL will promote the hiring of available labor in the department of Concepción, San Pedro and Amambay, as well as train the local population.

7.1.4.2.3.2 Impact to Indigenous Communities and Livelihoods

Environmental aspect

Possibility of affecting cultural indigenous resources.

Impact-Generating Factor

Land use for eucalyptus plantation.

Technical justification

The "Indigenous component Study" prepared by the Natán Foundation Technical Team, began in October 2020. It is consistent of a Free, Prior and Informed Consultation and Consent Process that has been carried out with indigenous communities in the direct influence area (DIA).

It describes technical and regulatory aspects that have been taken into account in designing, planning and implementing the entire process of dialogue and linkage of

indigenous communities with PARACEL within the framework of respect for human rights and the rights of indigenous peoples and communities.

The study was intended to contribute to the development of the Indigenous Component, delimiting as such those indigenous communities within the DIA of the PARACEL Cellulose Plant Project and with particular emphasis on monitoring and complying with the recommendations of Performance Standard 7 on Indigenous Peoples, which recognizes that "indigenous peoples are social groups with identities other than those of dominant groups in national societies", and which "are often among the most marginalized and vulnerable segments of the population".

With regard to cultural values, the results of the consultations, which were carried out in a Free, Prior and Informed Consent manner, have shown that indigenous communities did not manifest themselves to carry out ancestral activities and rites within PARACEL's property, however, they stated to practice hunting and/or fishing in and out of their territories and the collection of plants for domestic activities, such as food and therapy.

It should be highlighted that according to Fundación Natan Report on Indigenous Component study not all IP communities will be affected in the same way by the project, especially due to distance from properties and different habits.

As reported in the field work by the families of rural indigenous communities, their times for getting up and going to bed are often strongly influenced by the cycles of nature and the sun, such as dawn and dusk, the song of the animals that begins at dawn, among others. Although the indigenous people state that they use alarm mechanisms - such as their cell phones - to wake up earlier when they have to go to activities outside their community, such as meetings or go to a health center, this is usually atypical to their daily lives and does not hinder carrying out other practices of their daily life, such as drinking hot mate before breakfast.

A very typical dynamic of work in the Paraguayan field is that the laborers usually stop their work to form rounds of 4 to 5 people who gather to drink tereré (yerba mate with cold water) and rest from the heat. This practice carried out by the workers and which is deeply rooted in the customs of life in the countryside, has its roots in indigenous customs, who tend to come together to share rounds of tereré while they work. In many cases, these dynamics are considerably accepted in the field, both due to the great difficulty of preventing them and the obvious need for workers to cool off in seasons when the heat exceeds 40° Celsius, as well as because of the informal work conditions that allows pawns certain licenses.

The formalization of the work that PARACEL proposes for the departments where it will have operations and the high levels of excellence that it will demand from the ventures of its value chain, could mean that the hired indigenous people have to adapt to new schedules and customs.

Indigenous women around the world represent a vulnerable group that faces greater barriers than others, because they face triple discrimination, this means that they are discriminated against for being women, indigenous and poor (United Nations, 2021).

The inclusion of indigenous women through education and work will represent one of the great challenges that the PARACEL project will have to deal with if it intends to favor this vulnerable group. When reviewing the PARACEL documentation that could institutionalize the promotion of the hiring of indigenous women, it has been detected that in the Human Talent Policy and in the PARACEL Recruitment and Selection Policy, it is declared that vulnerable groups, including indigenous and women will be

avored and not discriminated against in job calls and opportunities; and in the Equal Opportunities and Non-Discrimination Policy, it is declared that PARACEL assumes the commitment to promote gender equality by creating initiatives that allow the participation of women in activities, responsibilities.

Finally, contributing to the empowerment of indigenous women favors the achievement of 4 of the Sustainable Development Goals -goals 5, 8, 10 and 15- and contributes to guaranteeing full respect for the rights of indigenous peoples.

The construction, adaptation and improvement of roads that PARACEL will carry out will allow indigenous families to move more easily from one place to another.

The improvement of the Ramal Paso Barreto / Puentesño route will allow the indigenous communities Vy'a Renda and Takuarendyju, located on one side of the same route, to travel more easily on foot or vehicle, reducing the effort they make and the travel times. The improvement of the roads surrounding the communities will be of benefit so that families can enter and leave their communities more easily, both for carrying out leisure activities and to go to health and educational centers. However, if these roads lead to increased wildlife hunting and road mortalities then some communities may find it more difficult to obtain protein from bushmeat.

Likewise, the Takuarita indigenous community will be able to take advantage of the construction, adaptation and improvement of roads that will be carried out for the forestry undertakings of the Hermosa and Gavilán ranches, located 1 km away.

The agricultural species that indigenous families have mainly chosen to produce are cassava, beans, corn, sweet potatoes, peanuts, bananas and squash. And the animal species that they mostly breed are pigs, chickens, goats and cows.

In relation to barter, there are some indigenous communities within the AID that claim to barter products in exchange for meat in ranches that are owned by PARACEL and that are currently being used for livestock production. In this context of bartering, some families of the Takuarita indigenous community usually do it frequently in the Gavilán ranch and, occasionally, in the Zanja Moroti ranch, on the other hand, some families of the Vy'a Renda indigenous community do it in the ranch. Turpentine. The move from livestock to forestry production in PARACEL farms could mean a reduction in protein intake for these families, which should be of special care given the vulnerable conditions in which these families find themselves, as mentioned before.

Although for the present study no specific diagnoses were made to know the degree of malnutrition of girls, boys and adolescents, in light of the results of the III National Census of Population and Housing for Indigenous Peoples carried out by the DGEEC in 2012 that they mention Since 41% of indigenous children under 5 years of age suffer from chronic malnutrition, it could be assumed that a large part of the families in these communities could be within these rates. However, 72% of families state that they eat three times a day, 24% state that they eat twice a day, and 4% of rural indigenous families state that they eat only once a day.

Due to the aforementioned, the hiring of indigenous people in PARACEL activities or in the ventures of its value chain, can become an opportunity for many families of the communities within the AID to improve their food and nutrition conditions, accessing a greater dietary diversity.

Of all the indigenous communities within the DIA, there are three that state that they make use of ecosystem services within PARACEL's properties, carrying out hunting, fishing and gathering activities: forty families from the Vy'a Renda indigenous

community and two families from the community indigenous Takarendyju declare that they make use of ecosystem services in the forests of Estancia Trementina and thirty-four families of the indigenous community of Takuarita that claim to use ecosystem services in Estancias Gavilán, Trementina, Hermosa, San Liberato and Zanja Morotí.

Indigenous families mostly use the following species from ecosystem services:

- Hunting: mborevi (*Tapirus terrestris*), capybara (*Hydrochoerus hydrochaeris*), tajy kati (*Tayassu pecari*) and tatu guazu (*Priodontes maximus*).
- Fishing: tare'yi (*Hoplias malabaricus*), mandi'i (*Pimolodus clarias*) and piraju (*Salminus brasiliensis*).
- Collection: honey, yvapuru (*Plinia cauliflora*), guava (*Psidium*), inga (*Inga*) and apepu (*Citrus aurantium*).

Law No. 904/81 of Paraguay makes it explicit that any organization outside the indigenous communities is strictly prohibited from influencing their political administration or the election of representative leaders. However, it is important to be aware that the majority of indigenous communities are vulnerable groups that, in many cases, have fragile governance that is administered by family groups that prioritize their own interests, the mere fact that an external organization such as PARACEL has The initiation of relations with the communities through the mediation of the chiefs is already an action that can trigger the strengthening or weakening of the internal governance of the community, depending on how this relationship develops.

According to the indigenous families in the participatory rural diagnosis activities, they are satisfied with their leaders for having started relations with PARACEL and for allowing surveys and meetings to be carried out within the community.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Negative/Positive	-+
Form of incidence:	Direct and indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Possible	1
Time of occurrence:	Immediate	1
Timing or length:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II and III	
Magnitude:	Medium	2
Importance:	Medium	2

Possibilities of potentiation:	Medium	
Degree of potentiation	Medium	
Mitigation possibilities	Mitigated	
Degree of resolution of measures:	Medium	
Area of influence:	DIA and IIA	

Mitigation and potentiation measures

Perform Indigenous Consultation and Consent Procedure.

Promote indigenous labor inclusion in PARACEL and in the ventures of its value chain, considering the cultures of origin of indigenous workers.

Monitor the adaptation of indigenous people who must reside in temporary accommodation.

Prevent disrespect for the rights of indigenous peoples and discrimination against hired indigenous people and those residing in temporary accommodation.

Implement a Women's Empowerment Program and a Health and Safety Program.

Strengthen road safety on the roads that are used in a shared way by the project and the indigenous communities.

Perform Relationship Program with Indigenous Communities.

The ESR (Ecosystem Services Review) (mentioned as a mitigation measure to be implemented in the 'Use of Ecosystem Services' and 'Land Acquisition & Displacement' sections) should place special attention on the potential impacts of the Project on access to Priority Ecosystem Services for Indigenous communities which could affect their wellbeing.

If significant conversion of Natural Habitat is predicted to occur (subject to confirmation by the Critical Habitat Assessment), then IFC PS6 requires consultation with affected communities and any Indigenous Peoples communities that would have used ecosystem services in these areas should be consulted; this consultation could form part of the ESR.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

It can be said that there will be a negative Impact to Indigenous Communities and Livelihoods due to change of land use to eucalyptus plantation, but the development of the forestry component of the project could lead to a greater attractiveness for the sale of real estate by the current owners to those interested in expanding the business, may be considered a positive impact. Other than that, PARACEL will make efforts not to cause any disturbance to Indigenous Communities and Livelihoods, compromise to get Indigenous Consent in the direct influence area (DIA).

7.1.4.2.3.3 **Community health and safety through vector borne and communicable diseases**

Environmental aspect

Accumulation of standing water.

Impact-Generating Factor

Cleaning the land and Opening accesses and roads.

Technical justification

In addition to the specific preventive signage measures mentioned in the road safety program for institutions and communities of the ADA and DIA, as well as the planned training, PARACEL will establish specific alliances with local health institutions (USF- Unidad de Salud Familiar, health centers) identified in the DIA/ADA, in order to contribute to the management and monitoring of information related to water-borne diseases, vector diseases, respiratory diseases, sexually transmitted diseases, pregnancy, drug use, alcohol, among others.

In response to the pandemic declared by the WHO, special attention will be paid to supporting and disseminating the MSPyBS (Ministerio de Salud Pública y Bienestar Social) campaigns, both in measures against COVID-19, and other vector diseases that may occur.

Disease awareness campaigns

PARACEL will support health campaigns in the DIA communities, promoted by the MSPyBS, as well as in the distribution of awareness materials on sexually transmitted diseases, protocols against COVID-19, preventive measures against dengue and other vector diseases. Likewise, specific campaigns will be carried out to prevent diseases of water origin (with emphasis on children and women), considering the low quality of the water and the lack of treatment systems in certain areas; as well as the dissemination of water quality results in the DIA water courses (Paraguay River, Aquidabán River, others).

Other diseases can occur due to the inappropriate use of solid waste (many times generators of vectors) or due to poor disposal of packages of chemical products used, as could be seen in previous chapters; especially in the forestry component, which is why specific campaigns will also be carried out on the proper management and disposal of solid waste, as well as on the management of hazardous waste.

The information related to the attended campaigns, the number of people who receive the materials, the talks given by PARACEL staff will be recorded; as well as possible claims related to illnesses that may be attributable to project personnel and/or activities, among others.

Disease baseline studies

PARACEL will help carry out specific studies to systematize information from the USF; and then deliver them to the MSPyBS, as well as to the Municipalities, in order to contribute in establishing the bases to have reliable statistical data in the area; moreover, taking into account the recent breakdown of some districts, of which there is no baseline data for subsequent monitoring.

In addition, a record will be kept of the illnesses associated with the work personnel; and related to these issues, in order to prevent the spread of diseases to communities. According to the results, specific awareness campaigns will be carried out with PARACEL staff, always promoting the norms of conduct with the communities.

Health impact monitoring

Specific studies will be carried out in order to monitor the health data of the community; and those that may be attributable to the project (accidents, sexually transmitted diseases, by vectors).

In addition, third-party health and safety impacts will be monitored, as mentioned in the impact assessment chapter; in order to document possible causes related to diseases related to water (of water origin or transmitted by it).

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	High	3
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Support health campaigns in the DIA communities;

Carry out specific studies to systematize information from the USF; and then deliver them to the MSPyBS, performing a disease baseline study.

Monitor the health data of the community.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The proliferation of vectors will be minimal to maintain surveillance activity for guiding measures that neutralize the conditions favorable to the proliferation of mosquitoes and other vectors in the space occupied by the project and its area of influence.

7.1.4.2.3.4 Impact to Community Health, Safety and Security

Environmental aspect

Impact the infrastructure services.

Impact-Generating Factor

Mobilization of workforce.

Technical justification

The temporary and definitive increase in the population in the DIA communities, generated by the hiring of personnel and consequent increase in the flow of workers in the area, for the installation and operation of forest plantations and by the potential arrival of other people attracted by the indirect effects of the project, as well as the needs of the facilities of the forestry component of the project and the potential increase in people visiting the area, will produce a certain increase in the demand for public and non-public services, both existing and of those currently non-existent, although it is estimated that it will be lower compared to the industrial component of the project.

These services are: Collection and final disposal of solid waste, drinking water, sanitation, electricity, transportation, health care, police and security, emergencies, education, communications and information, lodging.

The project will provide temporary and mobile accommodations as housing solutions for the workers, which will be located within the buildings of the forest plantations and away from the urban centers and/or communities near/neighborhood the buildings. These accommodations will rotate in the fields where the plantations are made and will have all the basic services, provided by the company. In this context, the potential impact on each of the public and/or private services by the project workers is described below.

- **Collection and final disposal of waste, drinking water, sanitation, electricity, communication and information technologies, emergency infirmary, security, lodging:** As the project workers will predominantly settle within the plantation buildings, it is estimated that the pressure on these basic services in the DIA will be practically non-existent. Regarding the management of effluents and collection/disposal of waste, these will be attended to by PARACEL in accordance with national regulations.
- **Transportation:** It is presumed that the majority of the workers will use their own vehicles of the type of motorcycles for their eventual transfers between the forest plantations (accommodation) and the urban/rural areas of the DIA, according to the background that is between 70% and 80 % of households with motorcycles in the DIA. Therefore, the impact on existing public transport services –which are very limited in DIA– will be insignificant.
- **Health care:** It is estimated that only in situations of illnesses or other minor ailments, the existing healthcare centers in the DIA will be used. For mild cases, there will be own infirmaries within the forest plantation buildings. In this way, the pressure of project workers on existing public and private health services will be significantly reduced.

- **Police and security:** It is estimated that only in cases of emergencies and conflict situations of great magnitude/importance and/or when the nature of the event requires the intervention of the public authority, the public police/security service will be used. The project properties will have their own security personnel, which is common in private enterprises. In this sense, the need for the project to have the support of the public police/security service is reduced. However, as it is a sensitive aspect that could involve the violation of human rights, the project will observe, as a minimum, IFC PS 4 on “Community Health and Safety”, regarding the safeguarding of personnel and properties; on the one hand, and the minimization of security risks for the surrounding communities.
- **Emergencies (volunteer firefighters, municipal and/or national police, highway police):** It is estimated that only in cases of major emergencies or that occur on public roads will the existing public emergency services be used; as, for example, in cases of uncontrolled forest fires, road accidents during the transport of project loads, etc. The project will have its own emergency care brigades in all the buildings of the nurseries and forest plantations, thus reducing the need for support from the public emergency service. It should be noted that, as described in the study on the industrial component, the volunteer fire services and the national police in the DIA could be insufficient in the event of an increase in emergency situations.
- **Education:** It is presumed that since the jobs in the forest plantations will be mostly temporary, there would not be the case of massive removals of relatives of non-local laborers to DIA; therefore, existing educational services would not be significantly impacted. It is important to mention that some localities do not have tertiary education, which could mean that some families need to refer relatives to the populated centers, predominantly the district capitals, for the educational development of the secondary cycle.

Regarding the potential transitory and permanent population indirectly induced by the project in the DIA and the people who could visit the area, it is estimated that all of these could put pressure on all existing public and non-public services; and an increase in the problem of the lack of some of the basic services. As for the existing services, the increase in demand could affect the current service levels in the DIA, since, if the development of these does not adequately accompany the population increase, the capacity of the services will be exceeded. Regarding the currently non-existent services that are basic for human populations, the lack of these, together with the temporary and definitive increase in the population, may generate situations of deterioration of the urban/rural and housing environment in the affected communities and living conditions with basic needs dissatisfied.

In the social base line, it has been indicated that there is a problem in the supply of social services in the department of Concepción, and that the cause of these lies in the inefficient geospatial distribution of the same (for example, along communication routes important), in the quality of the provision (for example, the number of schools is not an indicator of the quality of education), in the slow growth of their coverage (which does not accompany the population growth), and in lack of adherence to anthropocentric drivers (population or socio-economic growth) for the development of services (development depends more on political wills of the moment than on development plans). In this context, an indirect impact of the project may be the temporary and definitive pressure of the population induced by the development produced by the

project on the existing services and on the environment, due to insufficient or lack thereof.

In the event of a temporary and definitive population increase in the DIA, indirectly induced by the development of the forestry component of the project, there may be also an increase in the demand for housing in the DIA, although on a smaller scale compared to the component industrial. Most of these people will be geographically located according to some indicators, such as the magnitude of the movement of people associated with the project in the DIA communities, the degree of development of the DIA communities (existing services, business/service opportunities), and leasing capacity (the existing offer of lodgings, rentals and houses).

There is no data on homes that are for rent or sale in the DIA communities. Regarding lodgings, there are data from the Horqueta and Loreto districts, but these are probably concentrated in the district urban areas, not in rural communities such as those of the DIA. In the event that the induced population cannot access housing with minimum habitability criteria -both due to the scarcity of supply, and due to lack of resources to acquire or rent them-, there is a risk of establishing irregular and precarious settlements in the DIA communities, contributing to the deterioration of their urban/rural environment and the quality of life of the people in said settlements.

Regarding the demand for housing by the project workers, it is estimated that this will be insignificant since the project will provide temporary and mobile housing that will be installed within the buildings of the forest plantations and that will rotate in the fields where plantations are made. The workers who are current residents of the DIA communities closest/neighboring to the forest plantations will be able to live in their own homes or in these accommodations, without the need for new housing solutions.

There will be an increase in vehicular traffic in relation to that currently existing in the area of influence; and especially in the DIA due to the needs of transporting harvested wood, materials, supplies, machinery, equipment, solid waste and effluents that will have the installation and operation stages of the forestry component of the project, particularly during the harvest season and timber transfers to the industrial plant, which is expected to occur at a rate of 1 truck every 4 minutes approximately, from years 6-7 after the installation of the plantations in each forest field. However, as the plantations in each field will be implemented at different times starting in 2020, it is not expected to have timber transported from all the fields at the same time, especially in the first years of installation and harvest.

On the other hand, the increase in the transitory and permanent population will also contribute to the increase in traffic in the DIA, due to the increase in the flow of workers linked to the project, as well as the potential population induced by the project. This population will have transportation needs that, considering the context, would more likely be covered with their own vehicles, mainly motorcycles.

Although the project vehicles will not be the only ones traveling in the DIA since there are heavy loads of livestock and agricultural products in the area; this increase in traffic may lead to a decrease in service levels (speed, travel time, freedom of maneuver, interruptions, comfort) or traffic flow on the affected roads, during peak hours of use of the roads. According to observations of the existing roads in the DIA, the national routes and some branches are paved, have widths of up to 10 meters and two traffic lanes; other secondary roads are dirt (in some cases gravelly) and wide that allows two traffic lanes; these will be the routes shared by the project with other users in the DIA.

The increase in vehicular traffic would particularly impact the communities of the districts of Loreto, Paso Barreto, Arroyito, Horqueta and San Alfredo, which are located on the DIA roads to access/exit the properties of the forest plantations and to connect these plantations with the industrial plant.

Likewise, the project will require the conditioning and maintenance of certain sections of existing roads in the DIA for access/exit of the properties of the forest plantations. In this case, it is not ruled out that the adaptation and maintenance of communication routes for use in the installation and operation stages of the forestry component of the project produce an effect of increasing traffic on these roads, due to the theoretical proportional relationship that, the greater the supply of roads, the greater the demand for vehicular traffic. Just as roads are impacted, road safety is affected, attending to the low and almost zero signaling in the area, with emphasis on areas with concurrence of children, women and the general population (schools, churches, health centers).

The increase in vehicular traffic of all kinds –traffic of vehicles loading harvest wood (mainly), materials, supplies, machinery, equipment, solid waste and personnel transportation–, in the area of influence of the project's forestry component ; especially in the DIA, it could mean the faster deterioration of the existing roads, in terms of their structural conservation and their useful life, affecting not only the traffic of the project vehicles but also the other users of these roads, such as people who use them on a daily basis, the logistics of other productive activities in the area, the logistics of materials and/or passing products, etc. This impact will be minimized through the conditioning and maintenance of the access/exit roads of the forest plantation buildings by the project.

However, even with the roads that the project could condition in the immediate surroundings of the plantation properties, it is clear that there will be greater vehicular circulation on the roads beyond this environment, since materials, supplies, machinery and equipment will be received from populated centers outside the DIA districts and/or the same department of Concepción. Vehicle loads of the project in its installation stages; and above all of operation - scheduled at a rate of 1 truck every 4 minutes approximately, during the working day at harvest time - will be communicated to local and national road authorities, in order to establish a strategy for the least impact on existing roads. PARACEL has already started talks with the Ministry of Public Works and Communications (MOPC) to define joint strategies for the adaptation/improvement of access roads.

The duration of the causes of this impact is transitory, cyclical and continuous. In the installation phase, it is expected that only for a few months, of the total of 2 to 3 years that it will last, there will be peaks in the circulation of heavy vehicles, according to each substage of the installation (example: installation of nurseries, of accommodation, transport of inputs and machinery). In the operation stage, it is expected that from 6-7 years of the implementation of the plantations in each forest field there will be continuous transit of cargo trucks to transport the harvested wood to the industrial plant. It is estimated that the types of vehicles that would produce the greatest impacts are conventional and non-conventional cargo trucks, but not the private vehicles of project personnel and/or the induced population, which are presumed to be mostly motorcycles and/or other light vehicles.

On the other hand, in case of adaptation of existing roads, on the one hand, it will temporarily affect the pedestrian and/or vehicular traffic that currently uses said roads, since the space of the same will be physically occupied to carry out the works; and, on the other hand, it will contribute to improving the conservation of the roads, several of

which are currently in poor condition according to observations in the field and statements by residents of the DIA towns. Once these are adequate, compared to the current situation, the structural improvement and paving of all the public routes used for the transport of wood will imply a drastic change in the current situation, reducing travel times (note that traveling the 70 km between Jhugua Ñandu and Puentesíño it takes 1.5 hours today), improvements in road safety, as well as facilitating access to/from emergency services (ambulances, police, firefighters).

It should be noted that the "limited access to local roads" is one of the problems pointed out by the consulted populations of the DIA communities, with consequences for local development. Along these lines, although in a lower percentage, the interviewees stated "that the improvement of the road be guaranteed" as one of the expectations in relation to the project in its forestry component. It should be remembered that "infrastructure and road safety" was the aspect most mentioned by the representatives of institutions and communities of the DIA of the industrial component (districts of Concepción, Loreto, Horqueta and Belén), in relation to the aspects necessary for a greater development of their communities/districts. In this sense, they have highlighted the need to improve the state of roads and neighborhood roads. As Loreto and Horqueta are also part of the DIA of the forestry component of the project; and the situation of the inadequate state of some roads is reproduced in the other DIA districts of the forestry component; in addition to the already existing perception regarding these in the DIA and the loading of the project vehicles, it is estimated that the impact of the project will be important on the road infrastructure from a social perspective.

As already mentioned, as well as an impact on the roads is expected, road safety on the access roads to the forest fields would be affected, attending to the low and almost zero signaling in the area, with emphasis on areas where children, women and the general population attend (schools, churches, health centers).

Private land holdings will be affected for the access/exit of the forest plantation properties in the event that it is chosen to use an existing road that crosses private livestock establishments from the so-called "Crossing X" (Paso Barreto), towards the northwest zone of the plantations. Taking as a precedent that this road is already being used for the access/exit of the existing establishments in the area, the project could use it since it offers a significant reduction in the route to connect the areas of forest plantations to the northwest with the area of the industrial plant southwest of the department of Concepción.

The activities of the forestry component that may need to use this route; and, therefore, they would cause the affectation, will be those of various transports, both materials, supplies, equipment and machinery, temporary and mobile accommodation; and residues for the installation and maintenance of the plantations, the potential conditioning of the road that the project could offer in exchange for its use; and, mainly, the transfer of wood to the industrial plant once the forest harvests begin, from years 6-7 of the planting of trees in the buildings in the area.

As the road in question is already being used by other establishments and as there are no populations settled on it; the impact on the part of the project will not be significant as it would be in the case of the opening of a new road and/or the passage through populated communities. However, this impact on properties will generate rights of way that the project will agree on with each of the owners of the affected properties. In a private legal agreement setting, there would be less difficulty in defining the precise precautions, mitigations and/or compensations that the project will implement to be in compliance with the requirements of the affected owners. The project will observe the

principles of IFC PS 5 on “Land Acquisition and Involuntary Resettlement”, relating to measures in the event of temporary/permanent impairment or obstruction of properties.

On the other hand, in relation to land tenure, it should be noted that all properties linked to the forestry component of the project have property titles; and that peasant producers will not be affected, since almost all of the land belonged to large fields (or ranches), private cattle farmers with large-scale production. All forest fields are owned by PARACEL, and are connected to existing public roads except for the aforementioned road that crosses private properties and could be used by the project. Likewise, the project must ensure, in the medium and long term, that the condition of land tenure always guarantees compliance with local regulations and international standards (minimally, IFC ND 5, FSC Principle 2); in order to minimize claims by third parties, especially small peasant groups in the area and other vulnerable groups (for example: indigenous communities, with the exception that the in-depth analysis of this group is addressed by another specific study).

Direct economy, associated with the forestry production area

The hiring of labor –local, regional, national– for the installation and operation of the forestry component of the project, including outsourced workers, will contribute to the development of the local economy, considering that the flow of workers in the area will increase over all during the installation stage; due to the greater purchasing power that they will have for the consumption of goods and services, and even investment in their own businesses.

Likewise, the acquisition of significant volumes of agricultural inputs, conventional and specialized equipment and machinery, materials and services for the construction of temporary and mobile accommodation, and forest nurseries with all basic services, vehicles and their parts and repair and maintenance services thereof, materials and services for conditioning and maintenance of access/exit roads and other related works, services for the collection and final disposal of garbage/waste and/or special effluents. Transportation services for these loads and forest harvest wood will also be required. All these will be for the installation and operation of forest plantations, which will generate a greater dynamism of the local and regional economy, depending on the local/regional feasibility of production and provision of the same.

On the other hand, the project is expected to satisfy 20% of its wood needs through the provision of existing small and medium-sized local forest producers, initiating these articulations through a “pilot and incentive project” that is already coordinated with the National Forest Institute (INFONA). This will promote the development of local producers and the dynamization of the economy associated with the sector, beyond the forest fields of the project. This is a significant aspect, taking into account that, in the field data collection, part of the interviewees –especially in Paso Barreto, Loreto, Sergeant José Félix López (Puentesíño) and Horqueta– expressed the expectation that the project “link local producers” and/or establish a “safe purchase and sale system”, as well as “generate local development (growth of investors and the population)”.

With all the different needs that the forestry component of the project will have, it is estimated that it will contribute to the development of small and medium-sized local, regional and national companies for the acquisition/supply of the necessary goods and services. It is observed that in the department of Concepción there are sectors of the secondary sector (industry) that carry out activities related to the materials that may be required for the subcomponents of works of the forestry component of the project; such as: extraction of stone, sand and clay; wood sawmill; manufacture of non-metallic mineral products; manufacture of metal products for structural use; manufacture of

other fabricated metal products and metal working services; furniture manufacturing; maintenance and repair of fabricated metal products, machines and equipment. In addition, there are also forest plantations in the IIA departments (Concepción, San Pedro and Amambay) and others in the country, so it is possible that these producers enter into a commercial link with the forestry component of the project.

Indirect economy

The temporary and definitive increase in the population, directly associated with and/or induced by both stages of the project's forestry component, will generate a demand for local goods and services that will necessarily be higher than the current one; by the same number of people who will settle or spend time in the DIA. This will generate higher income and investment stimuli for the establishment and/or expansion of providers of goods and services of different types (food, communication, vehicles, transportation, recreation, education, health, etc.), formal and informal. As possible examples, we can mention the opening of commercial and/or service stores with products due to the flow of workers linked to the project, in the vicinity of the forest plantation buildings (dining rooms, supermarkets/pantries, telecommunications, mechanical workshops, etc.); the opening of new commercial and/or service premises along the communication routes used, with the expectation of selling products to carriers; the expansion and/or habilitation of currently insufficient or non-existent public services; the creation of jobs by the aforementioned enterprises, which will be able to employ more local people.

On the other hand, the conditioning of access/exit roads to forest plantations may also contribute to the development of the local and regional economy; since an improvement of the existing roads would facilitate the logistics of products, supplies, materials of ventures and/or producers of the DIA outside the project.

The greater dynamism of the local economy has, as positive effects, the increase in household income associated with the provision of goods and services, the possibility of accessing goods and services that are currently non-existent, limited, insufficient or inaccessible.

In the tertiary sector, it is observed that commercial and/or service activities are carried out in the department of Concepción that could be required to a greater or lesser extent during the installation and operation of the forestry component of the project, and that could be enhanced with this: trade, maintenance and repair of vehicles (including motorcycles), their parts and accessories; food and beverage trade; fuel trade; trade in cultural and recreational goods; land transportation service; temporary accommodation service; restaurants, bars and the like; telecommunications; financial services; real estate services for sale and lease; administrative support services for businesses; amusement and entertainment services. Regarding the DIA, according to data collected in the field, it is observed that part of the population is dedicated to trade and the offer of services (pantries, minor sales, motorcycle workshop, snack bars/dining rooms, sale of telephone mini-charges). Another important part of the interviewees declared that they are devote to trades for wages in the areas of masonry, plumbing, cleaning and wiring of land, etc. All of these may benefit from the increase in population in the DIA associated with, and/or induced by the installation and operation of the forestry component of the project.

Greater dynamism in the local economy will be very beneficial for local communities, since the total poverty rate by income in the department of Concepción is higher than 40%.

Additionally, it is worth highlighting the potential development in the medium and long term of more ventures in the forestry sector in the DIA, possibly induced by the initial venture (at least the first of such magnitude) which is the project. Studies of the National Forest Institute (INFONA) document the existing forest plantation areas in the districts of the Concepción department that are part of the project's DIA; as well as production forest coverage areas and potential forest development areas, at the national and departmental level. According to INFONA data, the districts with the most forest plantations in the department of Concepción are Sargento José Félix López (Puentesíño) with 3,785.78 ha –which constitutes almost half of the total (48%) - and Concepción with 3,207.04 ha –with more than 40% of the total–; thus, between these two districts almost 90% of the totality of existing forest plantations is reached. Two other districts with less planted area are Horqueta and Yby Yaú; and, finally, the district with the smallest area is San Lázaro with just 8.24 ha. Along these lines, it is important to highlight the potential use of DIA for forestry exploitation (without negative impacts to the soil since they are suitable for said development), provided that sustainable management measures are implemented. A potential development of forestry production induced by the project would entail benefits for the nearby/neighborhood towns, creating jobs and contributing to the development of the local and regional economy.

The presence in the DIA of non-local people who work directly or in outsourcing for the project -particularly foreigners, people from other DIA localities and/or from other departments of the country- which will represent an increase in the flow of workers in the area; and of the people who will settle in the area due to the expectations of development induced by the project, it may involve the visit of these same people to different sites of the DIA in search of recreation and/or the frequent visit to the DIA of other people related to the first (relatives, close friends).

The temporary presence in the DIA of non-local people related to the logistics of materials, supplies, machinery and equipment for the installation of forest plantations, representatives of suppliers, personnel of international certifiers, etc. is also foreseen.

These visits and movements of people to the DIA, although transitory, could contribute to energize various sectors of the local economy, such as food, lodging, recreation, tourism, etc. To give an idea, there are currently approximately 43 beds in five establishments in Horqueta; and 52 beds in two Loreto accommodations. In this context, it can be estimated that the accommodation sector could grow accompanying the potential local development induced by the forestry component of the project.

It is estimated that the development of the forestry component of the project may induce an increase in the appreciation of land in the area, especially in the DIA; but probably also in parts of the IIA. One reason may be the value of the land for production in a booming industry; as it would be forestry, since the trend in the price of wood is increasing and the importance of the resource in the country is high due to the demand for buildings in general as well as for biomass, in addition to the type of demand that the project for industrial pulp production will have. However, it is presumed that the increase in value would not be very marked since currently the lands for livestock production already have high valuation. Another reason would be due to the induced development that the project may generate in the area with the movement of people and the need for goods and services.

This impact is positive for property owners, both of large areas of land and of average land that could benefit from the greater traffic of people in the vicinity of their properties, the installation of shops and services, etc.

The establishment of a temporary and definitive population in the DIA directly associated with, or induced by both stages of the project in its forestry component, may increase the probability of crime and/or violence events in the DIA due to the increase in population and the flow of workers. According to PARACEL's forecasts, direct and outsourced labor would increase as more forest fields are developed for the project. Regarding the induced population, this may also increase in the medium and long term, accompanying the development in the DIA. The impacts on local security are estimated taking into account that there could be cultural differences; as well as criminal acts due to the greater commercial and service dynamics; and the consequent increase in the circulation of money and assets. This could be favored if the public police service is insufficient for the size of the population that will be in the DIA.

Likewise, there is a risk that people who come to the area solely to commit criminal acts will settle in the DIA; in view of the aforementioned conditions that would be generated by the presence of the project's forestry component. The increase in the flow of workers could also imply a greater number of cases of gender violence in the area.

According to the information collected in the field already during the social studies process of the industrial component, in the DIA of the industrial plant, which includes the districts of Horqueta and Loreto that are also part of the DIA of the forestry component, "security" is the third and second most valued aspects, respectively, by the interviewees regarding the positive aspects of living in their communities. Likewise, according to those surveyed in the DIA, "violence" appears as one of the least mentioned aspects in terms of the problems identified in the territory. This indicates that people currently feel that there is an important level of citizen security and low levels of violence; so, their alteration, induced by the project, could be abrupt.

Furthermore, during interviews in the field, in the DIA communities –particularly Sargento José Félix López (Puentesíño), Paso Barreto, Loreto, Arroyito–, it has been stated and confirmed that "there is tranquility", that people "are supportive and they know among everyone in the community", "good coexistence", "unity among the inhabitants", "security" as outstanding aspects of the area. In the communities near the forest fields, there has been no concern about crime, as had been observed in the DIA of the industrial plant.

Impact Characterization

	Qualitative	Quantitative
Nature:	Positive	+
Form of incidence:	Direct and Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2

Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	High	3
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Potential measures

Adopt the best environmental practices regarding water, effluent, solid wastes and noise controls, not to cause disturbance according with the Community Health and Safety Program;

Address issues such as health, hygiene and safety in the Relationship Plan with the Community and other Social Actors;

Request public agencies to supervise safety, to inhibit illegal acts.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

PARACEL has compromised to adopt the best environmental practices regarding water, effluent, solid wastes and noise controls, not to cause disturbance according with the Community Health, Safety and Security Plan.

7.1.4.2.3.5 Worker Influx Increase

Environmental aspect

Impact the infrastructure services.

Impact-Generating Factor

Mobilization of workforce.

Technical justification

It is anticipated that the forestry component of the project may impact the migration of people in different ways, due to the increase in the flow of workers in the area.

One type of migration may occur due to the change of workers from one productive sector to another, bearing in mind that today the predominant activity in the area is livestock and to a lesser extent agriculture. The employment opportunity generated in both stages of the forestry component (plantation and harvest) of the project may attract people who currently already have a job in another productive and/or service sector and promote migration to the project, due to various factors that could make the offer of Project employment more attractive than the existing job/income generation offer, such

as: better wages/income, job formalization, related benefits, proximity to the home, desire for experience in a project with such characteristics, etc. The impact would be positive if migration means an increase in the level of income and quality of life of the people who have migrated to the project sector. The impact will be negative for the productive/service sectors that will lose employees and will have to hire new personnel and train them, or that will stop producing due to the lack of labor.

A second type of migration could be indirect. The economic development that may be induced by the project in the DIA at the forestry component, may generate attractions for: local laborers (Amambay and Concepción Departments), non-local laborers (other regions of Paraguay) and foreign laborers (other countries), who are currently engaged in certain productive areas and can migrate to productive sectors that can be indirectly promoted by the project, such as shops and/or services (tertiary sector, in general). In these cases, the impact would be similar to what was previously described in terms of migration from one productive sector to another.

In the department of Concepción, the main productive items historically have been agriculture and extensive cattle ranching, remaining predominant even before the authorization in recent years of some industries. This has also been the case in the departments of Amambay and San Pedro, maintaining this at least in San Pedro. In the DIA districts and communities, it is observed that the main economic activities are related to the primary sector, involving between 48.9% (San Alfredo) and 80.3% (Arroyito) of the population.

In the field data collection in the DIA, most of the interviewed population declared to work in activities of the primary sector, including agriculture and small-scale livestock; mainly for self-consumption and, as needed, for sale. Part of the population referred to commerce and services (pantries, minor sales, motorcycle workshop, snack bars/dining rooms, sale of mini-phone charges) as their activities. An important part declared their wage-earning activities (in ranches, masonry, plumbing, chainsaw operators, cleaning and wiring of land, others) as their income-generating activity, which constitute forms of informal employment.

In the context described, it is estimated that the main migration of workers may occur from the extensive and small-scale agriculture and livestock sector; that is to say, small producers, as well as self-employed workers –mainly informal ones– towards the project. According to the surveys carried out among residents in the DIA, the low profitability of agricultural production is one of the economic problems that affect the communities, which may give a notion that, given better income opportunities, people would choose to change productive area. As for the current informal workers (changas), these could offer services for forest plantations, since some activities used to carry out in the cattle ranches of the area would also be necessary in the forest area (for example: maintenance of fences, pruning). On the other hand, it is probable that people who are already employed in other specific areas (for example, industrials); and, depending on the type of employment, they may have fewer incentives (comparative wages and/or working conditions, they already have specific training for their field) to leave their current jobs.

According to the data from the IIA characterization, the departments of Concepción and San Pedro are the ones with the highest levels of pendular migrants (migration of a periodic nature and that does not translate into a change of residence); generally, for work reasons and at the intra-departmental level. At the level of the DIA residents (especially in Jhugua Guazú, Loreto, Paso Barreto), in the field information surveys, they indicated "migration" due to lack of job opportunities as one of the most afflicting

social and economic problems to the communities, which could be pendular or permanent migration, which produces uprooting. All this could indicate a favorable context for the people interested in migrating from their productive sectors or their current jobs to the project sector to be mostly from the department of Concepción and even from San Pedro.

Finally, a third type of migration would be geographical; since it is expected that workers in the livestock sectors (workers in ranches) may migrate to other establishments due to the change in land use, predominant in the project's buildings, since they will spend, for the most part, livestock production to forest production. In some establishments visited where the forestry plantations of the project are planned to be implemented, people have reported that the workers are used to working in livestock, and it is unlikely that they will want to change their area. In this context, both in the DIA, the IIA and other areas of the country (for example, the Chaco) there are livestock establishments that could attract these workers, considering that livestock is an area in growing development, both at the level of quantity of establishments and occupied geographical areas nationwide. The owners of the establishments are not considered, since they will have the freedom of decision and negotiation for the sale/lease of their land, and the possible migration of these would be voluntary and, furthermore, financially compensated.

There will be an increase in the population, due to an increase in the flow of workers, as a result of the need for the project of between 1,335 and 3,050 qualified and unskilled personnel; and professionals for the installation and operation of the forestry component, plus the families that these people could bring with them to live in the DIA communities. In the case of male employees, it is estimated that many could travel alone to the project sites, since there is a history of single male migration for work reasons (pendulum migration). This increase will be temporary, during the period that the installation activities last, which will be 2 to 3 years and the cyclical activities of the operation where a temporary increase in personnel is required; for example, the times of harvest and transport of wood.

The transitory population may be local or non-local laborers. Local population refers to people from DIA and the department of Concepción. Non-local laborers population refers to the population of the rest of the IIA (San Pedro, Amambay), of the other departments of the country and abroad.

Additionally, a transitory population increase in the DIA is expected due to the arrival of people not directly related or outsourced, with the installation and operation of the project's forestry component, but who see opportunities to generate income through businesses and/or the offer of services, due to the population, commercial and service dynamism that the project would generate.

In general, DIA districts are medium and small depending on the size of their population. There are about 5,799 people in San Alfredo; 7,242 in Sergeant José Félix López; 4,185 in Paso Barreto; 18,879 in Loreto; 13,181 in Arroyito; 62,664 in Horqueta and 17,765 in Bella Vista Norte, distributed in urban and rural areas, with a predominance in rural areas. The communities in the immediate surroundings of the forest plantation buildings are small towns, with up to around 1,000 inhabitants, with the exception of Sergeant José Félix López, who has more than 5,000 people.

These data would indicate that the population associated directly and indirectly with the installation and operation of the forestry component of the project could be important compared to the local population according to the current size of the populated centers where they could settle, especially in the case of the communities closest to DIA.

However, it is presumed that, due to the existing population density, the location of the additional transitory population is physically feasible, even more so, providing for the installation of temporary and mobile housing solutions for part of the workers, within the same buildings intended for the Forest plantations.

The direct workers of the project, as a result of the increase in the flow of workers linked, in case of being people outside the DIA, would become part of the DIA on a more permanent basis than the seasonal workers. However, it is estimated that these “permanent” workers would be a very small percentage of the total personnel mobilized by the project in each cycle of forest production. In addition, the project will also provide accommodation for permanent staff inside the forest plantation buildings, with all the necessary basic services. In this sense, this incremental population in the DIA would have little significant impacts on the existing accommodation capacities in the communities closest/neighboring to the plantation properties.

Additionally, and in line with the impact mentioned in the preceding section, the installation and operation stages of the forestry component of the project may constitute an attraction not only for those interested in being employed in the direct and outsourced activities of the project. But also for local or non-local laborers people who could obtain a benefit from the commercial development and services that the project could induce in the DIA communities, such as, for example, the creation of demand for basic goods and/or services; and the creation of jobs associated with them; also, for people who see opportunities for a better quality of life in the vicinity of the project, due to the potential for greater consumption options, etc. These people would come to increase the definitive population of the DIA communities.

Likewise, the increase in vehicular traffic by project vehicles, particularly those with heavy loads, and the conditioning and maintenance of existing communication routes, which connect with the forest plantation buildings for project use, may attract people, local or non-local laborers, seeking to settle in the immediate proximity of these roads, due to the economic opportunities that the greater dynamism of vehicles and people could generate along these roads. These would also go on to increase the definitive population in the DIA.

Thus, the increase of the population, represented by the labor force of the construction phase and people possibly attracted by the possibility of professional insertion in the activity, tends to increase the demand for public equipment such as: education, health, sanitation, transportation, etc., as well as tends to seek social interaction in the city of Concepción and the region.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Negative/Positive	-+
Form of incidence:	Direct and indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Possible	1
Time of occurrence:	Immediate	1

Timing or length:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II and III	
Magnitude:	Medium	2
Importance:	Medium	2
Possibilities of potentiation:	Medium	
Degree of potentiation	Medium	
Mitigation possibilities	Mitigated	
Degree of resolution of measures:	Medium	
Area of influence:	DIA and IIA	

Mitigation and potentiation measures

Maintain the commitment to prioritize the hiring of local labor;

Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program;

Articulate with professional education organizations and institutions for the professional training of the local population through the Program for the Development and Linking of Local Labor;

Offer Labor and Working Conditions for the employees especially in terms of health plan and transportation.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The migration will impact on the available infrastructure, but it is estimated that the main migration of workers may occur from the extensive and small-scale agriculture and livestock sector; that is to say, small producers, as well as self-employed workers – mainly informal ones– towards the project. According to the surveys carried out among residents, the low profitability of agricultural production is one of the economic problems that affect the communities, which may give a notion that, given better income opportunities, people would choose to change productive area.

7.1.4.2.3.6 Impact to Labor and Working Conditions

Environmental aspect

Compliance with applicable legislation and sustainable standards principles (ISO 45.001 and the IFC Performance Standards).

Impact-Generating Factor

Mobilization of workforce.

Technical justification

Both implantation and operation stages of the forestry component of the project will create direct formal jobs (hired by PARACEL, without third parties as intermediaries); that is, in compliance with current national legislation. Regarding the jobs generated that will be outsourced, these will be monitored by the company in order to comply with national legal requirements, in compliance with the principles of IFC PS 2 on “Work and working conditions”, which defines requirements applied to workers. contracted (outsourced).

This will be beneficial, comparatively, in the area of influence; since only a little more than a third of the salaried population employed in the three departments of the IIA have formal working conditions, in the sense that they are registered and make contributions to a retirement system. In absolute values, as of 2017, this involved only 13,969 people (38.41% of the population) in the department of Concepción, 19,171 people (38.24%) in the department of San Pedro and 14,167 people (35.36%) in the department of Amambay. In the field data survey in the DIA, job insecurity (low pay, unsafe employment links) has been mentioned as a relevant problem.

Access to formal employment conditions is beneficial for workers and their dependents, since the system of pension contributions and social security is now integrated. Other labor rights and guarantees are accessed, contributing all this to a better quality of life for the worker (greater peace of mind regarding the future, etc.) and the dependents of him.

Work is essential to life, development and personal satisfaction. Whenever work is carried out, there will be risks, due to the processes, operations, and materials that, to a greater or lesser extent, create risks to the health of employees, neighboring communities, and the environment in general.

The organization works toward the personal development of each employee and focuses on behavioral development, always aiming for Zero Accidents and not getting sick.

Compliance with the legislation applicable to our activities, in any of the countries where the company operates, will always be the minimum standard to be met by the organization. It is expected that the execution of the activities in a safe manner will be carried out through continuous actions of sensitization, training, and involvement of the teams and the evaluation of the results, always aiming at the continuous improvement of the processes, in compliance with the principles of ISO 45.001 and the IFC Performance Standards, agreed upon during the elaboration of the Paracel pulp project.

Once these purposes are fulfilled, the performance of the employees in Paracel's forestry component and its contractors and subcontractors, in the performance of any activities, will be based on the knowledge and belief that prevention will always be the best way to avoid work-related illnesses and injuries caused by accidents.

In Paraguay, through Decree 14,390/1992, Resolution 785 of May 29, 2020, and Law 5,084 of 12/15/2017- Law that regulates the standards of Safety, Hygiene, and Comfort at Work in accordance with the provisions of the country's Labor Code, and in Brazil through Ordinance 6,730/2020 of 09/03/2020 and Ordinance 1,295/21 of 03/02/2021, which will come into effect on 01/08/2021, the levels to be met by the corporation are established.

The use of the methodology of the Occupational Health and Safety Management Plan - OHS, is based on the principles established by ISO 45.001 and, according to the protocol of practices, is based on the structuring of a system that aims to ensure, through preventive actions, the safety of employees and to avoid injuries and illnesses, and in a more comprehensive way the interaction with communities where there is influence of its activities.

With this system, practices are established, through the standardization of activities, improvement of the conditions of the work environments, training of employees for safe work, based on their attitudes (beliefs), and made explicit through their actions (behaviors). Our great objective is to develop people.

Occupational health

During both stages of the forestry component of the project, the health of the personnel could be affected by the following activities and/or hazard events: The handling of, and/or exposure to dusty construction materials and/or toxic and/or dangerous inputs (especially products chemicals –fertilizers, pesticides– and objects that have had contact with them); exposure to chemically controlled areas; exposure to disease vectors (dengue, chikungunya, chagas disease, among others); exposure to solar radiation and heat; exposure to high noise levels and/or vibrations; exposure to stings or bites of wild animals; exposure to dust, fumes, particulate matter; etc. These incidents affecting occupational health could occur in any of the installation and daily operation activities, as well as in more exceptional practices; as, for example, controlled burning. All are dangerous activities and events present in any medium and/or large-scale facility and operation, varying according to the environmental context in which the project in question is developed.

Likewise, occupational health may be affected during the solid waste and effluent management of the facility, in the case of contact with contaminated substances and/or materials that could have adverse effects on human health, for example; organic solid waste, inert and powdery solid waste, solid waste and/or hazardous effluents (waste that has had contact with agrochemicals: obsolete containers, packaging, rags, papers, personal protective equipment, earth, sand, sawdust, etc.), effluents from washing implements in contact with agrochemicals (oils, paints, other chemical agents, etc. or materials contaminated with them), sewage effluents, emissions of agrochemicals, paints or other constructive chemical agents, etc.

Likewise, taking into account the pandemic declared by the World Health Organization, zoonotic diseases could spread, such as COVID-19, and specific measures must be established to avoid or minimize contagion between workers.

Occupational security

The two stages of the forestry component of the project will entail risks of affecting the safety of the personnel employed, in each of their activities, just like any other project

that involves medium-sized civil works, handling of tools, equipment and machinery, handling of different types of transport vehicles and controlled burning.

The impact on the safety of the personnel could be due to the following events: Traffic accidents inside and outside the project grounds; accidents of the type of falls to the same level, from places in height and/or inside excavations; blows by fallen objects and/or by use of tools, equipment and/or machinery; cuts by equipment and/or machinery; electrocution during electrical installations and/or handling of electrical tools/equipment; burns and/or skin injuries due to welding, contact with burning fire and/or chemical inputs; hazards associated with manual handling of loads; eye damage; fires; among others.

The activities in which there would be risks of affecting occupational safety are practically all the activities involved in the installation and operation of forest plantations: The works and installation of forest nurseries; the implementation of forest plantations; the construction/adaptation and maintenance of roads and drains; the installation of temporary and mobile accommodation; waste and effluent management; the transport of materials, supplies, machinery and equipment; mechanical control of plantations; forest harvesting; the transfer of harvest wood; the eventual controlled burning.

The impact on the health and safety of the personnel may present different degrees of severity, depending on each case, from slight affectations to the death of the personnel. However, these impacts are preventable and/or mitigable through specific measures to protect occupational health and safety. In all cases, prevention will be chosen first, as established in ND 2 of the IFC, on “Work and working conditions”; as well as the World Bank Group guidelines on the environment, health and occupational safety. PARACEL foresees that all its components are certified; and the forestry component would be through FSC, so it is expected to implement the best operational practices in order to minimize risks in OHS, as well as to have the necessary number of specialized technicians in the subject.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and indirect	
Area of spatial coverage:	Local, regional and strategic	3
Probability of occurrence:	Certain	2
Time of occurrence:	Immediate	1
Timing or length:	Permanent	3
Reversibility:	Reversible	1
Accumulation:	Type III Accumulation	

Magnitude:	Medium	2
Importance:	Medium	2
Possibilities of potentiation:	Medium	
Degree of potentiation	High	
Degree of resolution of measures:	High	
Area of influence:	DIA and IIA	

Measures of enhancement

Promote a dissemination campaign to hire labor for the company through the Dissemination and Communication Program, offering all benefits for good work conditions;

Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program, offering third parties benefits for good work conditions;

Perform Program for Development and Linkage with the Local Workforce;

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The local economy tends to benefit from the emergence of jobs demands, linked both directly to the activity of the company's execution and indirectly, and potentialized through offering benefits for good work conditions.

7.1.4.2.3.7 Impact to Human Rights

Environmental aspect

Governance.

Impact-Generating Factor

Mobilization of workforce.

Technical justification

PARACEL fully support the principles of the United Nations Global Compact, basing our fundamental values on respect for human rights, labor rights, the environment and the fight against corruption.

The project plans to employ 90% of women in forest nurseries, thus contributing to reducing the existing gender gap in employment opportunities. The jobs related to the nurseries will be around 150, including more than 80% of unskilled profiles that will be trained by the project. In this sense, it is expected that most of the jobs may be held by local women, considering that the technical/professional qualification of labor in the area is low, with the additional advantage that the nurseries operate throughout the cycle of the project.

In the DIA districts, women make up an average of 47.97% of the population. As for the Bella Vista Norte district of the Amambay department, also part of the DIA, 49.44% of the population are women. According to the data collected in the field in the localities of these districts close to/neighborhood the forest plantations (with emphasis on Paso Barreto, Loreto and Jhuguá Guazú). Women are mainly engaged in household chores, the farm, handicrafts, the raising of small animals, the sale of dairy products and their derivatives, trade, decoration, rentals, gastronomy, hairdressing, dressmaking, among other activities and/or they migrate in search of job opportunities, both to Asunción and its metropolitan area; the departmental capitals of the IIA as well as abroad. Regarding training aimed at productive employment for women, the lack of opportunities was mentioned. It was also mentioned that unequal practices still persist, assigning women to household tasks and to men productive tasks that generate income.

In this context of lack of opportunities for women, the project's human resources policy will contribute to offering employment opportunities that currently do not exist in the DIA, from which women from the IIA or other areas of the country could also benefit.

The Paraguayan State has ratified most of the norms and conventions that provide protection against contemporary forms of slavery, such as the 1926 Slavery Convention and the 1956 Supplementary Convention; has ratified its commitment to the International Convention on the Elimination of All Forms of Racial Discrimination of the United Nations General Assembly, the United Nations Declaration on the Rights of Indigenous Peoples, the American Declaration on the Rights of Peoples Indigenous people of the Organization of American States, the Protocol of San Salvador, the American Convention on Human Rights and the American Declaration of the Rights and Duties of Man.

Despite all the aforementioned, Ms. Urmila Bhoola, Special Rapporteur of the Office of the United Nations High Commissioner for Human Rights, was able to verify during her visit to Paraguay in 2017 that work-related practices continue to exist in the country. forced in the indigenous communities of the Paraguayan Chaco, such as debt bondage, servanthood and payment with food.

In the indigenous communities identified within the AID, it was observed in the Baseline that many of the indigenous people who are working in ranches close to their communities are informally employed, many of them receiving lower payments than the daily wage stipulated by law. of Gs 84,340, on many occasions they are not provided with safety clothing and tools nor do they have medical insurance that allows them to face the costs of an accident or occupational disease. It was even identified that there are cases of child exploitation of girls, boys and adolescents in the indigenous community of Redención, where some are dedicated to working day and night selling gambling cards. The indigenous communities identified within the AID seem to be in a better situation than those located in the Paraguayan Chaco, but it is worth mentioning that due to the distance between the city of Concepción and the Chaco, many indigenous families in the department often cross the river. Paraguay in search of work, this means that the exploitative working conditions in which they live, especially rural ones, are one step away from becoming forced labor, according to what was exposed by Ms. Urmila Bhoola (2017).

As mentioned, the formalization of the labor ties related to the hiring of PARACEL and of the ventures of its value chain, will help to reduce work in exploitable conditions, to comply with current national legislation and improve the quality of life of the people directly employed by PARACEL and by the companies that provide services,

contributing to compliance with Performance Standard 2 of the International Finance Corporation.

At PARACEL, employees are key to the success of the company. The company is committed to carrying out its activity in a manner that is respectful of human rights and to consolidating a culture based on corporate values and fair and equitable relationships. This commitment is based on the following principles derived from the guiding principles of PARACEL's Sustainability Policy:

1. Fully comply with national legislation and international standards to which it adheres.
2. Respect internationally recognized human rights, adopting adequate measures for the prevention, mitigation and, when appropriate, the remediation of adverse human rights impacts.
3. Eliminate stereotypes and prejudices and establish practices of equality and equity in all Human Talent processes.
4. Ensure a work environment free from discrimination and abusive practices, such as bullying, sexual harassment of any kind, harassment based on race, religion, age, nationality, ethnic or social origin, sexual orientation, gender, marital status, pregnancy, disability or political affiliation.
5. Promote the opportunity to hire people from the community in which we operate
6. Provide a safe and healthy work environment (physically and psychologically) complying with the legal requirements regarding occupational health and prevention of occupational hazards.
7. Provide access to complaint mechanisms and act proactively to provide solutions to them.
8. Reject the use of forced and child labor.
9. Remunerate workers in a dignified manner, in accordance with their responsibilities, skills, knowledge, performance, market practices and what is established by national legislation.
10. Encourage and promote opportunities for professional and personal development to employees.
11. Respect the right to freedom of union association and collective bargaining.
12. Establish means to not negatively impact the ways of life and traditional work of indigenous communities in accordance with the provisions of Agreement 169 on Indigenous and Tribal Peoples.
13. Contribute to the hiring of vulnerable groups such as: people with disparity, older adults, women, immigrants, people from indigenous communities, people with low academic instruction, among others.

PARACEL will respect and recognize both the importance and universality of human rights.

PARACEL recognizes that human rights are inherent, inalienable, universal, indivisible and interdependent:

- Inherent, because they belong to all people;

- inalienable, because people cannot renounce them or be deprived of them by governments or any other institution;
- universal, because they are applicable to all people regardless of their condition;
- indivisible, as none of the human rights can be selectively ignored; and
- interdependent, because the fulfillment of one right contributes to the fulfillment of other rights.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Positive	+
Form of incidence:	Direct and indirect	
Area of spatial coverage:	Local, regional and strategic	3
Probability of occurrence:	Certain	2
Time of occurrence:	Immediate	1
Timing or length:	Permanent	3
Reversibility:	Reversible	1
Accumulation:	Type III Accumulation	
Magnitude:	Medium	2
Importance:	Medium	2
Possibilities of potentiation:	Medium	
Degree of potentiation	High	
Degree of resolution of measures:	High	
Area of influence:	DIA and IIA	

Measures of enhancement

Respect internationally recognized human rights;

Adopt adequate measures for the prevention, mitigation and, where appropriate, remediation of adverse impacts on human rights;

Monitor the health and safety of its workers, equal opportunities and the promotion of non-discrimination by gender, religion, ethnicity, race, sexual orientation, social status or any other factor, within the framework of full respect for human rights;

Perform Equal Opportunity and Non-Discrimination Programs.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

By adopting Universal Declaration of Human Rights as a common standard of achievement for all peoples and all nations, PARACEL ensures to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms and by progressive measures, national and international, to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the peoples of territories under their jurisdiction.

7.1.4.2.3.8 Impact to Landscape and Visual

Environmental aspect

Land use change.

Impact-Generating Factor

Formation of the eucalyptus forest.

Technical justification

The space organization develops from historical, socioeconomic, political and physical conditions of the landscape, which allow an analysis of occupation trends.

Forest roads cause disturbances in topography, causing complex and pronounced changes in the spatial patterns of geomorphic and hydrological processes due to changes in the movement of water and sediment in the landscape (LUCE; WEMPLE, 2001; WEMPLE; SWANSON, S.O., JONES, 2001).

This impact is one of the most significant in the forest enterprise, through the opening of roads, and it is up to the entrepreneur to take the measures and procedures for its minimization.

The farms planned for the eucalyptus planting will be partially reconfigured, consolidating the Areas of Permanent Preservation, Legal Reserve, firebreak and effective planting.

One fundamental important point of is linked to the recommendations and guidelines that must be followed during the construction stage of the roads, considering, for this, the susceptibility of the land and the erosive and slipping processes, and, consequently, avoid the silting of downstream watercourses.

It should be noted that eucalyptus cultivation mainly comprises the stages of planting, maintenance and harvesting that occur basically in an interval between 6-7 years in the same place.

After the eucalyptus harvest (cut) occurs a natural change of the local landscape, due to the absence of the respective eucalyptus plantation.

Furthermore, it is noteworthy that the farm has extensive areas of Legal Reserve (RL) and Permanent Preservation Areas (APP), which minimizes the visual impacts caused after harvest.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local	1
Probability of occurrence:	Certain	2
Time of occurrence:	Immediate	1
Timing or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type III Accumulation	
Magnitude:	Low	1
Importance:	Small	1
Mitigation possibilities:	Partially Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA	

Mitigation measures

Establish a management of the farms, among other measures, such as Forest Mosaics, in order to have a natural variability throughout the landscape.

Introduce Forest Mosaic, among other measures, with the planting of eucalyptus in plots with different planting ages, interspersed with ecological corridors and territorial planning of the allocation of legal reserve.

Plan the land in order to allocate the Areas of Legal Reserve to increase and enhance the benefits of Forest Mosaics and Ecological Corridors.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

The change in the landscape is inevitable, but the maintenance of planting on different ages through forest mosaic and the preservation of riparian areas to minimize the visual impacts caused after harvest.

7.1.4.2.3.9 Impact to Cultural Heritage

Environmental aspect

Possibility of affecting cultural heritage sites

Impact-Generating Factor

Earth moving activities and Formation of the eucalyptus forest.

Technical justification

This impact refers to the material heritage of archaeological, historical and/or cultural interest, as it was addressed in the industrial component. On the other hand, the intangible cultural heritage is approached in the impact of potential affectation of uses and customs of the DIA localities. In turn, sites of cultural interest related to water uses, which could be considered as part of the cultural-natural heritage, are referred to in the potential impacts on cultural ecosystem services.

Regarding heritage of archaeological value, it is estimated that due to the small magnitude of the works that may require soil movements - since most of the activities will be of small-scale facilities and plantations, where the soil is already intervened-, the forestry component of the project will not affect materials of archaeological value that could be found in the subsoil. Furthermore, the areas covered by forest plantations currently constitute cattle ranches with already a certain level of prior human intervention (soil already intervened). In any case, the project expects to comply with the principles of PS 8 of the IFC, on "Cultural Heritage" and with current national regulations on the matter. Any archaeological type material, although it could be found within the project's properties, would constitute material of public value, so it must be communicated and rescued through safe procedures and delivered to the national authority responsible for the preservation of national heritage. If these precautions are not taken, the existing material in the subsoil could be permanently affected. It should be remembered that in the area of the department of Concepción the existence of paleontological remains of both flora and fauna has been reported, as well as findings that indicate the presence of pre-Hispanic societies; in addition, in parts of the territory there have been military conflicts in the past.

It is important to mention the forest fields in the north, adjacent to the Paso Bravo National Park. This reserve is close to the San Carlos Fort, in the San Carlos del Apa district, a heritage area linked to war events in Paraguay (War of the Triple Alliance), which, although it is external to the DIA, is considered important to mention and boundary.

Regarding materials, objects and/or sites considered as historical and/or cultural heritage, both for the national and/or for the local population, these have not been surveyed within the forest plantation buildings in this evaluation. Outside of these buildings it is possible that there are tangible spiritual/religious and/or cultural heritage materials outside the access/exit roads of the project buildings, considering that at the national level there is the custom of installing small oratories or "niches" in commemoration of people who have lost their lives on the side of the roads. In these cases, it is possible that the project could affect some of these sites through the conditioning of the roads; and the transit of large cargo vehicles, particularly during the period of harvesting and transfer of wood to the industrial plant.

PARACEL, both for the forestry and industrial components, will have an operational procedure for eventual finds, within the framework of the Archaeologic Finding Chance Program.

Characterization of the impact

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct	
Area of spatial coverage:	Local	1
Probability of occurrence:	Possible	1
Time of occurrence:	Immediate	1
Timing or length:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Simple	
Magnitude:	Low	1
Importance:	Small	1
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence	ADA	

Mitigation measures

Take actions to ensure that the company’s activities do not affect or destroy any cultural property considered as protected heritage through monitoring the Archaeologic Finding Chance.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

It is possible to affirm that there will be no interference with the cultural heritage, taking into account that the area where the project will be implemented is significantly anthropized. Furthermore, all mitigation measures will be taken so that there is no possible interference with the cultural heritage in accordance with the law in force.

7.1.4.2.3.10 Impact to Community Uses and Dependencies on Ecosystem Services

Environmental aspect

Possibility of affecting ecosystem resources.

Impact-Generating Factor

Land use for eucalyptus plantation.

Technical justification

In the DIA of the forestry component of the project, information has been collected on the practice of small agriculture and livestock that occurs in the area; as well as the raising of farm animals for self-consumption and, as needed, for sale. In addition, there are dairy derivatives production activities for sale. In this sense, the risk of the project affecting these local activities through various possible means must be considered. One is the application of chemical products for the chemical control of soils and plantations, especially during eventual aerial spraying, with effects that could accumulate and/or last in the medium and long term. Another is the management of solid waste and effluents, especially those with chemical content or that have been in contact with these products. A third activity is the practice of controlled burning in forest fields. Controlled burning could be eventually performed to reduce the biomass waste during land preparation, prior plantation.

This risk is especially significant for the DIA communities that are directly adjacent to the forest plantation buildings, as in the case of Ayala Cue – located in the middle of the forest fields; Anderí – situated on the edge of one of the fields, but also for those very close to certain fields such as Laguna Cristo Rey, Paso Barreto, Isla Hermosa, Paso Mbutu, Sargento José Félix López (Puentesíño). Likewise, communities located on the edge of surface water courses in the area, downstream from forest fields, could see their activities affected by possible alteration of the quality of water that is used in crops, livestock and farms.

In this sense, the project will strictly comply with and as a minimum, IFC PS 1, 3, 4, general guidelines on environment, health and safety, FSC Principles 6, 7 and 8 related to environmental impact, plan of management and monitoring plan of potential impacts.

On the other hand, in the event of an increase in the appreciation of land in the area due to the development of the forestry component of the project; this could lead to a greater attractiveness for the sale of real estate by the current owners to those interested in expanding the business, with the consequent displacement of the existing economic activity in said lands, the loss of sources of subsistence and/or of income of both smallholders and workers on the land and possible related geographic migration. That is to say, indirectly, the development of the project could mean pressure for the use of the land in the area that supplies for subsistence and/or generates income, in case that it induces an expansion of forest plantations, depending on the suitability of the soils for this activity. The areas that could be most affected are small agriculture and livestock, farm animal husbandry and, even, illicit plantations of which there is knowledge through secondary sources (on the last item mentioned, the pressure of displacement of these practices would entail an indirect benefit in the fight to eradicate them).

Although it is an issue not manifested in the DIA communities, the consulting team considers it relevant to mention that the presence in the DIA of a transitory population (experts and specialized technicians) and definitive (nursery and plantation personnel) linked the project in both stages of its forestry component, could run a security risk beyond those related to occupational health and safety, taking into account the existence of armed groups in the area (the so-called Paraguayan People's Army or EPP, groups linked to plantations illicit, others).

This information is relieved in the social baseline mainly through secondary sources (journalistic publications, available research, etc.). A first relevant case is that in the

area there is a presence of the Paraguayan State (Joint Task Force) to fight against the criminal group EPP; that on several occasions it has "attacked" the integrity and safety of the staff and/or owners of the rooms, as well as of key public infrastructure (for example, high-voltage electricity transmission towers). Some affected personnel have been residents of the area; and, on occasions, belonging to indigenous communities (a recent case in August 2020), while the main targets of the events have been proprietary, commonly through kidnappings for extortion purposes and pressure on the Paraguayan State to advance their interests.

Another relevant case relates to illicit plantations (mainly marijuana); that currently exist among the forest remnants of the cattle fields, according to journalistic publications and official reports of the national government. These illegal plantations could be threatened by the presence of the project in the area (which will have its own security system²²); due to a possible migration of workers who are currently engaged in them, to the project's forest plantations (due to formal working conditions that could be attractive) or another situation. As a consequence, the groups responsible for these plantations could in turn threaten the safety of the project workers and the communities surrounding the forest fields.

In both cases, the forestry component of the project will not be the cause of said conflicts. Rather, its implementation may be a target of attack by groups that act illegally in the area, with the consequent exacerbation of an already sensitive local situation, through the generation of conflicts and alteration of the security and tranquility of the DIA communities. Along these lines, compliance with IFC PS 1 on "Evaluation and management of environmental and social risks and impacts" is essential regarding risks and impacts in the project's area of influence caused by the actions of third parties.

Finally, it is considered that the project could also contribute positively to the reduction of this type of activities in the area; since, by giving a source of work to nearby communities, it could generate "pressure" and the consequent displacement of these groups.

Besides that, in both phases of the forestry component of the project, the quality of life of the DIA population could be affected, mainly due to the increased flow of workers linked to the project. The aspects of quality of life affected would be, mainly, the tranquility and comfort of the current inhabitants, attending to the manifestations of high valuation of these characteristics of the area by the people interviewed in the field information survey.

The increase in the flow of workers and the presence of an unusual number of people associated directly and indirectly with the project in the DIA communities may promote the appearance (or increase) of activities such as sale and consumption of alcohol and drugs, prostitution, crime, gender violence, disrespect for the vulnerable population, disturbance of public peace due to a greater number of recreational and/or night-time activities (parties, leisure groups, etc.) on public roads and/or in homes within the communities, disrespecting current DIA quiet levels. Although it is expected that forest workers will be installed inside the forest plantation buildings, away from the urban/rural areas of the DIA communities and districts, it is estimated that they may also visit these urban/rural areas for reasons various such as shopping, recreation, etc. The presence of non-local laborers personnel could impact on the current tranquility of

22 PARACEL will make the necessary provisions so that personnel linked to the security system do not abuse their power, through specific internal protocols, in its Corporate Security Manual.

the DIA people, since they have referred that “getting to know each other” is a highly valued aspect in the communities, thus contributing to greater tranquility.

On the other hand, the current level of access to entertainment spaces for the local population may be diminished by an increase in demand for the use of these spaces, since the transitory and definitive population directly and indirectly associated with it will be installed in the DIA project, being able to generate competition for use between the different groups.

It could also generate uncertainty in the communities and alteration of the tranquility due to the use of chemical products that will occur in the plantation process - especially in exceptional cases by air - and the fears related to possible health effects or effects that may occur on the environment. The impact on the environment and health care have been comments raised in perception studies, where the need to safeguard both aspects has been mentioned as suggestions.

It should be noted that social networks are important factors for the subsistence of, above all, families with limited economic resources, since through them the burdens of family expenses, housework and child rearing are shared.

The ecosystem services of water used in the DIA are mainly those of provisioning and cultural. During field surveys, in perception studies, many people have expressed the use of water resources for recreation/recreation (bathing, beach, fishing), highlighting the Aquidabán river. Likewise; it is common in the DIA to practice fishing, both for sale and for self-consumption (for example, the towns of Paso Barreto, Paso Mbutu, Islería). In addition, the existing drinking water supply systems are supplied by groundwater, and, as for the communities that still do not have access to drinking water systems, the majority are supplied from deep wells, springs, cutwaters, rivers and streams.

During and after the use of chemical products (fertilizers, pesticides), both during the plantations and in the maintenance stage, these could be carried by runoff to the surface water courses of the area and/or infiltrated into groundwater. Fertilizers could cause exceptional fertilization processes of surface waters, with consequent degradation of the quality and habitat of the fauna for fishing, not to mention that the current use of land for grazing will be replaced by afforestation, and according to FAO data, livestock is the human activity that generates the greatest impact on water quality (PARACEL, 2021), so although this potential impact could be considered on a smaller scale compared to the current situation of land areas, to intervene by the project, pesticides that could reach watercourses and/or groundwater would also degrade the quality of the water and the habitat of fauna. In all cases, these events represent a direct risk to the health of the population through the consumption of water and fishery products, contact with potentially contaminated water, and a risk of decreased fishery productivity. Likewise, recreational activities would also impact due to the fear that contamination risks could instill in the population. Also, although to a lesser extent, the management of solid waste (containers, packaging, rags, papers, obsolete personal protection equipment, earth, sand, sawdust, etc.), and derived effluents (washing implements in contact with agrochemicals), the use of chemical products may cause these effects on water resources, with their economic, health and social consequences.

Although, according to the experience in MS23-Brazil and in Uruguay, afforestation with eucalyptus reduces erosive processes in relation to the grazed pasture or deforested area (PARACEL, 2021), the tillage activity could eventually cause erosive processes in

the time with drag; both soil and chemical products applied to surface water courses. Soil sedimentation in waterways could decrease the quality of drinking water, the productivity of fishing, and the recreational attractiveness of smaller waterways.

Likewise, during the road adaptation and maintenance works and the construction and maintenance of drainage works, there may be risks of sedimentation and alteration of the hydrological regime of the surrounding water courses, which in turn are used by the communities of the area for various purposes.

According to studies carried out in plantations in the MS-Brazil area, eucalyptus plantations present a water balance similar to that of the Cerrado native forest, and other studies carried out in Uruguay show that there are no significant differences in water availability in similar plots of grazing versus forested with eucalyptus (PARACEL, 2021). However, it is considered that, at the stage of implementation and maintenance of forest plantations, the consumption of water from these plantations could compete with the consumption used by the communities that use groundwater, especially in cases where a shortage at certain times of the year is already observed. Although not only forest plantations absorb water -but also other agricultural and native forest uses-, specific studies to monitor water levels²⁴ will be undertaken by the project, in order to confirm that the resources are not affected, or failing that, implement additional mitigation measures throughout the project cycle, not to mention that in Paraguay there is data that indicates that the water table remains the same or even increases in the presence of eucalyptus plantations (PARACEL, 2021).

Controlled burning, in the event of being used, could affect the ecosystem services of the native or implanted forest reserve areas, both in the PARACEL fields (riparian forests, reserve), and in reserve areas (private / public) adjacent to some of the fields with extensive current vegetation coverage (Paso Bravo Public Protected Wild Area and Bella Vista Private Reserve).

All the potential impacts mentioned will be prevented and/or reduced with strict measures of good practices in the field and of appropriate design (in the case of roads and drains). Furthermore, periodic monitoring of the actual occurrence and perception of the occurrence of these potential impacts will be crucial to implement the corresponding mitigation measures.

Finally, regarding the ecosystem service of supply of raw materials for artisan production and sale; it is possible to say that the forestry component of the project could affect the populations of karanday (*Copernicia alba*) that grow naturally in the fields of the DIA area and that are used as raw material for the production and sale of objects woven with vegetable fiber²⁵. In the field survey, in the DIA communities (Isla Hermosa, Domínguez Nigó, Anderí, Paso Mbutu, Paso Barreto), karanday crafts have been manifested as one of the main income-generating activities and there are artisan organizations.

So, PARACEL also plans to monitor the quality of the water; likewise, permanent monitoring of perception in the communities would be carried out, these being addressed in the Project's Environmental Management Plan.

Fundacion Natan, also mentioned the families resort to the forests of their own indigenous community for the extraction of wood, fruits, honey, herbs and vegetable

²⁴ Studies within the framework of the Environmental Management Plan, the results of which are expected to be disseminated within the framework of the PGS programs, both to the communities and to relevant stakeholders.

²⁵ It should be clarified that it does not refer to the extraction of karanday from the forest fields/to be forested fields in PARACEL.

fibers, which are used for food, medicine, construction and as fuel for cooking or shelter on the coldest days. Therefore, the biodiversity monitoring program will be performed.

Impact Characterization

	Qualitative	Quantitative
Nature:	Negative	-
Form of incidence:	Direct and Indirect	
Area of spatial coverage:	Local and regional	2
Probability of occurrence:	Certain	2
Moment of occurrence:	Long term	3
Time or duration:	Permanent	3
Reversibility:	Irreversible	2
Accumulation:	Type II Accumulation	
Magnitude:	Medium	2
Importance:	High	3
Mitigation possibilities:	Mitigated	
Degree of resolution of measures:	High	
Area of influence:	ADA, DIA	

Mitigation measures

Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program.

Control application of chemical products at soils and plantations, especially during eventual aerial spraying, with effects that could accumulate and/or last in the medium and long term, and manage solid waste and effluents, especially those with chemical content or that have been in contact with these products.

Consult people who work in some of the farms where the forest plantations.

Perform strict measures of good practices in the field and of appropriate design, in the case of roads and drains;

Monitor the quality and quantity of the water;

Carry out permanent monitoring of perception in the communities being addressed in the Social Management Program;

Perform Biodiversity Monitoring and Evaluation Plan.

As mentioned in the Land Acquisition and Displacement, Use of Ecosystem Services (under biological environment) and the Impact to Indigenous Communities sections, an Ecosystem Services Review should be carried out to understand the level of dependence that Project affected communities may have on specific ecosystem services, and to assess if any impacts upon access to those services may be severe enough to affect wellbeing.

Responsibility for the implementation of the measures

PARACEL.

Forecast after implementation of measures

DIA communities will not be affected by project activities that potentially impact on water resources, on traffic, among others because the mitigating measures will be corrected applied.

Quantitative Assessment

For quantitative analysis, the maximum score will be - 646 (34 qualitatively identified impacts x - 19 points per impact). The following Table presents the quantitative analysis of the impact assessment.

Table 17 – Quantitative analysis of the impact assessment

Phase	Identified impacts	Coverage area Probability of	Probability of occurrence	Time of occurrence	Timing or length	Reversibility	Magnitude	Importance	Total Positive	Total Negative	Sum
Planning	Land Acquisition and Displacement	-1	-1	-2	-3	-2	-2	-2		-13	-13
	Climate Change Long Term Physical Risk Assessment	-1	-1	-3	-3	-2	-2	-2		-14	-14
	Climate Change Short Term Risk Assessment	-1	-1	-1	-3	-2	-2	-2		-12	-12
Implantation/Operation	Impact to Air	-2	-2	-1	-1	-1	-1	-2		-10	-10
	Impact to Water	+2	+2	+1	+3	+1	+2	+2	13	-13	0
	Impact from Effluents	-1	-1	-1	-3	-1	-1	-2		-10	-10
	Impact from Runoff	+1	+2	+1	+3	+1	+2	+2	12	-12	0
	Impact to Streams and Morphology	-1	-2	-3	-3	-1	-2	-2		-14	-14
	Impact to Soil	-2	-2	-1	-3	-1	-2	-2		-13	-13
	Impact to Noise	-2	-1	-2	-1	-1	-1	-1		-9	-9
	Impact to Terrestrial and Aquatic Flora	-2	-2	-3	-3	-2	-2	-2		-16	-16
	Impact to Fauna	-2	-2	-3	-3	-2	-2	-3		-17	-17
	Use of Ecosystem services	-2	-2	-3	-3	-2	-2	-3		-17	-17
	Impacts to Critical / Natural Habitat	-2	-2	-3	-3	-2	-3	-3		-18	-18
	Impact to Legally Protected and Internationally Recognized Areas	-2	-2	-3	-3	-2	-2	-3		-17	-17

Phase	Identified impacts	Coverage area Probability of	Probability of occurrence	Time of occurrence	Timing or length	Reversibility	Magnitude	Importance	Total Positive	Total Negative	Sum
Implantation/Operation	Fragmentation of the natural landscape	-2	-2	-3	-3	-2	-2	-2		-16	-16
	Dust generation and suppression of local vegetation	-2	-2	-1	-3	-2	-2	-2		-14	-14
	Noise related disturbance on fauna	-2	-2	-1	-3	-2	-2	-2		-14	-14
	Eutrophication of rivers due to improper fertilization	-2	-2	-2	-3	-2	-2	-2		-15	-15
	Indirect impacts of pesticide use (fipronil) on community bee keeping	-2	-2	-2	-3	-2	-2	-2		-15	-15
	Harassment of workers to wild fauna and flora	-2	-2	-2	-3	-2	-2	-2		-15	-15
	Spread of invasive species along new roads and fire breaks	-2	-2	-1	-3	-2	-2	-2		-14	-14
	Risk of fire	-2	-2	-1	-3	-2	-2	-2		-14	-14
	Impact to Employment	3	2	1	3	2	2	3	16		16
	Impact to Indigenous Communities and Livelihoods	+2	+1	+1	+3	+2	+2	+2	13	-13	0
	Community health and safety through vector borne and communicable diseases	-2	-2	-3	-3	-2	-2	-3		-17	-17
	Impact to Community Health, Safety and Security	2	2	3	3	2	2	3	17		17
	Worker influx Increase	+2	+1	+1	+3	+2	+2	+2	13	-13	0
	Impact to Labor and Working conditions	-3	-2	-1	-3	-1	-2	-2		-14	-14
	Impact to Human Rights	3	2	1	3	1	2	2	14		14
Impact to Landscape and Visual	-1	-2	-1	-3	-2	-1	-1		-11	-11	

Phase	Identified impacts	Coverage area Probability of	Probability of occurrence	Time of occurrence	Timing or length	Reversibility	Magnitude	Importance	Total Positive	Total Negative	Sum
Imp/Oper.	Impact to Cultural Heritage	-1	-1	-1	-3	-2	-1	-1		-10	-10
	Impact to Community Uses and Dependencies on Ecosystem Services	-2	-2	-3	-3	-2	-2	-3		-17	-17
Full quantitative impact assessment									98	-429	-319

Note: For negative/positive impacts, the zero-impact value is considered in the quantitative totalization. Positive impacts are added and negative impacts are subtracted.

In the quantitative assessment, the total sum of the impact assessment, adding the positive minus the negative resulted in - 319 (negative), as shown in the Table 17 above; i.e. the quantitative sum of the negative impacts was greater than the sum of the positive impacts.

For evaluation purposes, the result of the total sum of the impact assessment was compared with the maximum achievable score (all negative impacts in the worst condition), which in this case was - 646 points (34 impacts x - 19 points per impact). This gave a result of 49,4%.

The score obtained if the mitigation measures are not applied and if there are no positive impacts, would be -429 points, or 66.4%.

In summary:

Total possible points: 646 points;

Total points added without the implementation of the proposed measures: -429 points, or 66.7%;

Total points added in this evaluation with the implementation of the proposed measures: -319 points, or 49,4%.

Since the percentage, with the implementation of the measures, is less than 50 %, it can be concluded that the company is environmentally viable. However, it is recommended that PARACEL implements all the measures proposed in this assessment to further minimize the negative impacts generated by the eucalyptus forestry.

7.1.5 Evaluation Summary Tables

Once the impacts were identified and evaluated, a synthesis framework - organized according to the affected environment and the respective phase of the project - allowed us to confront them with the attributes described above.

The evaluation of the environmental impacts in the areas involved, and the consequent proposal of mitigation or enhancement measures to be applied, were elaborated on the basis of the degree of change produced in the environmental components.

The following tables summarize the impacts expected for the planning, implantation and operation phases, respectively, of the eucalyptus forestry of Concepción and Amambay Departments.

The tables show the impacts identified and attribute the degrees to each one according to the capital letters used in the item 7.1.2 Methodology for environmental impacts assessment.

Table 18 – Planning Phase Impacts

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Socioeconomic	Land Acquisition	- Increase of land prices - Displacement and/or isolation of small properties	Impact to Land Acquisition and Displacement	N	D	L	P	MP	P	I	S	M	M	M	-	<p>Establish criteria for buying and leasing lands in the company strategic planning for wood supply, avoiding the isolation of properties.</p> <p>Compromise not to occupy lands with population settlements, and that does not require the physical or economic displacement of any person, family, group or community.</p> <p>Prioritize the development of eucalyptus plantations on modified habitat. Totally avoid plantation development in or adjacent to legally protected areas, or on forest and wetland natural habitats, and avoid planting the good condition natural Cerrado habitat complexes.</p> <p>Undertake an ecosystem services review to establish the extent of potential displacement of access to priority ecosystem services because of the Parcel project. Mitigate any significant impact if found.</p>	A	Not occupying lands with population settlements, and that does not require the physical displacement of any person, family, group or community, as well as prioritizing the development of plantations in anthropized with cattle farming areas, not occupying legally protected areas, forest and wetland natural habitats and the best condition natural Cerrado habitat, as well as avoid the isolation of properties, will bring confidence and satisfaction to the population regarding the implementation of the project, contributing to the good image and transparency of the company. Natural habitats avoided and protected within Parcel properties (and possibly beyond if offsets are implemented) will improve future security of access to provision ecosystem services that indigenous communities derive from lands outside their territories.

Table 19 – Planning Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Climate Change	Formation of the eucalyptus forest	Global warming	Impact to Climate Change Long Term Physical Risk Assessment	N	D	L	P	LP	P	I	S	M	M	M	-	<p>Carry out periodic monitoring of GHG emissions and C capture in forest plantations, once established, using allometric equations for this specific case. Since the site index varies depending on different factors (such as the type and quality of soil, meteorological parameters, genetic material used, diseases and others), the aforementioned would be justified, if a more exact value is intended.</p> <p>Establish criteria for buying and leasing lands in the company strategic planning for long term wood supply, avoiding the eastern portion of the Santa Teresa and the southern portion of the Zapallo areas, because the plantations are located in a potential landslide hazard zone with a medium potential risk of rainfall triggered landslides several times a year (4 days on average) by the 2030s.</p>	A	<p>PARACEL project will contribute to the capture of carbon (net negative emissions) from the atmosphere and will be a source of energy with neutral emissions in terms of GHG. Not occupying lands with a potential landslide hazard zone with a medium potential risk of rainfall triggered landslides, lower the Company Climate Change Risk.</p>

Table 20 – Planning Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Climate Change	Formation of the eucalyptus forest	Global warming	Impact to Climate Change Short Term Risk Assessment	N	D	L	P	CP	P	I	S	M	M	M	-	Adopt firefighting procedures (observation towers, firebreaks, etc.) and constant training of brigade staff for these procedures. Build firebreak capable of protecting and giving access to the planting areas due to the most common fire outbreaks.	A	PARACEL will contribute to protect areas of plantations against fire, which may slow down the Transitional Climate Change process.

Table 21 – Implantation/Operation Phase Impacts

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Physical	Movement of vehicles and machines	Dust generation	Impact to Air	N	D/I	L/R	C	I	T	R	II	B	M	M	-	Perform maintenance on the engines of machines, trucks and vehicles used by the company; Humidify the internal circulation routes and use gravel on roads in order to make a safer access and preventing dust spread, whenever necessary; Cover the trucks transporting earth, rocks and all powdery material with tarpaulins.	A	It can be stated that, through the implementation of mitigation measures, air quality will not be changed, nor will be disturbances to people/community due to dust generation.

Table 22 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Physical	Water consumption	Availability of superficial and ground water	Impact to Water	N/P	D	L/R	C	I	P	R	II	M	M	M	-	Direct the expansion areas to the regions with highest rainfall index in the region. Adapt the management plantation to the crop rotation period. Adopt forest management with water-saving strategies. Plan plantations in the Aquidaban and Apa River basins, and their sub-basins (Arroyo Pytanohaga, Arroyo Trementina, Arroyo Negla, Arroyo Paso Bravo) with economically viable mosaics. Develop a water availability-demand study in the sub-basins aiming to define and propose measures to reduce conflicts between water uses and users. Develop micro basins monitoring, involving ecosystems formed by planted and native forests. Consolidate the monitoring of surface water, water use in its farms and surroundings, especially with regard to water quality. Study the best spacing of the eucalyptus plantation in certain areas with greater water and soil restriction and the increase of native vegetation areas. Equate the best proportion between eucalyptus plantation areas and areas with native vegetation. Protect riparian areas in properties especially upstream of water intake for human demand. Develop a water availability-demand study to estimate water usage before and after planting of Eucalyptus on grassland, and potential impacts to water supply on surrounding wetlands. Perform Biodiversity Action Plan, water management program, surface and ground water quality monitoring program and Biodiversity Monitoring & Evaluation Plan; Meet IFC EHS Guidelines for Perennial Crop Production.	A	The reduction of water consumption in eucalyptus plantation, the plantation plan in mosaic form and the preservation of legal reserve areas and permanent preserved areas (including riparian areas) reduce possible interferences in water availability in the region of the projects' farms.

Table 23 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Physical	Inadequate disposal of effluents and sanitary sewage	Effluents generation	Impact from Effluents	N	D	L	P	I	P	R	II	B	M	M	-	Take measures to certify that the company hired to collect the sanitary sewage from the workers camps is properly regulated, and that the wastewater is disposed of in an environmentally sound manner; Perform the maintenance of vehicles, machines and equipment in properly authorized locations; The agricultural inputs, must meet the specifications of use; Implement containment lagoons with waterproof surface in the case of storage tanks.	A	It can be stated that there will be no change in the quality of surface water or groundwaters, since the sanitary sewage generated during the works will be duly treated and disposed of in an environmentally appropriate manner and in accordance with the legislation in force.

Table 24 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Physical	- Opening accesses and roads - Formation of the eucalyptus forest	Forest Management Practices	Impact from Runoff	N/P	D	L	C	I	P	R	II	M	M	M	-	Remove plant cover from soil only in places where forest planting is strictly necessary. Protect water bodies with dams, to avoid hauling land. Rationalization of access opening, soil restoration, implementation of the drainage system and restoration of plant cover. Perform slope protection and stabilization, with drainage channels and vegetation planting. Perform erosion control at soil monitoring program. Reducing soil preparation and planting in curves levels, avoiding surface runoff of rainwater. Maintaining plant cover between plantation lines. Keep debarked materials in the forests, to cover the farm soil with organic matter.	A	With the adoption of the planting and soil conservation practices performed by PARACEL, there will be no increase on susceptibility to erosion, soil compaction and waterproofing, not interfering significantly on runoff.

Table 25 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Physical	Formation of the eucalyptus forest	Eucalyptus plantation in appropriate places	Impact to Streams and Morphology	N	D	L	C	LP	P	R	II	M	M	M	-	Adopt methods to restore degraded or destroyed natural forests, including riparian zones of 100 m either side of rivers or smaller tributaries; Properly store, treat and dispose of solid waste in accordance with current legislation; Perform qualitative-quantitative monitoring program for water resources; Training and qualification of workers regarding conservation of preserved areas; Preservation and recovery of degraded areas of dry Cerrado savanna habitats that remain in better condition; Implement the Biodiversity Action Plan and Biodiversity Monitoring and Evaluation Plan.	A	One of the solutions to meet the demand to mitigate the problem of deforestation, as well as a strategy for the conservation and recovery of existing degraded land in the tropics, is the establishment of forest plantations and agroforestry systems designed under sustainability criteria. Besides complying with IFC Performance Standards which assure no net loss to Natural Habitats and a Net Gain to the biodiversity features for which Critical Habitat is designated, PARACEL owned plantations will be FSC certified and so will avoid areas of High Conservation Value as defined at the national level under FSC criteria and contribute to the ecosystem.

Table 26 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Physical	- Use of agricultural inputs - Formation of the eucalyptus forest	- Inappropriate disposal of solid waste - Loss of soil nutrients	Impact to Soil	N	D	L/R	C	I	P	R	II	M	M	M	-	Supervise the collection, packaging, storage and transport of solid waste in accordance with current legislation from worker accommodations areas. Perform Workers Accommodation Plan. Perform the maintenance of vehicles, machines and equipment in duly authorized locations. Promote the training of staff involved in forestry activities, especially those involved with pesticides uses. Use the agricultural inputs, such as fertilizers, herbicides, fungicides and insecticides, according to the specifications of use. Perform triple washing of empty packages, before their duly licensed destination. Forward empty packets to the receiving center of the region duly licensed. Empty packages of plant protection products must be collected and delivered to their return point. Perform waste management plan against soil contamination by solid waste. Perform agrochemicals management program and hazardous materials management program, in order to prevent risks to the environment.	A	The soil, groundwater and/or surface water quality will not change, due to the adoption of measures for the use of pesticides and management of their packaging.

Table 27 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Physical	Movement of vehicles and machines	Noise generation	Impact to Noise	N	D	L/R	P	MP	T	R	II	B	P	M	-	Carrying out maintenance on machine, truck and vehicle engines; Carrying out activities in the area predominantly in the work daytime period.	A	It can be said that, through the implementation of mitigation measures, there will be no significant noise disturbance.

Table 28 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Formation of the eucalyptus forest.	Replacement of pasture and/or other plantations areas with eucalyptus forestry planted areas.	Impact to Terrestrial and Aquatic Flora	N	D	L/R	C	LP	P	I	II	M	M	M	-	Conduct road open planning to minimize natural habitat fragmentation; avoid developing roads or services in watercourse, wetland, forest or good condition savanna Cerrado areas.; Delimitate firebreaks to protect permanent preservation areas; Remove natural tree/shrub cover only where strictly necessary; Carry out detailed territorial planning (Planting Development Management Plan), avoiding disturbance of natural vegetation or soils in the Riparian Zones; and restoring with species native to the ecosystem any riparian and spring areas where vegetation has been degraded or erosion is occurring; Implement a landscape ecology design, ensuring conservation areas (i.e., avoidance or set-asides and Biodiversity Offsets) and restoration areas (restoring impacts not associated with Paracel so also contributing to the Biodiversity Offset strategy) create ecological corridors and a representative mosaic of Cerrado habitats where possible; Eliminate/cut any eucalypt specimens spread into conservation areas, preventing the formation of eucalyptus forests outside plantation areas; Implement the Biodiversity Action Plan & Biodiversity Monitoring & Evaluation Plan.	A	The actions adopted by PARACEL will preserve all wetlands, floodable savanna and riparian zones as well as all areas of native forest vegetation with a patch size of ≥ 1 ha. Better condition savanna Cerrado habitats will also be preserved toward attaining a no net loss or net gain biodiversity target.

Table 29 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact													Forecast after implementation of measures	
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement		Degree of resolution of measures
Biotic	- Opening accesses and roads - Formation of the eucalyptus forest	- Risk of running over animals - Hunting risk - Habitat loss	Impact to Fauna	N	D/I	L/R	C	LP	P	I	II	M	G	M	-	Perform wildlife monitoring/research and rescue/relocation program, prior to works; Install signs on the main access routes to the planted areas through the wildlife safety and alert program, including installation of fauna passageways; Intensify surveillance activities in partnership with local authorities and neighbors to prohibit hunting and logging in Parcel properties; Perform worker education on hunting prohibition; Consider the mosaics and characteristics of native habitats in the Plantation Development Management Plan; Proceed planting by mosaics blocks, so that the land is prepared in places strictly necessary for the implementation of forest plantation; Perform the restoration of forests in riparian zones; Recover currently degraded forest areas; In addition to conservation approaches applicable to the Parcel properties in general, commit to establish buffers along the border with the National Parks adjacent to two plantations (Soledad and Zanja Moroti) and to pay special attention to managing the biosphere reserve buffer area, which overlaps portions of three plantations (Zapato, Santa Teresa, and Hermosa), in accordance with affected stakeholder consultations in the absence of an existing the biosphere reserve's management plan. Perform Biodiversity Management Program as per the BAP.	A	It can be stated that the risk on local fauna will be minimized by the implementation of the proposed mitigation measures.



Table 30 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Formation of the eucalyptus forest	Ecological balance	Use of Ecosystem Services	N	D/I	L/R	C	LP	P	I	II	M	G	M	-	Maintain high forests and riparian forests. Maintain representative samples interconnected with the other types of Cerrado. Monitor the Cerrado biodiversity. Planning of plantations. Implement an Ecosystem Services Review to establish the level of dependency vulnerable communities have on the Ecosystem Services which are derived from within the Paracel properties. Evaluate the net impacts of Paracel's road network improvements, plantations and conservation activities upon the 'priority ecosystem services' (i.e., those upon which vulnerable communities have high levels of dependence for their well-being) and design mitigation measures as appropriate. It is noted that the reduction in cattle grazing because of Paracel plantations establishment could reduce an important source of protein for some families in the Indigenous communities and increase their reliance on hunting.	A	The actions adopted by PARACEL to preserve the areas of native vegetation, with all types of Cerrado, riparian permanent persevered areas and legal reserve of its own forest lands, in addition to the legal requirement, will aim not to impact significantly in the ecosystem services.

Table 31 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Formation of the eucalyptus forest	Replacement of Habitats with eucalyptus forestry planted areas	Impacts to Natural or Critical Habitat	N	D/I	L/R	C	LP	P	I	II	M	G	M	-	<p>Eucalyptus plantations will be designed to implement the Mitigation Hierarchy, avoiding Critical and Natural Habitats where feasible and implementing a Biodiversity Action Plan (BAP) designed to achieve Net Gain for biodiversity values designating Critical Habitat, and No Net Loss for values designating Natural Habitat. The BAP will include design of Biodiversity Offsets where necessary. A full Critical Habitat Assessment will be developed to determine habitat importance (i.e., Critical, Natural, Modified) as per PS6 definitions. Commit to protect all areas of native forest within the owned plantation lands, as well as to reforest and/or restore riparian gallery forest with native species within a 100 m buffer along rivers and smaller tributaries. Commit to establish buffers along the border with the National Parks adjacent to three plantations (Soledad, Zanja Moroti and Zapallo) and to manage the biosphere reserve buffer area, which overlaps portions of three plantations (Zapallo, Santa Teresa, and Hermosa). In order to appropriately manage the buffer zone, resolution 200/2001 Art. 31 regarding biosphere reserves will be taken into account, consultation with affected parties will need to occur and a management plan will need to be approved. Maintain high forests and riparian forests in plantations farms. Maintain a representative mosaic of interconnected Cerrado habitat types of Cerrado. Monitor the Cerrado biodiversity within the farms. Planning the plantations areas avoiding impacts on fauna and flora. Perform Biodiversity Monitoring and Evaluation Plan. In order to assist with implementing the Mitigation Hierarchy, Paracel commit to the criteria for establishing conservation vs planted areas in the plantations. Note that criteria for establishment of plantations in savanna Cerrado habitats in order to meet PS6 requirements are to be developed</p>	A	The mitigating measures, if effectively managed and implemented, should contribute to the protection of the biodiversity of the region, provide greater landscape connectivity for flora and fauna, and protect water resources and ecosystem services.

Table 32 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Formation of the eucalyptus forest	Replacement of Habitats with eucalyptus forestry planted areas	Impacts to Legally Protected and Internationally Recognized Areas	N	D/I	L/R	C	LP	P	I	II	M	G	M	-	<p>Commit to protect all areas of native forest within the owned plantation lands, as well as to reforest and/or restore riparian gallery forest with native species within a 100 m buffer along rivers and smaller tributaries.</p> <p>The Project is proposing to keep the Soledad and Zanja Moroti properties that border Paso Bravo National Park totally free of plantations and is considering doing the same for the contiguous Ronaldo plantation. The project has committed to establish 1 km buffers along the borders with the National Parks and the three adjacent properties.</p> <p>It is recommended that the Biodiversity Offset strategy focus on considering actions to increase the management effectiveness of the Protected and Internationally Recognized Areas nearest the Parcel properties, including the core and buffer areas of the Biosphere Reserve.</p> <p>A Biodiversity Offset feasibility study will evaluate whether it is feasible to implement management actions to reduce the ongoing and future threats to the biodiversity features within the Protected and Internationally Recognized Areas. This evaluation of threats will involve an analysis of rates and drivers of land-use change and habitat degradation in the region which should be used to inform an assessment of the potential indirect impacts to the Protected and Internationally Recognized Areas from the Project (e.g., by facilitated access to the areas).</p> <p>Parcel is negotiating an agreement with SENAD (the Paraguayan anti-drug agency) to establish a joint Parcel-SENAD work program to help prevent the cultivation of drugs and so protect deforestation for illicit plantations.</p>	A	The mitigating measures, if effectively managed and implemented, could make an important contribution to the protection of the biodiversity of the region, provide greater landscape connectivity for flora and fauna, and protect water resources and ecosystem services. The mitigation possibility category of ‘partially mitigated’ is applied owing to the uncertainty of both the potential adverse indirect impacts and positive (offsetting) impacts on these areas outside of the direct control of Parcel.

Table 33 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Formation of the eucalyptus forest.	Replacement of Habitats with eucalyptus forestry planted areas.	Fragmentation of the natural landscape	N	D	L/R	C	LP	P	I	II	M	M	M	-	Remove the tree/shrub cover from the ground only where strictly necessary; Carry out planting territorial planning, marking the Riparian Zones in order to favor organized spatial occupation and cause minimal impacts; Recovery of riverside areas and springs without vegetation or with erosion / sedimentation by planting endemic species in the region; Conduct road open planning to avoid roads or services in areas of natural drainage and forest formation; Plan plantation to improve connectivity. Open areas not planted will be retired from grazing and so if free of invasive grasses will recover to improve connectivity. Parcel plans to not plant in some Properties will serve to protect natural mosaics of the full range of Cerrado habitats that are connected with the National Parks. The Biodiversity Offset design should take into account opportunities to reduce fragmentation and improve connectivity, for example through sustainable management of the Biosphere Reserve buffer zone.	A	The actions adopted by PARACEL preserve the areas of native vegetation, riparian permanent persevered areas and legal reserve of its own forest lands, in addition to the legal requirement, minimizes the impact. When compared to the non-project scenario of ongoing conversion and degradation of natural habitat throughout the Project landscape, well designed Biodiversity Offsets have the potential to have a net-gain with respect to fragmentation of the Cerrado habitats mosaic.

Table 34 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact													Forecast after implementation of measures	
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement		Degree of resolution of measures
Biotic	Formation of the eucalyptus forest.	Replacement of Habitats with eucalyptus forestry planted areas.	Dust generation and suppression of local vegetation	N	D	L/R	C	CP	P	I	II	M	M	M	-	Manage the cutting period and its spatial extension, in order to avoid or minimize the loss of populations occurrence such as arthropods and other animals with limited mobility. Plan a management through Forest Mosaic, in order to favor the displacement of fauna species.	A	The actions adopted by PARACEL preserve the areas of native vegetation, riparian permanent persevered areas and legal reserve of its own forest lands, in addition to the legal requirement, minimizes the impact.

Table 35 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Formation of the eucalyptus forest.	Replacement of Habitats with eucalyptus forestry planted areas.	Noise related disturbance on fauna	N	D	L/R	C	CP	P	I	II	M	M	M	-	Manage the cutting period and its spatial extension, and give preference to low noise emission machines, in order to avoid or minimize the disturbance in local fauna. Avoid removal of vegetation and specially during nesting and breeding season of birds and fauna.	A	The actions adopted by PARACEL will minimize the impact.

Table 36 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Inadequate use of fertilizer.	Use of fertilizer.	Eutrophication of rivers due to improper fertilization	N	D	L/R	C	MP	P	I	II	M	M	M	-	<p>Perform agrochemicals management program and hazardous materials management program, in order to prevent risks to the environment.</p> <p>Exclude the use of all hazardous pesticides that contain or main contain active ingredients listed as prohibited by the FSC.</p> <p>Monitor the leaching of nutrients and agrochemicals and their potential impacts on freshwater ecosystems.</p>	A	The actions adopted by PARACEL will minimize the impact.

Table 37 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Inadequate use of pesticide.	Use of pesticide.	Indirect impacts of pesticide use (fipronil) on community bee keeping	N	D	L/R	C	MP	P	I	II	M	M	M	-	Perform agrochemicals management program, in order to prevent risks to the environment and protect the health of all employees. Exclude the use of all hazardous pesticides that contain or main contain active ingredients listed as prohibited by the FSC. Interview periodically the local bee keepers and compare their local bee colonies monitor data with the use of pesticide (fipronil).	A	The actions adopted by PARACEL will minimize the impact.

Table 38 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact													Forecast after implementation of measures	
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement		Degree of resolution of measures
Biotic	Opening accesses and roads and Formation of the eucalyptus forest.	Risk of running over animals and Hunting risk.	Harassment of workers to wild fauna and flora	N	D/I	L/R	C	MP	P	I	II	M	M	M	-	Perform wildlife monitoring/research and rescue program; Install signs on the main access routes to the planted areas through the wildlife safety and alert program, and police speed limits; Intensify surveillance activities in partnership with local authorities and neighbors to avoid animal hunting and breaches of traffic control rules; Prohibit hunting by workers and install signs prohibiting hunting.	A	It can be stated that the risk on local fauna will be minimized by the implementation of the proposed mitigation measures.

Table 39 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Biotic	Opening accesses and roads and Formation of the eucalyptus forest.	Risk of spread of invasive species.	Spread of invasive species along new roads and fire breaks	N	D	L/R	C	CP	P	I	II	M	M	M	-	Monitor continuously the invasive species along new roads and fire breaks; Plant native grasses within fire breaks. Implement an Invasive Species Management plan to avoid and control the spread of invasive species due to the plantation operations, focusing on invasive pasture grasses and machinery, fire breaks or road verges as means of transmission.	A	The actions adopted by PARACEL will minimize the impact.

Table 40 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact													Forecast after implementation of measures	
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement		Degree of resolution of measures
Biotic	Opening accesses and roads and Formation of the eucalyptus forest.	Risk of fire.	Risk of fire.	N	D/I	L/R	C	CP	P	I	II	M	M	M	-	<p>Perform preventive measures aiming to eliminate or minimize cause and condition of fire.</p> <p>Implantation of a network of surveillance towers for the detection of forest fires requires studies of the topographic characteristics of the region, calculation of the visual range of the operators / cameras of the towers and analysis of maps of fire risk based on previous occurrence records.</p> <p>In the event of a fire, the main measures to be taken are:</p> <ul style="list-style-type: none"> - Speed and effectiveness of the initial combat to the fire outbreak to prevent this outbreak from spreading and taking on large proportions. In order for the action time to be as short as possible, an efficient system for monitoring, detecting, communicating and mobilizing firefighting resources is necessary; - Access conditions, this means that road and bridge conditions must not prevent combat resources from reaching the desired location quickly; - Fire brigades, which consist of a water truck structure and pickup trucks with combat kits. It is recommended to have a structure of 1 (one) water truck and 1 (one) fire brigade for each 20 thousand hectares of forest plantation, for greater agility and effectiveness in combat; - Annual training of the firefighting team, reviewing all combat concepts and techniques, such as the use of retardants, fire-fighting techniques, cleaning and opening fire breaks, safety during combat, the essential equipment for the activity and how to handle them, etc. When properly trained and well positioned, the combat team becomes able to quickly locate the outbreaks and effectively implement the communication and control measures, thus reducing the risk of fire propagation; - Effective communication systems, as they guarantee the quick activation of the entire combat team and almost immediate action. <p>Take into account climate change predictions (drier and more extended dry season, and more extreme temperature frequency and duration) to ensure that firebreaks between plantations and native forest patches are of sufficient width to avoid fire spread into the native forests.</p>	A	The actions adopted by PARACEL will minimize the impact.

Table 41 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact													Forecast after implementation of measures		
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Degree for enhancement		Mitigation measures or enhancement	Degree of resolution of measures
Socioeconomic	Manpower demand for the eucalyptus formation	Hiring of manpower for eucalyptus formation	Impact to Employment	P	D/I	L/R/E	C	I	P	I	III	M	G	-	A	A	Promote a dissemination campaign to hire labor for the company through the Dissemination and Communication Program; Articulate with professional education organizations and institutions for the professional training of the local population through the Program for the Development and Linking of Local Labor.	A	Following the implementation of the enhancement measures, it can be assumed that PARACEL will promote the hiring of available labor in the department of Concepción, San Pedro and Amambay, as well as train the local population.



Table 42 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact													Degree of resolution of measures	Forecast after implementation of measures	
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Degree for enhancement			Mitigation measures or enhancement
Socioeconomic	Land use for eucalyptus plantation	Possibility of affecting cultural indigenous resources	Impact to Indigenous Communities and Livelihoods	N/P	D/I	L/R	P	I	P	I	II/III	M	M	M	M	M	<p>Perform Indigenous Consultation and Consent Procedure.</p> <p>Promote indigenous labor inclusion in PARACEL and in the ventures of its value chain, considering the cultures of origin of indigenous workers.</p> <p>Monitor the adaptation of indigenous people who must reside in temporary accommodation. Prevent disrespect for the rights of indigenous peoples and discrimination against hired indigenous people and those residing in temporary accommodation.</p> <p>Implement a Women's Empowerment Program and a Health and Safety Program.</p> <p>Strengthen road safety on the roads that are used in a shared way by the project and the indigenous communities.</p> <p>Perform Relationship Program with Indigenous Communities.</p> <p>The ESR (Ecosystem Services Review) (mentioned as a mitigation measure to be implemented in the 'Use of Ecosystem Services' and 'Land Acquisition & Displacement' sections) should place special attention on the potential impacts of the Project on access to Priority Ecosystem Services for Indigenous communities which could affect their wellbeing.</p> <p>If the significant conversion of Natural Habitat is predicted to occur (subject to confirmation by the Critical Habitat Assessment), then IFC PS6 requires consultation with affected communities and any Indigenous communities that would have used ecosystem services in these areas should be consulted; this consultation could form part of the ESR.</p>	M	It can be said that there will be a negative Impact to Indigenous Communities and Livelihoods due to change of land use to eucalyptus plantation, but the development of the forestry component of the project could lead to a greater attractiveness for the sale of real estate by the current owners to those interested in expanding the business, may be considered a positive impact. Other than that, PARACEL will make efforts not to cause any disturbance to Indigenous Communities and Livelihoods, compromise to get Indigenous Consent in the direct influence area (DIA).

Table 43 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Socioeconomic	- Cleaning the land - Opening accesses and roads	Accumulation of standing water	Community health and safety through vector borne and communicable diseases	N	D/I	L/R	C	LP	P	I	II	M	G	M	-	Support health campaigns in the DIA communities; Carry out specific studies to systematize information from the USF; and then deliver them to the MSPyBS, performing a disease baseline study. Monitor the health data of the community.	A	The proliferation of vectors will be minimal to maintain surveillance activity for guiding measures that neutralize the conditions favorable to the proliferation of mosquitoes and other vectors in the space occupied by the project and its area of influence.

Table 44 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Socioeconomic	Mobilization of workforce	Impact the infrastructure services	Impact to Community Health, Safety and Security	N	D/I	L/R	C	LP	P	I	II	M	G	M	-	<ul style="list-style-type: none"> – Adopt the best environmental practices regarding water, effluent, solid wastes and noise controls, not to cause disturbance according with the Community Health and Safety Program; – Address issues such as health, hygiene and safety in the Relationship Plan with the Community and other Social Actors; – Request public agencies to supervise safety, to inhibit illegal acts. 	A	PARACEL has compromised to adopt the best environmental practices regarding water, effluent, solid wastes and noise controls, not to cause disturbance according with the Community Health, Safety and Security Plan.



Table 45 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact															
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Degree for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Socioeconomic	Mobilization of workforce	Impact the infrastructure services	Worker Influx Increase	N/P	D/I	L/R	P	I	P	I	II/III	M	M	M	M	M	Maintain the commitment to prioritize the hiring of local labor; Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program; Articulate with professional education organizations and institutions for the professional training of the local population through the Program for the Development and Linking of Local Labor; Offer Labor and Working Conditions for the employees especially in terms of health plan and transportation.	M	The migration will impact on the available infrastructure, but it is estimated that the main migration of workers may occur from the extensive and small-scale agriculture and livestock sector; that is to say, small producers, as well as self-employed workers – mainly informal ones – towards the project. According to the surveys carried out among residents, the low profitability of agricultural production is one of the economic problems that affect the communities, which may give a notion that, given better income opportunities, people would choose to change productive area.



Table 46 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact													Forecast after implementation of measures			
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Degree for enhancement		Mitigation measures or enhancement	Degree of resolution of measures	
Socioeconomic	Mobilization of workforce	Sustainable Practices	Impact to Labor and Working Conditions	P/N	D/I	L/R/E	C	I	P	R	II	I	M	M	-	M	A	<p>Promote a dissemination campaign to hire labor for the company through the Dissemination and Communication Program, offering all benefits for good work conditions;</p> <p>Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program, offering third parties benefits for good work conditions.</p> <p>Perform Program for Development and Linkage with the Local Workforce.</p>	A	The local economy tends to benefit from the emergence of jobs demands, linked both directly to the activity of the company's execution and indirectly, and potentialized through offering benefits for good work conditions.

Table 47 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact													Degree of resolution of measures	Forecast after implementation of measures		
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Degree for enhancement			Mitigation measures or enhancement	
Socioeconomic	Mobilization of workforce	Governance	Impact to Human Rights	P	D/I	L/R/E	C	I	P	R	II	I	M	M	-	M	A	<p>Respect internationally recognized human rights; Adopt adequate measures for the prevention, mitigation and, where appropriate, remediation of adverse impacts on human rights; Monitoring the health and safety of its workers, equal opportunities and the promotion of non-discrimination by gender, religion, ethnicity, race, sexual orientation, social status or any other factor, within the framework of full respect for human rights. Perform Equal Opportunity and Non-Discrimination Programs.</p>	A	<p>By adopting Universal Declaration of Human Rights as a common standard of achievement for all peoples and all nations, PARACEL ensures to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms and by progressive measures, national and international, to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the peoples of territories under their jurisdiction.</p>

Table 48 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact																	
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Degree for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures		
Socioeconomic	Formation of the eucalyptus forest	Land use change	Impact to Landscape and visual	N	D	L	C	I	P	I	II	I	B	P	P	M	-	-	Establish a management of the farms, among other measures, such as Forest Mosaics, in order to have a natural variability throughout the landscape. The Forest Mosaic can be introduced, among other measures, with the planting of eucalyptus in plots with different planting ages, interspersed with ecological corridors and territorial planning of the allocation of legal reserve. Plan the land in order to allocate the Areas of Legal Reserve to increase and enhance the benefits of Forest Mosaics and Ecological Corridors.	A	The change in the landscape is inevitable, but the maintenance of planting on different ages through forest mosaic and the preservation of riparian area to minimize the visual impacts caused after harvest.

Table 49 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact														
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities	Possibilities for enhancement	Mitigation measures or enhancement	Degree of resolution of measures	Forecast after implementation of measures
Socioeconomic	- Earth moving activities - Formation of the eucalyptus forest	Possibility of affecting cultural heritage sites	Impact to Cultural Heritage	N	D	L	P	I	P	I	S	B	P	M	-	Take actions to ensure that the company's activities do not affect or destroy any cultural property considered as protected heritage through the Archaeologic Finding Chance Program.	A	It is possible to affirm that there will be no interference with the cultural heritage, taking into account that the area where the project will be implemented is significantly anthropized. Furthermore, all mitigation measures will be taken so that there is no possible interference with the cultural heritage in accordance with the law in force.

Table 50 – Implantation/Operation Phase Impacts (cont.)

Component	Activity (Impact-Generating Factor)	Aspect	Impact	Characterization of the impact											Degree of resolution of measures	Forecast after implementation of measures		
				Nature	Form of incidence	Spatial coverage area	Probability of occurrence	Time of occurrence	Time or length of time	Reversibility	Accumulation	Magnitude	Importance	Mitigation possibilities			Possibilities for enhancement	
Socioeconomic	Land use for eucalyptus plantation	Possibility of affecting ecosystem resources	Impact to Community Uses and Dependencies on Ecosystem Services	N	D/I	L/R	C	LP	P	I	II	M	G	M	-	Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program; Control application of chemical products at soils and plantations, especially during eventual aerial spraying, with effects that could accumulate and/or last in the medium and long term, and manage solid waste and effluents, especially those with chemical content or that have been in contact with these products; Consult people who work in some of the farms where the forest plantations; Perform strict measures of good practices in the field and of appropriate design, in the case of roads and drains; Monitor the quality of the water; Carry out permanent monitoring of perception in the communities being addressed in the Social Management Program. As mentioned in the Land Acquisition and Displacement, Use of Ecosystem Services (under biological environment) and the Impact to Indigenous Communities sections, an Ecosystem Services Review should be carried out to understand the level of dependence that Project affected communities may have on specific ecosystem services, and to assess if any Project impacts upon access to those services may be severe enough to affect wellbeing.	A	DIA communities will not be affected by project activities that potentially impact on water resources, because the mitigating measures will be corrected applied.



6	<i>Tapirus terrestris</i>	South American Tapir	VU	VU							NA	NA	not qualifying	Detected in eDNA
7	<i>Tayassu pecari</i>	White-lipped peccary	VU	VU							NA	NA	not qualifying	Detected in eDNA
12	<i>Sylvilagus brasiliensis</i> (Linnaeus, 1758)		EN										not qualifying	According to GBIF, this species is widely distributed across South and Central America. The IUCN geographic range distribution map shows this species as resident in Brazil, between Arrecife and Maceió y Eastern Brazil. Current taxonomical research is looking at this species, due to the potential that this species may actually be several different species or subspecies. After consultation with expert Dr Luis Ruedas, the recommendation in the future is to also look for <i>Sylviagus paraguensis</i> (Thomas 1901), and also await further research.
13	<i>Blastocerus dichotomus</i>	Marsh Deer	VU										not qualifying	
14	<i>Priodontes maximus</i>	Giant Armadillo	VU										not qualifying	
15	<i>Mazama nana</i>	Brazilian Dwarf Brocket	VU	EP									not qualifying	
16	<i>Leopardus guttulus</i>	Southern Tiger Cat	VU				unlikely						unlikely	Very broad distributional range across Brazil, Bolivia and Paraguay, with the AoA overlapping less than 1% of the EOO. 6047 mature individuals
18	<i>Leopardus tigrinus</i> (Schreber, 1775)		VU										not qualifying	Not present in AoA, very broad distributional range across northern South America.
19	<i>Dasyprocta azarae</i>	Akuti po'i	DD										unlikely	Decreasing. Resident in an area much larger than 1% of the AoA.
23	<i>Natalus stramineus</i>	Murciélago Oreja de embudo	LC	EP										One of the rarest bats in Paraguay and in Concepción with the southernmost site. It could possibly qualify as of stakeholkder concern, but nor for critical habitat since it has been assessed globally as LC
Amphibians														
1	<i>Rhinella scitula</i>	Sapito del cerrado/Cope's toad	DD	AE	May be	Ende				possible	NA	NA	Possible	GBIF shows distribution in Western Brazil. Little is known about this species and further research is required. EOO possibly less than 50,000km2,



									ely					has shown signs of a recovery and expanded its range (Pinho and Nogueira 2003, Anon. 2004)
7	<i>Crax fasciolata</i>	Bare faced curassow	VU	VU				unlikely			NA	NA	Unlikely	Very broad distributional range across South America.
11	<i>Amazona vinacea</i>	Vinaceous-breasted Amazon	EN	EP			possible						Possible	1000-2499 mature individuals, with a distribution range that overlaps with the AoA can be around 0.5% according to the IUCN map. GBIF and eBird do not distribution of <i>Amazona vinacea</i> in the AoA.
12	<i>Buteogallus coronatus</i>	Crowned solitary eagle	EN				possible						Possible	255-999 mature individuals, with a distribution range that overlaps (IUCN) with the AoA can be around 0.1-0.5%. GBIF shows a very broad distributional range across South America.
13	<i>Sporophila palustris</i>	Marsh seedeater	EN	EP			possible						Possible	IUCN stated that there are 600-1700 mature individuals, with a distribution range that overlaps (IUCN) with the AoA can be around 0.5%, although AoA potentially a non-breeding area. One record on GBIF, although GBIF shows a broad distributional range across Paraguay, Brazil, Uruguay and northern Argentina.
14	<i>Eleothreptus candicans</i>	White-winged nightjar	VU										Unlikely	600-1700 mature individuals, with a distribution range not in the AoA (according to eBird and IUCN data)
15	<i>Laterallus xenopterus</i>	Rufous-faced crane	VU					unlikely					Unlikely	2500-9999 mature individuals, resident in the AoA, with a distributional range that overlapping with the AoA unlikely to be around 10%, potentially less.
16	<i>Culicivora caudacuta</i>	Sharp-tailed Tyrant	VU										Unlikely	10,000-19,999. May be present at low frequencies (0-2% eBird) in the AoA, but it has a very broad distributional range across Brazil, Argentina, Bolivia and Paraguay (eBird and IUCN data)
17	<i>Alectrurus tricolor</i>	Cock-tailed Tyrant	VU										Unlikely	Present in AoA (IUCN) although a low (0-2%) frequencies according to eBird, 6,000-15,000 mature individuals and decreasing.
19	<i>Anthus nattereri</i>	Ochre-breasted Pipit	VU										Not qualifying	No evidence (GBIF, IUCN, eBird) of the species present in AoA
20	<i>Coryphaspiza melanotis</i>	Black-masked Finch	VU										Not qualifying	No evidence (GBIF, IUCN, eBird) of the species present in AoA
21	<i>Sporophila cinnamomea</i>	Chestnut Seedeater	VU										Unlikely	Spotted in the area (GBIF), present at low frequencies (eBird), with a broad distributional



8	<i>Syagrus oleracea</i> (Mart.) Becc.		-	EP	N				U n l i k e l y	NA	NA	Unlikely	Broad distribution across Paraguay and Brazil (GBIF)
10	<i>Handroanthus ochraceus</i> (Cham.) Mattos ssp.		-	VU	N				U n l i k e l y	NA	NA	Unlikely	Broad distribution across South America and Central America (GBIF)
11	<i>Handroanthus pulcherrimus</i> (Sandwith) S. Grose		-	VU	N				U n l i k e l y	NA	NA	Unlikely	Broad distribution across Paraguay, Argentina and Brazil (GBIF)
13	<i>Discocactus hartmannii</i> (K. Schum.) Britton & Rose	cactus	CR	EP			Unlikely			NA	NA	Unlikely	IUCN CR, but no map distribution shown. GBIF shows distribution in Paraguay, Brazil, Bolivia, Uruguay and Argentina, but not in the AoA.
14	<i>Monteverdia ilicifolia</i> (Mart. ex Reissek) Biral		-	EP	N				U n l i k e l y	NA	NA	Unlikely	Broad distribution across Paraguay, Uruguay, Bolivia and Brazil (GBIF)
15	<i>Amburana cearensis</i> (Allemão)	Umburana Do Cheiro	EN	EP	N				U n l i k e l y	NA	NA	Unlikely	IUCN EN, but no map distribution shown. GBIF shows distribution in Paraguay, Brazil, Bolivia, Uruguay and Argentina, and one record in the AoA.
19	<i>Myrocarpus frondosus</i> (Allemão)		DD	EP	N				U n l i k e l y	NA	NA	Unlikely	IUCN DD. GBIF shows occurrences across South America, and in Atlantic and Pacific Islands. One occurrence in the AoA. Mentioned by Alberto Yanosky.
23	<i>Psidium grandifolium</i> DC.			EP	N				U n l i k e l y	NA	NA	Unlikely	Broad distribution across South America (GBIF)
24	<i>Balfourodendron riedelianum</i> (Engl.) Engl.	Guatambu; Marfim	EN	EP	N		Unlikely			NA	NA	Unlikely	IUCN EN, but no map distribution shown. GBIF shows distribution in Paraguay and Brazil with two records in the AoA
25	<i>Gonopterodendron sarmientoi</i>	Palo santo	EN	-			Unlikely					Unlikely	IUCN EN, map shows distribution across Paraguay, northern Argentina, eastern Bolivia and South Western Brazil. No records in the AoA by the IUCN, and 3-5 records in the AoA by the GBIF
26	<i>Cedrela odorata</i>	Spanish Cedar	VU				Unlikely					Unlikely	Very broad distributional range, across South and Central America (IUCN and GBIF)



27	<i>Cedrela fissilis</i>	Cedro Misionero	VU	EP									Unlikely	Unlikely	Very broad distributional range, across South and Central America (IUCN and GBIF)
28	<i>Frailea schilinzkyana</i>		VU										Unlikely	Unlikely	Limited distribution by IUCN (much less than 10% of global population in the AoA), but very broad distributional range according to GBIF across South and Central America.
29	<i>Butia paraguayensis</i> (Barb.Rodr.) L.H. Bailey	Dwarf yatay palm	-	AE										Unlikely	Broad distribution across Paraguay, Argentina and Brazil (GBIF)
32	<i>Prosopis nigra</i> Hieron.		DD											Unlikely	No map shown by IUCN. GBIF shows broad distributional range across Bolivia, Paraguay, Argentina and Uruguay. One GBIF record in the AoA by GBIF
33	<i>Aspidosperma polyneuron</i>		EN	EP									Unlikely	Unlikely	No map distribution shown by IUCN. GBIF shows broad distributional range across South and Central America. GBIF shows two occurrences in the AoA.
35	<i>Casearia gossypiosperma</i>	Mbavy guasu	-	-									Unlikely	Unlikely	Not assessed by IUCN. GBIF map shows distribution across Paraguay, Peru, northern Argentina, eastern Bolivia and Brazil. 3-5 records in the AoA by the GBIF
37	<i>Trichillia clausenii</i>	Catigua guasu	-	-									Unlikely	Unlikely	Not assessed by IUCN. GBIF map shows distribution across Paraguay, Peru, Argentina, eastern Bolivia and Brazil. 2 records in the AoA by the GBIF
38	<i>Tabebuia sp.</i>	Lapacho	?										Unlikely	Unlikely	If <i>Tabebuia alba</i> , distributed in eastern Paraguay and in Brazil.
39	<i>Anthurium plowmanii</i>	Calaguala	-	-									Unlikely	Unlikely	Broad distributional range across South America, but not in the AoA
40	<i>Astronium urundeuva</i>	Urundey mi	DD											Unlikely	IUCN DD, with no map distribution shown. GBIF shows distribution in Paraguay, Bolivia, northern Argentina and Brazil, with one record in the northern part of the AoA, in the border with Brazil.

7.2 Mitigation, Compensation and Enhancement

Based on the evaluation of impacts, measures are recommended to minimize, eliminate, compensate for negative impacts and, in the case of positive impacts, maximize them, always with measures to be implemented through environmental management programs.

The following are the proposed measures:

Planning Phase

- Establish criteria for buying and leasing lands in the company strategic planning for wood supply, avoiding the isolation of properties.
- Compromise not occupy lands with population settlements, and that does not require the physical or economic displacement of any person, family, group or community.
- Prioritize the development of eucalyptus plantations on modified habitat. Totally avoid plantation development in or adjacent to legally protected areas, or on forest and wetland natural habitats, and avoid planting the good condition natural Cerrado habitat complexes.
- Undertake an Ecosystem Services Review to establish the extent of potential displacement of access to Priority ecosystem services because of the Parcel project. Mitigate any significant impact if found.
- Carry out periodic monitoring of GHG emissions and C capture in forest plantations, once established, using allometric equations for this specific case. Since the site index varies depending on different factors (such as the type and quality of soil, meteorological parameters, genetic material used, diseases and others), the aforementioned would be justified, if a more exact value is intended.
- Establish criteria for buying and leasing lands in the company strategic planning for long term wood supply, avoiding the eastern portion of the Santa Teresa and the southern portion of the Zapallo areas, because the plantations are located in a potential landslide hazard zone with a medium potential risk of rainfall triggered landslides several times a year (4 days on average) by the 2030s. Adopt firefighting procedures (observation towers, firebreaks, etc.) and constant training of brigade staff for these procedures.
- Adopt firefighting procedures (observation towers, firebreaks, etc.) and constant training of brigade staff for these procedures.
- Build firebreak capable of protecting and giving access to the planting areas due to the most common fire outbreaks.

Implantation/Operation Phase

- Perform maintenance on the engines of machines, trucks and vehicles used by the company.
- Humidify the internal circulation routes and use gravel on roads in order to make a safer access and preventing dust spread, whenever necessary.
- Cover the trucks transporting earth, rocks and all powdery material with tarpaulins.
- Direct the expansion areas to the regions with highest rainfall index in the region.
- Adapt the management plantation to the crop rotation period.

- Adopt forest management with water-saving strategies.
- Plan plantations in the Aquidaban and Apa River basins, and their sub-basins (Arroyo Pytanohaga, Arroyo Trementina, Arroyo Negla, Arroyo Paso Bravo) with economically viable mosaics.
- Develop a water availability-demand study in the sub-basins aiming to define and propose measures to reduce conflicts between water uses and users.
- Develop micro basins monitoring, involving ecosystems formed by planted and native forests.
- Consolidate the monitoring of surface water, water use in its farms and surroundings, especially with regard to water quality.
- Study the best spacing of the eucalyptus plantation in certain areas with greater water and soil restriction and the increase of native vegetation areas.
- Equate the best proportion between eucalyptus plantation areas and areas with native vegetation.
- Protect riparian areas in properties especially upstream of water intake for human demand.
- Develop a water availability-demand study to estimate water usage before and after planting of Eucalyptus on grassland, and potential impacts to water supply on surrounding wetlands.
- Perform Biodiversity Action Plan, water management program, surface and ground water quality monitoring program and Biodiversity Monitoring & Evaluation Plan.
- Meet IFC EHS Guidelines for Perennial Crop Production.
- Take measures to certify that the company hired to collect the sanitary sewage from the workers camps is properly regulated, and that the wastewater is disposed of in an environmentally sound manner.
- Perform the maintenance of vehicles, machines and equipment in properly authorized locations.
- The agricultural inputs must meet the specifications of use.
- Implement containment lagoons with waterproof surface in the case of storage tanks.
- Remove plant cover from soil only in places where forest planting is strictly necessary.
- Protect water bodies with dams, to avoid hauling land.
- Rationalization of access opening, soil restoration, implementation of the drainage system and restoration of plant cover.
- Perform slope protection and stabilization, with drainage channels and vegetation planting.
- Perform erosion control at soil monitoring program.
- Reducing soil preparation and planting in curves levels, avoiding surface runoff of rainwater.
- Maintaining plant cover between plantation lines.
- Keep debarked materials in the forests, to cover the farm soil with organic matter.
- Adopt methods to restore coastal forests in watercourses and springs.
- Properly store, treat and dispose of solid waste in accordance with current legislation.
- Perform qualitative-quantitative monitoring program for water resources.
- Training and qualification of workers regarding conservation of preserved areas.
- Preservation and recovery of dry Cerrado savanna habitats that remain in better condition.

- Implement the Biodiversity Action Plan (BAP) and Biodiversity Monitoring and Evaluation Plan.
- Supervise the collection, packaging, storage and transport of solid waste in accordance with current legislation from worker accommodations areas.
- Perform Workers Accommodation Plan.
- Perform the maintenance of vehicles, machines and equipment in duly authorized locations.
- Promote the training of staff involved in forestry activities, especially those involved with pesticides uses.
- Use the agricultural inputs, such as fertilizers, herbicides, fungicides and insecticides, according to the specifications of use.
- Perform triple washing of empty packages, before their duly licensed destination.
- Forward empty packets to the receiving center of the region duly licensed.
- Empty packages of plant protection products must be collected and delivered to their return point.
- Perform waste management plan against soil contamination by solid waste.
- Perform agrochemicals management program and hazardous materials management program, in order to prevent risks to the environment.
- Carry out maintenance on machine, truck and vehicle engines.
- Carry out activities in the area predominantly in the work daytime period.
- Conduct road open planning to minimize natural habitat fragmentation; avoid developing roads or services in watercourse, wetland, forest or good condition savanna Cerrado areas.;
- Delimitate firebreaks to protect permanent preservation areas;
- Remove natural tree/shrub cover only where strictly necessary;
- Carry out detailed territorial planning (Planting Development Management Plan), avoiding disturbance of natural vegetation or soils in the Riparian Zones; and restoring with species native to the ecosystem any riparian and spring areas where vegetation has been degraded or erosion is occurring;
- Implement a landscape ecology design, ensuring conservation areas (i.e., avoidance or set-asides and Biodiversity Offsets) and restoration areas (restoring impacts not associated with Parcel so also contributing to the Biodiversity Offset strategy) create ecological corridors and a representative mosaic of Cerrado habitats where possible;
- Eliminate/cut any eucalypt specimens spread into conservation areas, preventing the formation of eucalyptus forests outside plantation areas;
- Perform wildlife monitoring/research and rescue/relocation program, prior to works;
- Install signs on the main access routes to the planted areas through the wildlife safety and alert program, including installation of fauna passageways;
- Intensify surveillance activities in partnership with local authorities and neighbors to prohibit hunting and logging in Parcel properties;
- Perform worker education on hunting prohibition;
- Consider the mosaics and characteristics of native habitats in the Plantation Development Management Plan;
- Proceed planting by mosaics blocks, so that the land is prepared in places strictly necessary for the implementation of forest plantation;
- Perform the restoration of forests in riparian zones;
- Recover currently degraded forest areas;

- In addition to conservation approaches applicable to the Paracel properties in general, commit to establish buffers along the border with the National Parks adjacent to two plantations (Soledad and Zanja Moroti) and to pay special attention to managing the Biosphere Reserve buffer area, which overlaps portions of three plantations (Zapato, Santa Teresa, and Hermosa). To appropriately manage the buffer zone, resolution 200/2001 Art. 31 regarding Biosphere Reserves will be considered, consultation with affected parties will need to occur and a management plan will need to be approved.
- Perform Biodiversity Management Program as per the BAP.
- Maintain high forests and riparian forests.
- Maintain representative samples interconnected with the other types of Cerrado.
- Monitor the Cerrado biodiversity.
- Planning of plantations.
- Implement an Ecosystem Services Review to establish the level of dependency vulnerable communities have on the Ecosystem Services which are derived from within the Paracel properties. Evaluate the net impacts of Paracel's road network improvements, plantations and conservation activities upon the 'priority ecosystem services' (i.e., those upon which vulnerable communities have high levels of dependence for their well-being) and design mitigation measures as appropriate.
- It is noted that the reduction in cattle grazing because of Paracel plantations establishment could reduce an important source of protein for some families in the Indigenous communities and increase their reliance on hunting.
- Eucalyptus plantations will be designed to implement the Mitigation Hierarchy, avoiding Critical and Natural Habitats where feasible and implementing a Biodiversity Action Plan (BAP) designed to achieve Net Gain for biodiversity values designating Critical Habitat, and No Net Loss for values designating Natural Habitat. The BAP will include design of Biodiversity Offsets where necessary.
- A full Critical Habitat Assessment will be developed to determine and map habitat importance (i.e., Critical, Natural, Modified) as per PS6 definitions.
- Commit to protect all areas of native forest within the owned plantation lands, as well as to reforest and/or restore riparian gallery forest with native species within a 100 m buffer along rivers and smaller tributaries.
- Maintain high forests and riparian forests in plantations farms.
- Maintain a representative mosaic of interconnected Cerrado habitat types of Cerrado.
- Monitor the Cerrado biodiversity within the farms.
- Planning the plantations areas avoiding impacts on fauna and flora.
- Perform Biodiversity Monitoring and Evaluation Plan.
- In order to assist with implementing the Mitigation Hierarchy, Paracel commit to the criteria for establishing conservation vs planted areas in the plantations, as showed in the table below. Note that criteria for establishment of plantations in savanna Cerrado habitats in order to meet PS6 requirements are to be developed.
- Commit to follow the criteria for establishing conservation vs planted areas.
- Perform the Biodiversity Management Program and the Biodiversity Monitoring Program.
- Commit to protect all areas of native forest within the owned plantation lands, as well as to reforest and/or restore riparian gallery forest with native species within a 100 m buffer along rivers and smaller tributaries.
- The Project is proposing to keep the Soledad and Zanja Moroti properties that border Paso Bravo National Park totally free of plantations and is considering doing

the same for the contiguous Ronaldo plantation. The project has committed to establish 1 km buffers along the borders with the National Parks and the three adjacent properties.

- It is recommended that the Biodiversity Offset strategy focus on considering actions to increase the management effectiveness of the Protected and Internationally Recognized Areas nearest the Paracel properties, including the core and buffer areas of the Biosphere Reserve.
- A Biodiversity Offset feasibility study will evaluate whether it is feasible to implement management actions to reduce the ongoing and future threats to the biodiversity features within the Protected and Internationally Recognized Areas. This evaluation of threats will involve an analysis of rates and drivers of land-use change and habitat degradation in the region which should be used to inform an assessment of the potential indirect impacts to the Protected and Internationally Recognized Areas from the Project (e.g., by facilitated access to the areas).
- Paracel is negotiating an agreement with SENAD (the Paraguayan anti-drug agency) to establish a joint Paracel-SENAD work program to help prevent the cultivation of drugs and so protect deforestation for illicit plantations.
- Remove the tree/shrub cover from the ground only where strictly necessary;
- Carry out planting territorial planning, marking the Riparian Zones in order to favor organized spatial occupation and cause minimal impacts;
- Recovery of riverside areas and springs without vegetation or with erosion / sedimentation by planting endemic species in the region;
- Conduct road open planning to avoid roads or services in areas of natural drainage and forest formation;
- Plan plantation to improve connectivity.
- Open areas not planted will be retired from grazing and so if free of invasive grasses will recover to improve connectivity.
- Paracel plans to not plant in some Properties will serve to protect natural mosaics of the full range of Cerrado habitats that are connected with the National Parks.
- The Biodiversity Offset design should consider opportunities to reduce fragmentation and improve connectivity at the landscape scale, for example through sustainable management of the Biosphere Reserve buffer zone.
- Manage the cutting period and its spatial extension, in order to avoid or minimize the loss of populations occurrence such as arthropods and other animals with limited mobility.
- Plan a management through Forest Mosaic, in order to favor the displacement of fauna species.
- Manage the cutting period and its spatial extension, and give preference to low noise emission machines, in order to avoid or minimize the disturbance in local fauna.
- Avoid removal of vegetation and specially during nesting and breeding season of birds and fauna.
- Perform agrochemicals management program and hazardous materials management program, in order to prevent risks to the environment.
- Exclude the use of all hazardous pesticides that contain or main contain active ingredients listed as prohibited by the FSC.
- Monitor the leaching of nutrients and agrochemicals and their potential impacts on freshwater ecosystems.
- Perform agrochemicals management program, in order to prevent risks to the environment and protect the health of all employees.

- Exclude the use of all hazardous pesticides that contain or main contain active ingredients listed as prohibited by the FSC.
- Interview periodically the local bee keepers and compare their local bee colonies monitor data with the use of pesticide (fipronil).
- Perform wildlife monitoring/research and rescue program;
- Install signs on the main access routes to the planted areas through the wildlife safety and alert program, and police speed limits;
- Intensify surveillance activities in partnership with local authorities and neighbors to avoid animal hunting and breaches of traffic control rules;
- Prohibit hunting by workers and install signs prohibiting hunting.
- Monitor continuously the invasive species along new roads and fire breaks;
- Plant native grasses within fire breaks.
- Implement an Invasive Species Management plan to avoid and control the spread of invasive species due to the plantation operations, focusing on invasive pasture grasses and machinery, fire breaks or road verges as means of transmission.
- Perform preventive measures aiming to eliminate or minimize cause and condition of fire.
- Implantation of a network of surveillance towers for the detection of forest fires requires studies of the topographic characteristics of the region, calculation of the visual range of the operators / cameras of the towers and analysis of maps of fire risk based on previous occurrence records.
- In the event of a fire, the main measures to be taken are:
 - Speed and effectiveness of the initial combat to the fire outbreak to prevent this outbreak from spreading and taking on large proportions. In order for the action time to be as short as possible, an efficient system for monitoring, detecting, communicating and mobilizing firefighting resources is necessary;
 - Access conditions, this means that road and bridge conditions must not prevent combat resources from reaching the desired location quickly;
 - Fire brigades, which consist of a water truck structure and pickup trucks with combat kits. It is recommended to have a structure of 1 (one) water truck and 1 (one) fire brigade for each 20 thousand hectares of forest plantation, for greater agility and effectiveness in combat;
 - Annual training of the firefighting team, reviewing all combat concepts and techniques, such as the use of retardants, fire-fighting techniques, cleaning and opening fire breaks, safety during combat, the essential equipment for the activity and how to handle them, etc. When properly trained and well positioned, the combat team becomes able to quickly locate the outbreaks and effectively implement the communication and control measures, thus reducing the risk of fire propagation;
 - Effective communication systems, as they guarantee the quick activation of the entire combat team and almost immediate action.
- Take into account climate change predictions (drier and more extended dry season, and more extreme temperature frequency and duration) to ensure that fire-breaks between plantations and native forest patches are of sufficient width to avoid fire spread into the native forests.
- Promote a dissemination campaign to hire labor for the company through the Dissemination and Communication Program;
- Articulate with professional education organizations and institutions for the professional training of the local population through the Program for the Development and Linking of Local Labor.
- Perform Indigenous Consultation and Consent Procedure.

- Promote indigenous labor inclusion in PARACEL and in the ventures of its value chain, considering the cultures of origin of indigenous workers.
- Monitor the adaptation of indigenous people who must reside in temporary accommodation.
- Prevent disrespect for the rights of indigenous peoples and discrimination against hired indigenous people and those residing in temporary accommodation.
- Implement a Women's Empowerment Program and a Health and Safety Program.
- Strengthen road safety on the roads that are used in a shared way by the project and the indigenous communities.
- Perform Relationship Program with Indigenous Communities.
- The ESR (Ecosystem Services Review) (mentioned as a mitigation measure to be implemented in the 'Use of Ecosystem Services' and 'Land Acquisition & Displacement' sections) should place special attention on the potential impacts of the Project on access to Priority Ecosystem Services for Indigenous communities which could affect their wellbeing.
- If the significant conversion of Natural Habitat is predicted to occur (subject to confirmation by the Critical Habitat Assessment), then IFC PS6 requires consultation with affected communities and any Indigenous communities that would have used ecosystem services in these areas should be consulted; this consultation could form part of the ESR.
- Support health campaigns in the DIA communities;
- Carry out specific studies to systematize information from the USF; and then deliver them to the MSPyBS, performing a disease baseline study.
- Monitor the health data of the community.
- Adopt the best environmental practices regarding water, effluent, solid wastes and noise controls, not to cause disturbance according with the Community Health and Safety Program;
- Address issues such as health, hygiene and safety in the Relationship Plan with the Community and other Social Actors;
- Request public agencies to supervise safety, to inhibit illegal acts
- Maintain the commitment to prioritize the hiring of local labor;
- Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program;
- Articulate with professional education organizations and institutions for the professional training of the local population through the Program for the Development and Linking of Local Labor;
- Offer Labor and Working Conditions for the employees especially in terms of health plan and transportation.
- Promote a dissemination campaign to hire labor for the company through the Dissemination and Communication Program, offering all benefits for good work conditions;
- Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program, offering third parties benefits for good work conditions.
- Perform Program for Development and Linkage with the Local Workforce.
- Respect internationally recognized human rights;
- Adopt adequate measures for the prevention, mitigation and, where appropriate, remediation of adverse impacts on human rights;

- Monitoring the health and safety of its workers, equal opportunities and the promotion of non-discrimination by gender, religion, ethnicity, race, sexual orientation, social status or any other factor, within the framework of full respect for human rights.
- Perform Equal Opportunity and Non-Discrimination Programs.
- Establish a management of the farms, among other measures, such as Forest Mosaics, in order to have a natural variability throughout the landscape.
- The Forest Mosaic can be introduced, among other measures, with the planting of eucalyptus in plots with different planting ages, interspersed with ecological corridors and territorial planning of the allocation of legal reserve.
- Plan the land in order to allocate the Areas of Legal Reserve to increase and enhance the benefits of Forest Mosaics and Ecological Corridors.
- Take actions to ensure that the company's activities do not affect or destroy any cultural property considered as protected heritage through the Archaeologic Finding Chance Program.
- Prioritize the acquisition of services and goods for the company, preferably in Concepción and the region through the Promotion and Development of Local Suppliers Program;
- Control application of chemical products at soils and plantations, especially during eventual aerial spraying, with effects that could accumulate and/or last in the medium and long term, and manage solid waste and effluents, especially those with chemical content or that have been in contact with these products;
- Consult people who work in some of the farms where the forest plantations;
- Perform strict measures of good practices in the field and of appropriate design, in the case of roads and drains;
- Monitor the quality of the water;
- Carry out permanent monitoring of perception in the communities being addressed in the Social Management Program.
- As mentioned in the Land Acquisition and Displacement, Use of Ecosystem Services (under biological environment) and the Impact to Indigenous Communities sections, an Ecosystem Services Review should be carried out to understand the level of dependence that Project affected communities may have on specific ecosystem services, and to assess if any impacts upon access to those services may be severe enough to affect wellbeing.

8 INTEGRATED ANALYSIS OF ENVIRONMENTAL IMPACTS (CUMMULATIVE IMPACT ANALYSIS)

The analysis of cumulative impacts has been developed in the Social Study of the industrial component, whose main results, after correlating PARACEL's undertaking with other projects identified in the DIA, showed a positive synergy in the generation of employment and in the development of the local, regional and extra-regional economy, as well as other social factors. Likewise, the potential cumulative negative impacts due to pressure on public/non-public services and infrastructures, associated with the people employed and induced by the projects in the DIA and the increase in truck traffic in the area of influence, have been detailed. It is considered that the forest component would have the same cumulative impacts, on a greater or lesser scale, on the Valued Socio-Environmental Components (VECs) already predefined in the industrial component.

In addition to the VECs already mentioned above (employment, local and regional economy, others), the forestry component includes the VEC linked to “ecosystem services”; resulting from the identification of possible impacts that the communities near the forest fields could have due to their provisioning and regulation, as well as effects on related customs.

In the case of the forestry component of the enterprise, it is analyzed from another perspective, although complementary to the industrial component, where a qualitative characterization is carried out, considering the synergy that could occur in the area not because of other enterprises, but because of the incremental development of forest production derived from eucalyptus plantations, this in order to identify the *possible systemic consequences resulting from the combination of multiple effects from individual actions over time* (IFC, 2015).

As already mentioned in the LBS, and in the impact assessment developed previously, there would be an important change in land use in the area, although highlighting that the land is already intervened by agricultural and livestock activities; and in the medium term, it would move to a purely forestry activity (analyzing the PARACEL plantations). Therefore, the impact on the following social factors, resulting from the evaluation of the impact of the enterprise, could generate cumulative impacts on the following social factors or VECs: Ecosystem services, local and regional economy, quality of life and customs; primarily due to the change in land use and possible effects that could occur in the area's water resources. The VEC linked to the health and safety of third parties is also related to possible conditions derived from the increase in traffic, which to the extent that all forest fields are developed or are even expanded over time, could generate cumulative impacts related to road safety and the safety of the people who live in the communities settled in the localities located on the access/exit roads to/from the forest fields.

Next, a qualitative description of the VECs; on which it is considered there would be cumulative impacts, both positive and negative:

- **Local and regional economy/Jobs:** The development of forestry production in the area would be increasing, and it is expected to start in the short term by PARACEL in approximately 3,000 hectares; then move to 15,000 hectares and so on until the development of all the fields to be forested (170,000 has). In addition, taking into account INFONA data, the "potential" development of the area could be exploited, and more plantations increased over time, which would entail a positive incremental impact; developing directly and indirectly the economy of the area and providing sources of work. Furthermore, the appreciation of the land could be extrapolated throughout the area, due to the change in land use that would occur in the northern region of the country.
- **Ecosystem services:** They could be affected, incrementally in time and space, taking into account the change of use in the area; and the introduction of activities related to the chemical control of plantations. The main ecosystem services are linked to the provisioning services (use of water for consumption of wells, lakes and springs, hunting, fishing and collection of other materials for consumption and artisanal activities), and cultural (recreational and leisure activities linked to water).

Although, according to data from PARACEL, eucalyptus plantations present a water balance similar to that of the Cerrado native forest, and other studies carried out in Uruguay show that there are no significant differences in the availability (quantity) of water in similar plots of grazing versus forested with eucalyptus, it is considered that

there may be competition in the “water consumption” used by the communities that use groundwater (quantity), especially in cases where there is already a shortage at certain times of the year, furthermore, along with a possible gradual change over time in the quality of the water, due to the chemical control of the plantations themselves. The monitoring of water levels and quality throughout the project cycle, will be duly attended by PARACEL, in order to minimize possible cumulative impacts on the water (environmental) VEC and its relationship with the social VEC.

- **Infrastructure and services:** From the point of view of improving the infrastructure conditions of and for the communities, as well as the development of the quality of life in the area, the project will determine an incremental benefit over time in the structural improvement and of paving of all public routes to be used for the transport of wood, which would have a positive impact, through: i) decrease in travel times (note that traveling the 70 km between Jhugua Ñandu and Puentesíño takes today 1,5 hours), ii) improvement of road safety; iii) reduction of the emission of rolling dust, with its consequent benefits to the environment and public health in general, iv) facilitation of access to/from emergency services (ambulances, police, firefighters). In relation to potential cumulative negative impacts, the impact on infrastructure and road safety is mentioned, since in the operational stage of the forest fields (during the harvest season and transportation of wood to the industrial plant), the movement of vehicles at the rate of one truck every 4 minutes approximately from years 6 - 7 after the installation of the plantations in each forest field. If to this we add the development of new similar ventures, this rate could increase.
- **Quality of life, customs/Health and safety of third parties:** It is closely related to the previous point; since the population surrounding the forest fields, would be mainly affected in aspects related to road safety; as well as the increase in the flow of workers in the different stages of the forestry component of the project. Other possible effects, which may increase over time, are related to the leisure habits of the inhabitants, closely linked to the water resources of the area (beach, watering places).

As already mentioned in the industrial component, the minimization of cumulative impacts, from PARACEL, would be to strictly comply with all the measures indicated in the Social Management Plan; likewise, monitoring measures in the conditions of water resources (quantity/quality) will be key, since the use of water in the area is directly linked to customs in the area (recreation, fishing, others); as well as in the supply for human consumption. Sustainable forest management also carries out technical and environmental practices that minimize cumulative impacts.

From physical and biological points of view, cumulative impacts on water and on soil are most critical for the ecosystem balance. Therefore, plan plantations in the Aquidaban and Apa River basins, and their sub-basins (Arroyo Pytanohaga, Arroyo Trementina, Arroyo Negla, Arroyo Paso Bravo) with economically viable mosaics besides planning routes/ access roads of machines and trucks for the exit of the wood, contemplating the harvest plans in a time horizon of one year or more, having as a background the planning at the technical and strategic level, of greater deadlines, are crucial not to impact significantly on the ecosystem.

Maintain plans for (a) forestation or afforestation (on lands where no forests occurred) with the assumption that there are natural grasslands (campos or ñu) which are important for biodiversity conservation, natural or anthropized (with the remotion of woody plants or the history related to cattle grazing), and also, (b) reforestation on lands

or forestry history (originally occupied by high forests or other types of forests) which given their utility changed their use (forage, livestock or other) will reduce the cumulative impacts.

By preserving Legal Reserve Areas and Riparian Zones, implementing a native forest recompositing project, covering permanent preservation areas and other priority areas, defining the formation of ecological corridors, recovering riverside areas and springs without vegetation or with erosion / sedimentation and planning road paths will reduce the cumulative impact.

Although by occupying a territory that has already been largely anthropized with cattle farming and its production, replacing by afforestation, and according to FAO data, livestock is the human activity generates the greatest impact on water quality (PARACEL, 2021), so although there is a potential impact to intervene by the project, by use pesticides that could reach watercourses and/or groundwater would also degrade the quality of the water and the habitat of fauna, it could be considered on a smaller scale compared to the current situation of land areas.

Not to mention that afforestation with eucalyptus reduces erosive processes in relation to the grazed pasture or deforested area (PARACEL, 2021), the tillage activity could eventually cause erosive processes in the time with drag; both soil and chemical products applied to surface water courses. Soil sedimentation in waterways could decrease the quality of drinking water, the productivity of fishing, and the recreational attractiveness of smaller waterways.