

**Environmental and Social Consideration in
the Detailed Planning Survey
for
The Project for Enhancing Capacity of
Transit Oriented Development
in
the Republic of Peru
(Technical Cooperation)**

Abbreviation

	Spanish	English
ATU	Autoridad de Transporte Urbano para Lima y Callao	Urban Transportation Authority for Lima and Callao
BRT	-	Bus Rapid Transit
DIA	Declaración de Impacto Ambiental	Environmental Impact Declaration
EAE	Evaluación Ambiental Estratégica	Strategic Environmental Assessment
EIA	Evaluación de Impacto Ambiental	Environmental Impact Assessment
EIA-d	Evaluación de Impacto Ambiental Detallado	Detailed Environmental Impact Assessment
EIA-sd	Evaluación de Impacto Ambiental Semi-Detallado	Semi-Detailed Environment Impact Assessment
FITSA	Ficha Técnica Socio Ambiental	Social Environmental Technical Sheet
IEE	Examinación Ambiental Inicial	Initial Environmental Examination
IMP	Instituto Metropolitano de Planificación	Metropolitan Institute of Planning
INEI	Instituto Nacional de Estadística e Informática	National Institute of Statistics and Information
INVIERTE.PE	Sistema Nacional de Programación Multianual y Gestión de Inversiones	National System of Multiannual Programming and Investment Management
MEF	Ministerio de Economía y Finanzas	Ministry of Economy and Finance
MML	Municipalidad Metropolitana de Lima	Metropolitan Municipality of Lima
MPC	Municipalidad Provincial de Callao	The Municipality of Province of Callao
MVCS	Ministerio de Vivienda, Construcción y Saneamiento	Ministry of Housing, Construction and Sanitation
MINAM	Ministerio del Ambiente	Ministry of Environment
MTC	Ministerio de Transporte y Comunicaciones	Ministry of Transport and Communications
PPP	Política, Plan o Programa Público	Public Policy, Plan, or Program
SEA	Evaluación Ambiental Estratégica	Strategic Environmental Assessment
SEIA	Sistema Nacional de Evaluación Ambiental	National System for Environmental Impact Evaluation
SENAMHI	Servicio Nacional de Meteorología e Hidrología del Perú	National Meteorological and Hydrological Service of Peru
SENACE	Servicio Nacional de Certificación Ambiental para las Inversiones Sostenibles	National Environmental Certification Service for Sustainable Investment
SERFOR	Servicio Nacional Forestal y de Fauna Silvestre, Ministerio de Desarrollo Agrario y Riego	National Forestry and Wildlife Service, Ministry of Agrarian Development and Irrigation
TOD	Desarrollo Orientado al Transporte	Transit Oriented Development

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1. Full Name of the Project

The Project for Enhancing Capacity of Transit Oriented Development in the Republic of Peru

2. Type of the Project

Planning (Develop a transit-oriented development plan)

3. Categorization and its reason

The Project is categorized as a "Category B" Project under the Japan International Cooperation Agency (JICA) Guidelines for Environmental and Social Consideration (April 2010) (hereafter, JICA Guidelines). The Project is not located in a sensitive area, nor has sensitive characteristics, nor falls into sensitive sectors under the JICA Guidelines, and its potential adverse impacts on the environment are not likely to be significant.

The Project does not include any civil and architectural activities that change actual physical conditions. The main activities are data collection, investigation, preparing plans and related reports, organizing seminars, etc. to formulate Transit Oriented Development (TOD) Guidelines and Plans, thereby enhancing the capacity of concerned peoples in TOD. Therefore, the Project itself is likely to have minimal adverse environmental and social impact. However, the TOD Plan to be formulated on a trial basis as the pilot projects [ref. 5.3 (3) of this report] will include civil and architectural approaches, which may have a negative environmental and social impact during its implementation stage after the completion of the Project. Based on the above, this Project is categorized as Category B because environmental and social considerations for the TOD Plan (pilot projects) are essential for formulating an appropriate plan.

The target area of the pilot projects (public transportation stations) will be selected at the beginning stage of the Project in coordination with Peruvian Government.

4. Institution responsible for the Implementation of the Project

Responsible Institution

- Ministry of Housing, Construction and Sanitation (Ministerio de Vivienda, Construcción y Saneamiento: MVCS)

Participants

- Urban Transportation Authority for Lima and Callao (Autoridad de Transporte Urbano para Lima y Callao: ATU)
- Metropolitan Municipality of Lima (Municipalidad Metropolitana de Lima: MML)
- The Municipality of Province of Callao (Municipalidad Provincial de Callao: MPC)

5. Outline of the Project

5.1 Overall Goals

Transit Oriented Development approach is implemented as part of urban-territorial planning and management in the National Metropolis (Lima-Callao).

5.2 Purpose

Planning and implementation capacity to realize TOD in the National Metropolis (Lima-Callao) is enhanced.

5.3 Outputs

Output 1

Capacity for formulation of legal framework and technical standards for the TOD approach in urban planning is strengthened.

Output 2

A guideline for the implementation of TOD in National Metropolis (Lima-Callao), as part of urban planning and management, is developed and shared.

Output 3

Issues and challenges in applying TOD approach in National Metropolis (Lima-Callao) are confirmed through three (3) pilot projects.

5.4 Activities

Activities for Output 1

- 1-1. Design and implement seminars and workshops inviting experts of TOD from Japan and Latin American countries such as Colombia and Brazil.
- 1-2. Formulate TOD menu, measures for regulation and incentives for the realization of TOD with relevant organizations and share among stakeholders.
- 1-3. Propose necessary amendments to the current legal framework and technical standards to promote TOD.

Activities for Output 2

- 2-1. Develop a draft TOD Guideline referring to the global TOD examples.
- 2-2. Develop a TOD implementation roadmap in National Metropolis (Lima-Callao), which describes the timeframe, the roles, responsibilities, and actions of relevant

organizations.

- 2-3. Finalize the TOD Guideline and the roadmap through discussions among the relevant organizations and share among stakeholders.
- 2-4. Establish indicators to measure the TOD approach impact in National Metropolis (Lima-Callao).

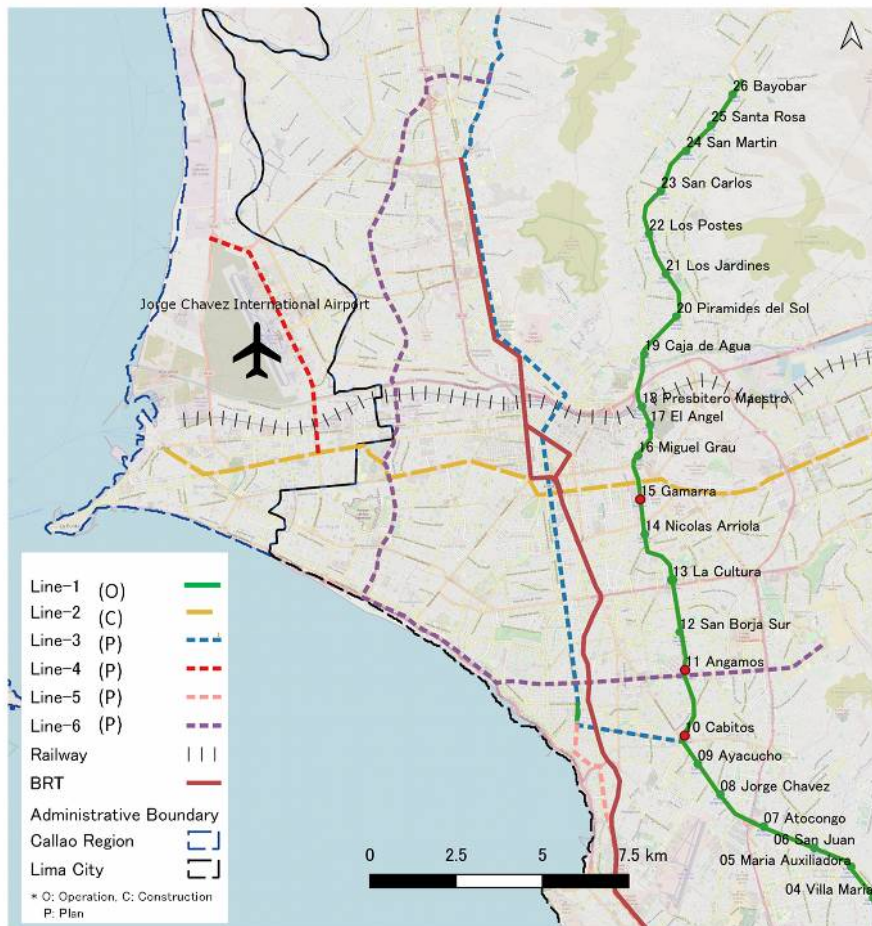
Activities for Output 3

- 3-1. Carry out surveys on the current situation of urban development and urban transport at candidate pilot project sites.
- 3-2. Select three (3) pilot project sites.
- 3-3. Conduct market survey and additional surveys for the pilot project sites.
- 3-4. Develop transit-oriented development strategies for the pilot project sites from urban planning and urban transport perspectives.
- 3-5. Analyze the current zoning of the pilot project sites and propose any necessary modifications/changes.
- 3-6. Prepare a basic development plan with the description of implementation procedure.
- 3-7. Analyze potential issues and challenges for implementation.

6. Description of the Project Target Area

6.1 Location

National Metropolis (Lima - Callao) is located at 77° W and 12° S in the center of the western region of the Republic of Peru and consists of two provinces, Lima Province and Callao Constitutional Province. There are 43 wards in Lima Province and 7 wards in the Callao Constitutional Province, covering an area of 2,819 km². The project target area is the mass public transportation system network consisting of Metro and BRT (Bus Rapid Transit) in the National Metropolis, as shown in the map below.



Project Target Area

National Metropolis (Lima-Callao) Public Transportation System Network

Source: JICA Detailed Survey Team

6.2 Natural Environment

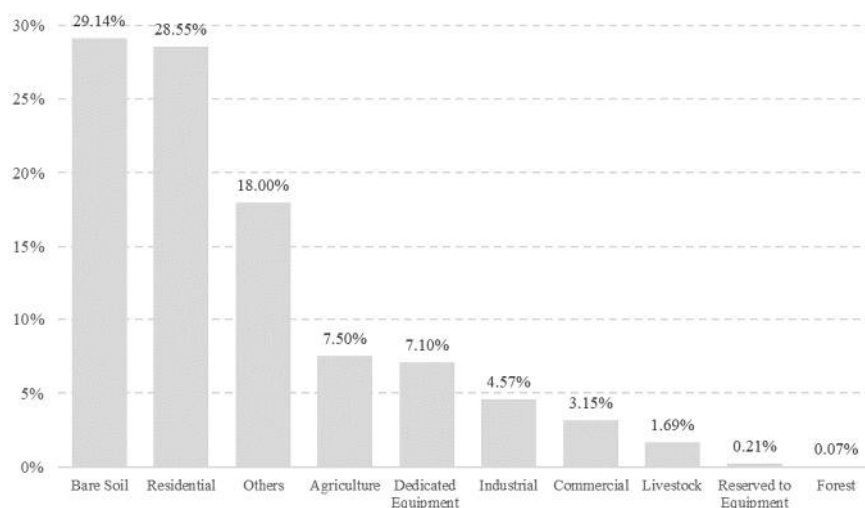
Geology and topography

The characteristic rocks of Lima Province and Callao Constitutional Province are from Upper Jurassic (154 million years ago) to the Pleistocene Epoch (1.7 million years ago). More recent material settled in the deep valleys and plains descending towards the Pacific coast, where marine erosion formed the Costa Verde cliffs. The existing geomorphic units are the detritus flow deposits (from mudslides) or dunes and forms of eolian sediments that cover vast areas.

Land Use

The graph below shows the actual land use of Lima Province. The largest area is "Bare Soil" (29.14%), mostly in areas with slopes greater than 8%, followed by "Residential Areas" (28.55%). The third largest category is "Others" (18.00%), which includes

archaeological areas, ecological area, electric power plants, water treatment plants, etc. The area “Dedicated Equipment” (7.10%) is land used for education, public recreation, health, transportation, administration, security services etc.

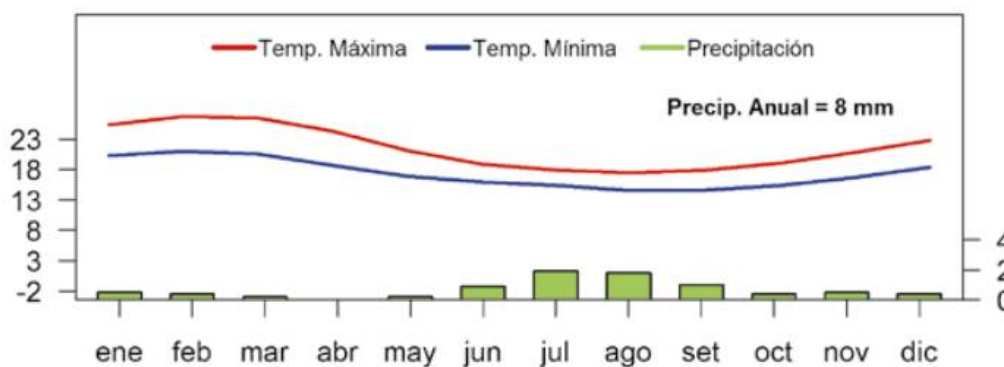


Actual Land Use of Lima Province

Source: Instituto Metropolitano de Planificación (2021)

Meteorology

The climate of Lima Province and Callao Constitutional Province is classified as mostly desert climate or arid climate (BWh) by the Köppen-Geiger climate classification. According to the National Meteorological and Hydrological Service of Peru (Servicio Nacional de Meteorología e Hidrología del Perú : SENAMHI), Lima is one of the largest desert cities in the world with only 8 mm of annual precipitation. The figure below shows the monthly temperature and precipitation of Lima Province.



**Monthly Rainfall and Temperature of Lima Province
(Campo de Marte Meteorological Station, Jesus Maria)**

Note: Left Temperature (°C), Right Precipitation (mm)

Source: SENAMHI

Water Resource

The main water resources of Lima Province and Callao Constitutional Province are the Rimac, Chillón, and Lurín rivers which compose the Chillón-Rimac-Lurín river basin. The primary water source is the Rimac river, with an average water flow of 27 m³/s, providing 850 million m³ of water annually or 69% of the total water supply. The Chillón and Lurín rivers have an average flow of 7.8 m³/s and 4.5 m³/s, respectively. Groundwater is also used as a water resource. The Chillón-Rimac aquifer, with a depth of 100 to 300 meters, is the most productive, pumping water at a rate of 6 to 7 m³/s.

Ecological Structure

The ecological structure of Lima Province is diverse ranging from natural to anthropic systems. According to Peruvian regulation, seven natural environmental units are recognized, as shown in the table below.

Natural Environment (Ecological) Structure in Lima Province

Natural Environmental Units	Components	Area (Ha)	Percentage
Marine Littoral	Islands	1,843	0.70%
	Marine Coastline	37,183	14.04%
	Continental Coastline	2,547	0.96%
Wetlands	Wetlands	579	0.22%
River Valleys	Riverbeds	794	0.30%
	Farming zones in the valleys	7,804	2.95%
	Non-urban (marginal strip)	454	0.17%
Hills	Seasonal hills (fog-based oasis)	31,239	11.79%
	Extraordinary hills (weather phenomena)		
	Not countable	-59,800	
Deserts	Arid plains	12,051	4.55%
Mountains	Arid Mountains	66,448	25.08%
	Bottom of ravines	6,885	2.60%
	Urban hills	4,873	1.84%
Green Areas	Urban	92,211	34.81%
	Total	264,911	100.00%

Source: Instituto Metropolitano de Planificación (2021)

Flora

The flora in Lima Province and Callao Constitutional Province are classified under the Ecological Structure described above. There are different, unique flora in wetlands, river valleys, deserts etc. According to the Lomas de Lima Flora Guide, the vegetation in the fog-based oasis turns green from May to October, developing mainly on the slopes facing

the sea up to 1000-2000 meters altitude, where 134 species of wild flora were found on the 22 coastal hills of Lima. The table below shows the endemic and threatened species under the Peruvian regulation:

Endemic and Threatened Flora in Lima Province and Callao Province

Common Name	Scientific name	Endemic	Threat
Amancae	<i>Ismene amancaes</i>	Yes	Vulnerable
Tiger-flower	<i>Tigridia pavonia</i>	No	Near Threatened
Lima-orchid	<i>Chloraea undulata</i>	Yes	Critically Endangered
Mito	<i>Vasconcellea candicans</i>	No	Critically Endangered
Spiny holdback	<i>Caesalpinia spinosa</i>	No	Vulnerable
Aromo	<i>Vachellia macracantha</i>	No	Near Threatened
Carob tree	<i>Prosopis sp.</i>	No	Endangered
Steel Acacia	<i>Acacia macracantha</i>	No	Near Threatened
Jacano	<i>Armatocereus matucanensis</i>	No	Near Threatened
Lima fox tail	<i>Haageocereus acranthus subsp. Olowinskianus</i>	Yes	Critically Endangered
Fox tail	<i>Haageocereus pseudomelanostele subsp. Carminiflorus</i>	Yes	Vulnerable
Chilca cactus	<i>Haageocereus pseudomelanostele subsp. Setosus</i>	Yes	Critically Endangered
Red flower cactus	<i>Loxanthocereus acanthurus subsp. Pullatus</i>	Yes	Endangered
Hairy cactus	<i>Loxanthocereus convergens</i>	Yes	Critically Endangered
Dwarf cactus	<i>Mila caespitosa</i>	Yes	Endangered

Source: <http://repositorio.serfor.gob.pe/handle/SERFOR/484>

Fauna

The fauna of Lima Province and Callao Constitutional Province is highly diverse, in both the marine and terrestrial environment. For example, the coastal reptiles and amphibians are adapted to their arid ecological conditions with low rainfall and resulting poor vegetation. Well-known amphibians and reptiles are the common toad (*Bufo limensis*), and iguana (*Microlophus peruvianus* and *M. thoracicus*). The table below shows the species for unique conservation according to Peruvian regulation:

Fauna Species for Unique Conservation

Common Name	Scientific name	Threat
Peregrine falcon	<i>Falco peregrinus</i>	Near Threatened
Humboldt penguin	<i>Spheniscus humboldtii</i>	Endangered
Peruvian booby	<i>Sula variegata</i>	Endangered
Incan tern	<i>Larosterna inca</i>	Vulnerable
Red-legged cormorant	<i>Phalacrocorax gaimardi</i>	Endangered
Guanay cormorant	<i>Phalacrocorax bouganvilli</i>	Endangered

Common Name	Scientific name	Threat
South american fur seal	Arctocephalus australis	Endangered
South american sea lion	Otaria byronia	Vulnerable

Source: http://sitr.regioncallao.gob.pe/documentoscontenido_doc/CAPITULOIII_2011.pdf

6.3. Social Environment

Economy

The Lima Department, including the Callao Province, has the largest economy in Peru. According to data from the National Institute of Statistics and Information (Instituto Nacional de Estadística e Informática: INEI), the Lima Department contributed 48 % of the GDP of Peru (496,991 million Peruvian Sol), generating 240,557 million Peruvian Sol in 2019. The table below shows the Total GDP and Lima Department's contribution by different economic activities.

Total GDP and Lima Department Contribution in 2019

(Million Peruvian Soles)

Activity	Peru	Lima	
	Total	Total	Contribution
Agriculture, Livestock, Hunting and Forestry	29,487	4,568	15.5%
Fishing and Aquaculture	1,883	273	14.5%
Oil, Gas and Mineral Extraction	66,255	3,730	5.6%
Manufacturing	70,098	42,761	61.0%
Electricity, Gas and Water	10,292	5,293	51.4%
Construction	32,126	12,061	37.5%
Commerce	56,850	30,973	54.5%
Transport, Warehousing, Postal and Courier Services	30,887	17,333	56.1%
Accommodation and Restaurants	17,634	11,534	65.4%
Telecom. and Other Information Services	25,323	15,954	63.0%
Public Admin. and Defense	28,090	13,694	48.7%
Other Services	128,066	82,384	64.3%
Total	496,991	240,557	48.4%

Source: INEI

Population

The National Metropolis consists of five districts: Northern Lima, Southern Lima, Eastern Lima, Central Lima and Callao Constitutional Province. The populations of the Lima Province and Callao Constitutional Province in 2021 are estimated to be 9.82 million and 1.15 million, respectively (10.97 million total), which is about one-third of the total population of the Republic of Peru. The population density of the National Metropolis is 3,890 inhabitants per km².

According to the Metropolitan Institute for Planning (Instituto Metropolitano de

Planificación: IMP), the total population of Lima Province will reach 10.00 million in 2022, and continue to grow to 11.08 million in 2030, and 12.11 million in 2040.

Ethnic Groups

According to the ethnic self-identification made in the National Census (2017), the predominant ethnic groups are Mestizo, Quechua, and white in Lima Province and Callao Constitutional Province. Mestizo represents 67.73 % in Lima Province followed by Quechua (16.39 %) and white (7.07 %). Similarly, in Callao Constitutional Province, 71.20 % are Mestizo, 10.23 % Quechua, and 7.68 % white.

Religion

According to the National Census of 2017, the Catholic faith is held by 76.89 % of the population of Lima Province. In comparison, 10.83 % stated they were Evangelical, Protestant or belong to Christian groups teaching the Bible; 6.36 % do not identify with any belief. Similarly in Callao Constitutional Province, 75.9 % are Catholic, 11.81 % Protestant, and 5.49 % with no religious belief.

Vulnerable People

According to Peruvian regulations, vulnerability is the susceptibility of the population, physical structures, or socio-economic activities to damages from dangers or threats.

Regarding social vulnerability, the majority of the population of Lima and Callao have a high to very high vulnerability (54%). This population has low preventive awareness or an inability to do anything in case of emergency and is not incorporated in municipal management.

In terms of physical vulnerability, the most representative threat is earthquakes, in most cases resulting in vulnerability ranging from medium to high (45%). This applies mainly to homes built between 1961 and 2004 on slopes from 5° to 25°, where essential services are limited.

Finally, economic vulnerability affects many people, resulting in a high vulnerability ratio (41.10%). This percentage reflects the fragile economic condition of people due to low salary, insecurity, and informality.

In addition to the vulnerabilities mentioned above, there are vulnerabilities related to marginalized or excluded populations. Some indicators in the UNICEF report "Situation of Children and Adolescents in Lima", published in 2019, show the vulnerability of children, such as the high levels of anemia in children under six years old (33.3% in 2017), absence from classes (7.8% in 2017), the low percentage of children achieving a comprehensive reading skill (only 55.6% in 2016), the high level of domestic violence

that children suffer in their families (13% of children suffered physical punishment from their mothers and 8.1% from their fathers in 2017) etc.

Another vulnerable population is women. For example, 52.2% of the working age population are women, but only 38.6% of women have formal jobs compared to 46.9% of men. Also, there is a salary difference of approximately USD 300 for university graduate men who earn more than graduate women with the same job. As for indigenous communities, although there are no indigenous territories in the National Metropolis, there are indigenous peoples. In 2017, INEI confirmed that 8.6% of people in Lima don't speak Spanish as their mother tongue but speak indigenous languages such as Quechua and Aymara. Discrimination prevents this population from accessing formal jobs, and the lack of education and economic resources forces them to live in highly vulnerable neighborhoods like the slums located in hills.

Archaeological and historical sites

Archaeological sites are divided into two groups: (1) the Pre-Hispanic Archaeological Heritage considers both declared monuments and those that appear in inventories, but do not have an official declaration. It contains all the assets built before the arrival of the Spanish in Peru (up to the 16th century). (2) The Colonial, Republican, and Contemporary Historical Heritage considers the official list of the Ministry of Culture with the declared monuments of these periods. It contains all the assets built after the arrival of the Spanish in Peru (from the 16th century).

According to information from the Ministry of Culture, the Pre-Hispanic Archaeological Heritage has a wide variety of monuments, from the Monumental Archaeological Zone of Pachacamac, 465.31 hectares, to the Túpac Amaru B Archaeological Site, 0.06 hectares. The Colonial, the Republican, and Contemporary Historical Heritage has very diverse patterns: from a colonial single-family house to exceptional ensembles such as the monumental areas of Rimac and Downtown Lima, which is a part of the Historic Center of Lima City.

7. Environmental and Social Considerations Applicable to the Project

7.1 Legal Framework, System, and Guideline of JICA

The JICA Guidelines for Environmental and Social Consideration (April 2010) are for the Environmental and Social Considerations of projects financed by JICA.

7.2 Legal Framework, System, and Guideline of Peruvian Government

The National System for Environmental Impact Evaluation (Sistema Nacional de Evaluación del Impacto Ambiental: SEIA) is for Environmental and Social Considerations for projects by the Peruvian Government. The following describes the

outline of SEIA.

(1) Legal Framework

As stated in Article 24 of the General Law of the Environment (Law No. 28611) established in 2005, all human activities that involve constructions and other activities with potentially significant impact are subject to SEIA. It also states that there is an environmental principle, which mandates that any stakeholder is obligated to adopt measures to improve the current state of the environment after an intervention, or to compensate those affected when environmental degradation is not reversible. The SEIA Law was approved in 2001 (Law N° 27446) based on a previous version of the above General Law of the Environment. Article 3 of this Law ascertains that the projects or service and commercial activities referred to in the scope of the Law may not begin without the environmental certification issued by the respective competent Authority. SEIA needed further details to implement its mandate, so several policies were approved afterwards, the Supreme Decree N° 019-2009-MINAM, approved in 2009, being one of the most important and fundamental of these.

There are two approaches in assessing environmental impact, the SEIA for investment projects and the Strategic Environment Assessment (Evaluación Ambiental Estratégico: EAE), which is part of SEIA. The former is for evaluating the impact of specific infrastructure projects. The latter is for high-level decision-making such as the design of a policy, regulation, plan, or program (Política, Plan o Programa Público: PPP). The pilot project of the Project may be subject to SEIA and/or EAE depending on the activity or approach to be employed.

(2) Process, Target Project, and Tools

EAE

MINAM is involved in the entire process of EAE. The process begins with submitting a written application to MINAM by the institution responsible for the policy, plan, or program to be established. MINAM will provide technical advice to the institution to create a Working Plan and EAE, and will review, evaluate, and monitor the EAE. The application must be made under the framework of the SEIA Law. The contents of the EAE are as follows.

Contents of EAE

- | |
|--|
| <ul style="list-style-type: none">a) Summaryb) Analysis of the objectives, scope and context of the PPP and its relationship with other relevant policies, plans or programsc) Objective of EAE evaluation |
|--|

- d) Approach and methodology
- e) Description of the developed process: Context and strategic approach, Strategic Evaluation based on a tendency analysis, risk evaluation, monitoring program.
- f) Main contributions or recommendations
- g) Other prioritized issues

Source: Ministerial Resolution N° 178-2021-MINAM

SEIA for Investment Projects

This process consists of five activities: (1) project application, (2) project classification, (3) evaluation of environmental impact, (4) determination of environmental certification and (5) monitoring. The table below shows the categories of the projects and the required environmental management tools (documents) for each category.

Project Classification and Required Environmental Management Tool

Category	Environmental Management Tool	Target Project
I	Environmental Impact Declaration (Declaración Impacto Ambiental: DIA)	Projects with low negative environmental impact
II	Semi Detailed Environmental Impact Assessment (Evaluación Impacto Ambiental Semidetallado: EIA-sd)	Projects with moderate negative environmental impact
III	Detailed Environmental Impact Assessment (Evaluación Impacto Ambiental Detallado: EIA-d)	Projects with significant negative environmental impact

Source: SEIA

Contents of the Environment Management Tool

Environmental Impact Declaration (DIA)	Semi Detailed Environmental Impact Assessment (EIA-sd)	Detailed Environmental Impact Assessment (EIA-d)
	Executive Summary	Executive Summary
Project Overview	Project Overview	Project Overview
	Baseline	Baseline
Public Participation Plan	Public Participation Plan	Public Participation Plan
Overview of potential environmental impacts	Characterization of environmental impacts (classification and assessment of impacts)	Characterization of environmental impacts (classification and assessment of impacts)
Methods of prevention, mitigation, and compensation for environmental impacts	Environmental Management Strategy {Environmental Management Plan, Monitoring Plan, Contingency Plan, Closure Plan, Schedule, Budget}	Environmental Management Strategy {Environmental Management Plan, Monitoring Plan, Contingency Plan, Closure Plan, Schedule, Budget}
Monitoring and Management plan		
(Mine) Closure plan		
Schedule		
Budget		

Environmental Impact Declaration (DIA)	Semi Detailed Environmental Impact Assessment (EIA-sd)	Detailed Environmental Impact Assessment (EIA-d)
		Economic Evaluation
	Others	Others

Source: SEIA

The project classification is carried out based on the Initial Classification (Clasificación Anticipada). The classification of projects in sectors without initial classification and projects with unclear classification are done by identifying project activities with potentially negative environmental impact and the possibly affected environmental elements, through the scoping and technical interviews with relevant organizations. This clarification procedure is called a “Preliminary Project Evaluation” (Evaluación Preliminar: EVAP) and is approved by the National Environmental Certification Service for Sustainable Investment (Servicio Nacional de Certificación Ambiental para las Inversiones Sostenibles: SENACE) established under MINAM.

In the case of the transport sector, a Socio-Environmental Technical Sheet (Ficha Técnica Socio Ambiental: FITSA) should be prepared for minor projects that are not categorized in any of the categories in the table above

(3) Relevant Organizations

As mentioned in 7.2 (2) above, MINAM administers systems for environmental consideration through SEIA, while SENACE, a subordinate institution of MINAM, is responsible for the evaluation and approval of EVAP and EIA-d. On the other hand, the evaluation and approval of the environmental management tools such as DIA and EIA-sd are the responsibility of other ministries such as the Ministry of Communications and Transportation for the transportation sector and other governmental institutions are in charge of each respective sector. The table below shows the organizations responsible for each environmental impact in projects of the transport and housing sector.

Responsible organizations for each Environmental Impact for Projects of the Transport and Housing Sector

Sector		Preliminary Project Evaluation (EVAP)	Environmental Impact Declaration (DIA)	Semi-Detailed Environmental Assessment (EIA-sd)	Detailed Environmental Assessment (EIA-d)
Transport		SENACE	MTC	Ministry of Transport and Communications (MTC)	SENACE
Housing / Construction / Sanitation	Housing	SENACE	MVCS	MVCS	SENACE
	Sanitation	SENACE	MVCS	MVCS	SENACE
	Others	SENACE	MVCS	MVCS	SENACE

Source: SEIA

8. Provisional Scoping

The Strategic Environmental Assessment as stipulated in the JICA Guidelines will be applied in the process of developing TOD plans. EAE and/or other Environmental Management Tools (DIA, EIA-sd or EIA-d etc), as stipulated in Peruvian Laws, will be applied to the process of developing the TOD Plans as necessary. This section presents an example of a Provisional Scoping for an individual project that may be implemented as part of the TOD Plan.

The table below shows an example of scoping (provisional scoping) for "Medium and high-rise residential development along the railway line" which is one of the TOD methods that is relatively large and may be adopted in the TOD plan to be formulated. The provisional scoping has been done based on the general situation in large cities such as Lima and Callao, using the Environmental Checklist (Other Infrastructure Project) of the JICA Environmental and Social Considerations Guidelines (July 2010). The sheet has been slightly adjusted by deleting items that currently cannot be checked.

Example of Environmental and Social Impact Scoping (Medium & High-Rise Residential Development in a Railway Line Area)

Category	Environmental Item	Main Check Items	Evaluation		Confirmation of Environmental Considerations (Reasons and Mitigation Measures)
			Before & During Construction	After Construction (Operation)	
Pollution Control	(1) Air Quality	(a) Do air pollutants, (such as sulfur oxides (SOx), nitrogen oxides (NOx), and soot and dust) emitted from the proposed infrastructure facilities and ancillary facilities comply with the country's emission standards and ambient air quality standards? Are any mitigating measures taken? (b) Are electric and heat source at accommodation used fuel which emission factor is low?"	(a)レ (b)レ	(a)レ (b)レ	(a) It is predicted that air pollutants will be generated during construction. However, with appropriate management, it is considered that compliance with the relevant standards is possible. (b) It is predicted that the emission factors will be increased during construction due to the use of heavy equipment. In contrast, the emission factors may be reduced during operation due to the updated power and heat sources.
	(2) Water Quality	(a) Do effluents or leachates from various facilities, such as infrastructure facilities and the ancillary facilities comply with the country's effluent standards and ambient water quality standards?	(a)レ	(a)レ	(a) It is predicted that wastewater and effluent are generated from the construction site during the construction stage. However, due to the low precipitation in the target area, compliance with relevant standards is considered possible with appropriate measures. On the other hand, during operation, the updated drainage system may be able to reduce or optimize the treatment of effluent and wastewater.
	(3) Wastes	(a) Are wastes from the infrastructure facilities and ancillary facilities properly treated and disposed of in accordance with the country's regulations?	(a)レ	(a)レ	(a) It is predicted that some waste will be generated from the construction site during construction. However, compliance with the relevant regulations is considered possible with appropriate measures. On the other hand, during operation, the updated waste collection infrastructure and systems are expected to reduce or optimize the disposal of wastes. If the Project strengthens the capacity of the persons concerned in system management, the optimization potential will be even higher.

Category	Environmental Item	Main Check Items	Evaluation		Confirmation of Environmental Considerations (Reasons and Mitigation Measures)
			Before & During Construction	After Construction (Operation)	
	(4) Soil Contamination	(a) Are adequate measures taken to prevent contamination of soil and groundwater by the effluents or leachates from the infrastructure facilities and the ancillary facilities?	(a)レ	(a)レ	(a) It is predicted that wastewater and effluent will be generated from the construction site during the construction period. However, compliance with the relevant standards is considered to be sufficient through appropriate measures, due to the low possibility of the wastewater and effluents containing pollutants and the low rainfall in the target area. Since the facilities are expected to be used primarily for administrative, commercial, and residential purposes (not industrial purposes), it is unlikely that effluents in the operation stage will be at levels that would contaminate the soil or groundwater.
	(5) Noise and Vibration	(a) Do noise and vibrations comply with the country's standards?	(a)レ	(a)レ	(a) It is predicted that noise and vibration are generated during construction stage, particularly by using heavy equipment in high populated and busy areas. However, compliance with the relevant standards is sufficient by taking appropriate measures. During the operation stage, an increase in noise and vibration is predicted due to increase in the number of users of the commercial facilities and corresponding traffic. However, the increase in noise and vibration is unlikely to be extreme.
	(6) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a)	(a)	(a) There is no work that requires the pumping of large quantities of groundwater.
	(7) Odor	(a) Are there any odor sources? Are adequate odor control measures taken?	(a)レ	(a)レ	(a) It is predicted that odors from construction related waste and effluent and odors from waste and effluent of commercial facilities, such as supermarkets, are generated during construction and operation stages. However, they are all considered to be minor and can be adequately eliminated by taking appropriate measures.
Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the Project will affect the protected areas?	(a)	(a)	(a) There is no possibility of implementing the plan in the protected area.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) Is there a possibility that changes in localized micro-meteorological conditions, such as solar radiation, temperature, and humidity due to a large-scale timber harvesting, will affect the surrounding vegetation? (d) Is there a possibility that the amount of water (e.g., surface water, groundwater) used by the Project will adversely affect aquatic environments, such as rivers? Are adequate measures taken to reduce the impacts on aquatic environments, such as aquatic organisms?	(a) (b) (c) (d)	(a) (b) (c) (d)	(a) (b) (c) (d) The plan is for an area that has already been urbanized. It is expected to improve the living environment through the construction of green area/facilities. In addition, it is considered that those facilities will not make obvious changes to the ecosystem.

Category	Environmental Item	Main Check Items	Evaluation		Confirmation of Environmental Considerations (Reasons and Mitigation Measures)
			Before & During Construction	After Construction (Operation)	
	(3) Hydrology	(a) Is there a possibility that hydrologic changes due to the Project will adversely affect surface water and groundwater flows?	(a)	(a)	(a) There is no work that will affect surface or groundwater.
	(4) Topography and Geology	(a) Is there a possibility the Project will cause large-scale alteration of the topographic features and geologic structures in the project site and surrounding areas?	(a)	(a)	(a) There is no work that requires significant alterations of the topography or geological structure.
Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) <input type="checkbox"/> (b) <input type="checkbox"/> (c) <input type="checkbox"/> (d) <input type="checkbox"/> (e) <input type="checkbox"/> (f) <input type="checkbox"/> (g) <input type="checkbox"/> (h) <input type="checkbox"/> (i) <input type="checkbox"/> (j) <input type="checkbox"/>	(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)	(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) Due to the nature of urban development, some resettlement is predicted. However, as this Project aims to improve the legal, institutional, design, and construction management capacities for appropriate urban development, it is considered that the resettlement that may occur will be treated and managed adequately through the improved capacities
	(2) Living and Livelihood	(a) Is there a possibility that the Project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary?	(a) <input type="checkbox"/>	(a) <input type="checkbox"/>	(a) Both during construction and operation stages, it is assumed that change in the commercial opportunities and land prices will affect the lifestyle and income of street vendors and residents.
	(3) Heritage	(a) Is there a possibility that the Project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a)	(a)	(a) Work in archeological, historical, cultural or religious heritage should not be considered. It is necessary to comply with the cultural heritage identification process established by national legislation.
	(4) Landscape	(a) Is there a possibility that the Project will adversely affect the local landscape? Are necessary measures taken? (b) Is there a possibility that landscape is spoiled by the construction of high-rise buildings such as huge hotels?	(a) <input type="checkbox"/> (b) <input type="checkbox"/>	(a) <input type="checkbox"/> (b) <input type="checkbox"/>	(a) (b) It is predicted that there will be a significant impact on the landscape, both during construction and operation stages, due to construction of the high-rise buildings. This impact will be both positive and negative, since the urban development aims to improve the landscape and/or image of the city. As this Project aims to improve the legal, institutional, design, and construction management techniques for urban development, it is expected that the change in landscape will be implemented appropriately as a result of the improved capacity

Category	Environmental Item	Main Check Items	Evaluation		Confirmation of Environmental Considerations (Reasons and Mitigation Measures)
			Before & During Construction	After Construction (Operation)	
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) (b)	(a) (b)	(a)(b) There is no work that affects the culture, lifestyle, land or other resources of ethnic minorities or indigenous peoples.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the Project? (b) Are tangible safety considerations in place for individuals involved in the Project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the Project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the Project not to violate safety of other individuals involved, or local residents?	(a)∟ (b)∟ (c)∟ (d)∟	(a) (b) (c) (d)	(a), (b), (c), (d) It is predicted that some impacts on the working environment will occur during the construction stage. However, since no special work is involved, such impact is considered to be avoidable or minimized by appropriate management.
Monitoring of the Construction Work		(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a)∟ (b)∟ (c)∟ (d)∟	(a) (b) (c) (d)	(a)(b)(c)(d) Given that the present Project aims to improve legal, institutional, design and construction management capacities, it is expected that appropriate monitoring will be carried out as a result of the improved capacity.

Note :

∟ -: Some degree of positive or negative impact is predicted.

9. Results of the consultation with recipient government on environmental and social consideration, including roles and responsibilities.

A meeting was held with MINAM on October 13, 2021 to understand the Peruvian Government's Environmental and Social Consideration System. As described in section 7.2 above, environmental and social considerations are clearly systemized under SEIA. It was confirmed that all PPP planning should be carried out in compliance with SEIA and the National System of Multiannual Programming and Investment Management (Sistema Nacional de Programación Multianual y Gestión de Inversiones: INVIERTE.PE), which prescribes methods for formulating PPP established by the Ministry of Economy and Finance (Ministerio de Economía y Finanzas: MEF).

Based on the above, the Project by the Peruvian Government and JICA will be implemented in compliance with both SEIA and JICA Guidelines for Environmental and Social Consideration for the appropriate management of environmental and social aspects.

10. Terms of Reference for Environmental and Social Considerations

The environmental impact assessment will be conducted in compliance with both SEIA and the JICA Guidelines for Environmental and Social Considerations (July 2010). The SEA will be conducted in the early stage of the pilot project (formulation of TOD plan), and the assessment will be done by using environmental management tools appropriate to the scale and content of the plan during the formulation. Tool options are shown in section 7.2 (2) of this report.

TOR of the Environmental and Social Impact Assessment

Outline

- Overview of TOD Plan
- Purpose of the assessment
- Identify and assess potential environmental and social impacts of TOD Plan
- Incorporate the views of stakeholders into the plan
- Evaluate alternative approach, methodology and plan from technical, financial, and environmental perspectives to avoid, reduce, or mitigate environmental and social impacts.

Contents

- Existing TOD-related policies, plans, programs, and projects
- Peruvian Environmental and Social Consideration System
- Divergence between the Environmental and Social Considerations Systems of Peruvian Government and JICA Guidelines and how they will be resolved in the Project
- Baseline (Actual environmental and social conditions)
- Alternative approach, methodology, and plan (including zero option)
- Scoping of Environmental and Social Impacts of TOD Plan including alternatives
- Stakeholder consultation
- Public participation plan
- Environmental impact mitigation measures (avoidance, mitigation, compensation)
- Environmental management plan
- Monitoring plan

Strategic Environmental Assessment (SEA or EAE) will be applied in the process of aforementioned environmental impact assessment

Source: JICA Detailed Planning Study Team

11. Other relevant information

N.A