

PRELIMINARY RESETTLEMENT ACTION PLAN (RAP)

FOR

**DALTON PASS EAST ALTERNATIVE ROAD
PROJECT (DPEAR)**

Feasibility Study



**DEPARTMENT OF PUBLIC
WORKS AND HIGHWAYS**



**JAPAN INTERNATIONAL
COOPERATION AGENCY**

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ACRONYMS AND ABBREVIATIONS

AD	-	Ancestral Domain
ADB	-	Asian Development Bank
ADR	-	Alternative Dispute Resolution
APPEND	-	Alliance of Philippine Partners for Enterprise Development
BIR	-	Bureau of Internal Revenue
BR	-	Barangay Road
BSP	-	Bangko Sentral ng Pilipinas
BOT	-	Build-Operate-and-Transfer
BPO	-	Business Process Outsourcing
CA	-	Commonwealth Act
CAR	-	Cordillera Administrative Region
CBFM	-	Community-based Forest Management
CDA	-	Cooperative Development Authority
CHM	-	Canopy Height Model
CLOA	-	Certificate of Land Ownership Agreement
CLUP	-	Comprehensive Land Use Plan
CMBIC	-	Community Micro-Business Incubation Center
CP	-	Certification Precondition
C-SES	-	Census and Socio-economic Survey
DA	-	Department of Agriculture
DBH	-	Diameter-at-Base Height
D/D	-	Detailed Engineering Design
DENR	-	Department of Environment and Natural Resources
DEO	-	District Engineering Office
DHSUD	-	Department of Human Settlements and Urban Development
DILG	-	Department of Interior and Local Government
DO	-	Department Order
DOF	-	Department of Finance
DOLE	-	Department of Labor and Employment
DILEEP	-	DOLE Integrated Livelihood and Emergency Employment Program
DPEAR	-	Dalton Pass East Alternative Road
DPWH	-	Department of Public Works and Highways
DRAM	-	DPWH Right-of-Way Acquisition Manual
DSM	-	Digital Surface Model
DSWD	-	Department of Social Welfare and Development
DTI	-	Department of Trade and Industry
DTM	-	Digital Terrain Model
EDC	-	Estimated Direct Cost
EF	-	Employment Facilitation
EIC	-	Estimated Indirect Cost
EMA	-	External Monitoring Agent

EMR	-	External Monitoring Report
EO	-	Executive Order
ESSD	-	Environment and Social Safeguards Department
FGD	-	Focus Group Discussion
FMB	-	Forest Management Bureau
FMV	-	Fair Market Value
FMP	-	Forest Management Program
FMR	-	Farm-to-Market Road
FMV	-	Fair Market Value
FPIC	-	First and Prior Informed Consent
FS	-	Feasibility Study
FSSI	-	Foundation for Sustainable Society
GL	-	Guidelines
GFI	-	Government Financial Institutions
GOP	-	Government of the Philippines
GPS	-	Global Positioning System
GSIS	-	Government Service Insurance System
HDMF	-	Home Development Mutual Fund
HH	-	Household
HHH	-	Household Head
HSH	-	High Standard Highway
HUDCC	-	Housing and Urban Development Coordinating Council
IA	-	Implementing Agency
ICC	-	Investment Coordination Council
ICC	-	Indigenous Cultural Community
ICP	-	Inter-agency Consultation Proceedings
IFI	-	International Financial Institution
IMA	-	Internal Monitoring Agent
IMR	-	Internal Monitoring Report
IP	-	Indigenous People
IPA	-	Independent Property Appraiser
IPAP	-	Indigenous Peoples Action Plan
IPDP	-	Indigenous Peoples Development Plan
IPMR	-	Indigenous People's Municipal Representative
IPRA	-	Indigenous Peoples Rights Act
IRA	-	Internal Revenue Allotment
IRR	-	Implementing Rules and Regulations
ISF	-	Informal Settler Families
ITR	-	Income Tax Return
IVS	-	International Valuation Standards
JBIC	-	Japan Bank for International Cooperation
JGMT	-	Joint Monitoring and Grievance Team
JICA	-	Japan International Cooperation Agency

JV	-	Joint Venture
KBMI	-	Kabalikat para sa Maunlad na Buhay. Inc.
KII	-	Key Informant Interview
LARAP	-	Land Acquisition and Resettlement Action Plan
LARRIPP	-	Land Acquisition, Resettlement, Rehabilitation, and Indigenous People's Policy
LEIPO	-	Local Investment and Economic Promotion Office
LGU	-	Local Government Unit
LIDAR	-	Light Detection and Ranging
LIRP	-	Livelihood and Income Restoration Program
LPG	-	Liquefied Petroleum Gas
LRP	-	Livelihood Rehabilitation Plan
MCPI	-	Microfinance Council of the Philippines, Inc.
MD	-	Micro-enterprise Development
MEDIPO	-	Municipal Enterprise Development and Investment Promotion Office
MET	-	Monitoring and Evaluation Team
MFI	-	Micro-finance Institutions
MLIT	-	Japan Ministry of Economy, Trade, and Industries
MOA	-	Memorandum of Agreement
MPC	-	Multi-purpose Cooperative
MOU	-	Memorandum of Understanding
MSWD	-	Municipal Social Welfare and Development
NCIP	-	National Council for Indigenous Peoples
NCR	-	National Capital Region
NEDA	-	National Economic Development Council
NGO	-	Non-government Organization
NGP	-	National Greening Program
NHA	-	National Housing Authority
NICCEP	-	National Industry Cluster Capacity Enhancement Project
OCT	-	Original Certificate of Title
ODA	-	Official Development Assistance
OFW	-	Overseas Filipino Worker
OP	-	Operational Policy
OSY	-	Out-of-School Youth
O&M	-	Operation and Maintenance
PACBRMA	-	Protected Area Community-Based Forest Management Agreement
PAF	-	Project-Affected Family
PAH	-	Project-Affected Household
PAP	-	Project-Affected Person
PCA	-	Philippine Coconut Authority
PCA	-	Principal Components Analysis
PCUP	-	Presidential Commission for the Urban Poor
PCWFR	-	Pantabangan-Carranglan Watershed Forest Reserve

PD	-	Presidential Decree
PENRO	-	Provincial Environment and Natural Resource Office
PESO	-	Public Employment Service Office
Php	-	Philippine Peso
PIE	-	Post Implementation Evaluation
PMO	-	Project Management Office
PO	-	People's Organization
Pro-GED	-	Promotion of Green Economic Development
PP	-	Presidential Proclamation
PPH	-	Pan-Philippine Highway
PR	-	Pedestrian Road
PSA	-	Philippine Statistics Authority
PVS	-	Philippine Valuation Standards
P3	-	Pondo sa Pagbabago at Pag-Asenso
RA	-	Republic Act
RAP	-	Resettlement Action Plan
RFO	-	Rent-Free Occupant
RIC	-	RAP Implementation Committee
RO	-	Regional Office
ROW	-	Right-of-Way
RS	-	Remote Sensing
SAPROF	-	Special Assistance for Project Formulation
SBC	-	Small Business Corporation
SC	-	Supreme Court
SEA-K	-	Self-Employment Assistance-Kaunlaran Program
SEC	-	Securities and Exchange Commission
SLP	-	Sustainable Livelihood Program
SME	-	Small and Medium Enterprise
SMERA	-	SME Roving Accademy
SSE	-	Shared Service Facilities
SSS	-	Social Security System
STEP	-	Special Term for Economic Partnership
TCT	-	Transfer Certificate of Title
TD	-	Tax Declaration
TESDA	-	Technical Education and Skills Development Authority
TOR	-	Terms of Reference
TWG	-	Technical Working Group
UDHA	-	Urban Development and Housing Act
UPMO-RMC	-	Unified Project Management Office-Road Management Cluster
USD	-	United States of America Dollar
WB	-	World Bank

DEFINITION OF TERMS

Ancestral Domain	As defined in R.A. 8371 (IPRA), refers to all areas generally belonging to ICCs/IPs comprising lands, inland waters, coastal areas, and natural resources therein, held under a claim of ownership, occupied or possessed by ICCs/IPs themselves or through their ancestors, communally or individually since time immemorial, continuously to the present except when interrupted by war, force majeure or displacement by force, deceit, stealth or as a consequence of government projects or any other voluntary dealing entered into by government and private individuals, corporations, and which are necessary to ensure their economic, social, and cultural welfare. It includes land, forest, pasture, residential, agricultural, and other lands individually owned whether inalienable and disposable or otherwise, hunting grounds, burial grounds, worship areas, bodies of water, minerals and other natural resources, and lands which may no longer be exclusively occupied by ICCs/IPs but from which they traditionally had access to for their subsistence and traditional activities, particularly the home ranges of ICCs/IPs who are still nomadic and/or shifting cultivation. As clarified in Section 4 of R.A. 8371, ancestral domains cover not only the physical environment but the total environment including the spiritual and cultural bonds to the area which the ICCs/IPs possess, occupy and use and to which they have claims of ownership.
Ancestral Lands	As defined R.A 8371, refers to land occupied, possessed and utilized by individuals, families and clans who are members of the ICC's/IPs since time immemorial, by themselves or through their predecessors-in-interest, under claims of individual or traditional group ownership, continuously, to the present except when interrupted by war, <i>force majeure</i> or displacement by force, deceit, stealth, or as a consequence of government projects and other voluntary dealings entered into by government and private individuals/corporations, including, but not limited to, residential lots, rice terraces or paddies, private forests, swidden farms and tree lots.
Cadastral Map	A cadastre or cadaster is a comprehensive recording of the real estate or real property's metes-and-bounds of a country. Often it is represented graphically in a cadastral map.
Certificate of Ancestral Domain Title (CADT)	As defined in R.A 8371, refers to a title formally recognizing the rights of possession and ownership of ICC's/IPs over their ancestral domains identified and delineated in accordance with IPRA.
Certificate of Ancestral Lands Title (CALT)	As defined in R.A 8371, refers to a title formally recognizing the rights of ICC's/IPs over their ancestral lands.
Certificate of Land Ownership Award (CLOA)	Certificate of ownership of land issued to farmer-beneficiaries of the agrarian reform program.

Certification Precondition (CP)	A document issued by the NCIP attesting that the applicant or project proponent has complied with the requirements for securing the affected ICC's/IPs in accordance to the Free and Prior Informed Consent Guidelines of 2006.
Compensation	Payment in cash or in kind to which the people affected are entitled in order to replace the lost asset, resource or income affected by an infrastructure project.
Current Market Value	The current market value of the land is estimated using the Market Approach, which provides an indication of value by comparing the asset with identical or comparable (that is similar) assets for which price information is available.
Customary Laws	A body of written and/or unwritten rules, usages, customs, and practices traditionally and continually recognized, accepted, and observed by respective ICCs/IPs.
Cut-off Date	The date of commencement of the census of affected families within the project boundaries. Persons not covered at the time of census-taking will not be eligible for claims of compensation entitlements. Cut-off date for land-taking will be set on the date that the parcellary survey was conducted but the value of the land will be based on the agreed values of the land at the time of taking.
Disturbance Compensation	The compensation amount for lessees of agricultural land severely affected (i.e., >20% of the land or when the land is no longer economically viable) by the project, equivalent to five times the average gross harvest during the last five years (RA 6389 and EO 1035, series of 1985).
Economic Displacement	Loss of land, assets, access to assets, income sources, or means of livelihoods as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas.
Entitlement	The whole range of measures comprising compensation, income restoration, entitlement, transfer assistance, income substitution, and relocation which are due to affected people, depending on the nature of their losses, to restore their economic and social base.
Expropriation	Government's action in taking or modifying property rights in the exercise of its sovereignty or power of eminent domain for public good.
External Monitoring Agent	An independent or third-party entity or individual designated by the implementing agency to monitor the implementation of the RAP.
Financial Assistance	The cash amount paid to agricultural tenants/settlers/ occupants severely affected by the project, equivalent to the average gross harvest for the last

three years and not less than PhP15, 000 per ha (EO 1035), in addition to the cash payment/compensation for their crops damaged by the project.

Focus Group Discussion	Focus group discussion is a qualitative approach to gain an in-depth understanding of specific social issues. The method aims to obtain data from a purposely selected target group of individuals rather than from a statistically representative sample of a broader population.
Free and Prior Informed Consent	As defined in R.A 8371, means the consensus of all members of the ICCs/IPs to be determined in accordance with their respective customary laws and practices, free from any external manipulation, interference and coercion, and obtained after fully disclosing the intent and scope of the activity, in a language and process understandable to the community.
Grievance Redress	Refer to institutions, instruments, methods, and processes by which a resolution to a conflict or complaints is sought and provided to aggrieved parties.
Household	A social unit consisting of a person living alone or a group of persons who sleep in the same housing unit and have a common arrangement in the preparation and consumption of food.
Host Population	Community residing in or near the area to which affected people are Host population to be relocated.
Income restoration	Re-establishing income sources and livelihoods of people affected.
Inconvenience Allowance	The compensation amount given to each PAP who holds full title, tax declaration which is legalizable to the land where his/her severely affected structures stands, and who has to move elsewhere.
Indigenous Cultural Communities/ Indigenous Peoples	As defined in RA 8371, refers to a group of people or homogenous societies identified by self-ascription and ascription by other, who have continuously lived as organized community on communally bounded and defined territory, and who have, under claims of ownership since time immemorial, occupied, possessed customs, tradition and other distinctive cultural traits, or who have, through resistance to political, social and cultural inroads of colonization, non-indigenous religions and culture, became historically differentiated from the majority of Filipinos. ICCs/IPs shall likewise include peoples who are regarded as indigenous on account of their descent from the populations which inhabited the country, at the time of conquest or colonization, or at the time of inroads of non-indigenous religions or cultures, or the establishment of present state boundaries, who retain some or all of their own social, economic, cultural, and political institutions, but who may have been displaced from their traditional domains or who may have resettled outside their ancestral domains.
Inventory of Losses (IOL)	Enumeration and quantification of assets or properties in part or in full that will be affected by the project.

Involuntary Resettlement	Development project results in unavoidable resettlement losses, that people affected have no option but to rebuild their lives, resettlement incomes and asset bases elsewhere.
Land Acquisition	The process of acquiring land from the current owners pursuant to the provisions of RA 8974 as amended by RA 10752 through various modes of acquisition, i.e., Donation, Barter or Exchange, Purchase, Quit Claim or Expropriation.
Livelihood Restoration	Re-establishing productive livelihood of the displaced persons to enable income generation that is equal to, if not better than that earned by the displaced persons before the resettlement (ADB IR Source Book, 2012).
Meaningful Consultation	A process that (i) begins early in the project preparation stage and is carried out on an on-going basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues (ADB SPS, 2009).
Memorandum of Agreement (MOA)	With respect to the two (2) ICCs/IP groups in this report, refers to the document signed by the DPWH, the affected IPs, and/or the NCIP and other relevant parties embodying the terms and conditions agreed upon to ensure, among others, that Indigenous Peoples affected by the project receive culturally appropriate social and economic benefits. It also specifies ways that the identified adverse effects are avoided, minimized, mitigated, or compensated.
Parcellary Survey	A ground survey to identify and segregate affected lots within the ROW limits as defined in the detailed engineering design for the purpose of registering them in favor of the Government of the Philippines (GoP).
Project Affected Persons (PAPs) or Household (PAHs)	Consist of all members of a household residing under one roof and operating as a single economic unit, who will be adversely affected by the project. For resettlement purposes, Project Affected Persons (PAPs) will be dealt with as members of Project Affected Families (PAFs).
Professional Squatters	Persons who have previously been awarded home lots or housing units by the government but who sold, leased or transferred the same to settle illegally in the same place or in another urban area; to non-bona fide occupants; and to intruders of lands reserved for socialized housing. The term also refers to individuals or groups who occupy lands without the expressed consent of the landowner and who have sufficient income for legitimate housing. This definition excludes individuals or groups who

	<p>simply rent land and housing from professional squatters or squatting syndicates.</p>
Rehabilitation	<p>Re-establishing incomes, livelihoods, living, and social systems by providing assistance to PAPs severely affected through the loss of productive assets, incomes, employment or sources of living, to supplement payment of compensation for acquired assets in order to achieve full restoration of living standards and quality of life.</p>
Relocation	<p>Rebuilding housing, assets, including productive land, and public infrastructure in another location.</p>
Replacement Cost	<p>The amount necessary to replace the structure or improvement based on the current market prices for materials, equipment, labor, contractor's profit and overhead, and all other attendant costs associated with the acquisition and installation in place of the affected improvements/installation, including transaction cost.</p>
Resettlement	<p>All measures taken to mitigate adverse social impacts of a project on the PAFs, including compensation and relocation.</p>
Resettlement Action Plan (RAP)	<p>A time-bound action plan with budget setting out resettlement plan strategy, objectives, entitlement, actions, responsibilities, monitoring and evaluation.</p>
Right-of-Way	<p>A part or the entirety of the property, site, or location, with defined physical boundaries, used or required by a national government project.</p>
Severely Affected PAPs	<p>Those who experience significant impacts due to (i) losses of 10% or more of their total productive land, assets and/or income sources due to the project; and/or (ii) relocation resulting from insufficient remaining residential or commercial land to rebuild on.</p>
Social Impact Assessment	<p>Identification, prediction, evaluation, and mitigation of the intended and unintended social consequences of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.</p>
Social Preparation	<p>Process of consultation with affected people undertaken before key reparation resettlement decisions are made, to build their capacity to deal with resettlement.</p>
Socio-economic Survey	<p>Socioeconomic surveys were conducted house-to-house to collect data on PAP population's characteristics for demographic and economic analyses to inform resettlement planning and decisions.</p>
Squatting Syndicates	<p>Persons who make a business out of professional squatting or illegal housing for profit or gain.</p>

Usufruct	The right to use and profit from land belonging to others or to a larger entity, e.g., to a tribe, community or collective.
Vulnerable groups	Distinct groups of people who might suffer disproportionately from resettlement effects.

EXECUTIVE SUMMARY

1.0 PROJECT DESCRIPTION

1.1 Project Rationale

The Feasibility Study of Dalton Pass East Alternative Road (DPEAR) Project is being carried out by Nippon Koei in Joint Venture (JV) with Katahira and Engineers International, Nippon Engineering Consultants Co., Ltd., and Central Nippon Expressway Co., Ltd. The project will be implemented by the Department of Public Works and Highways Unified Project Management Office – Road Management Cluster I (DPWH-UPMO-RMC1), with funding from Overseas Development Assistance (ODA) of Japan International Cooperation Agency (JICA).

DPEAR will serve as an alternate route to the existing Dalton Pass segment of the Pan-Philippine Highway (PPH), otherwise known as the Maharlika Highway. This highway is already experiencing heavy traffic mostly due to slow-moving cargo trucks plying the route, which becomes worse due to frequent landslides and poor visibility during heavy rainfall. DPEAR is envisioned to relieve this traffic congestion; facilitate safe transport of people, goods, and services; and improve connectivity, not only with the National Capital Region (NCR), but also between Cagayan Valley (Region II) and the eastern part of the Central Luzon (Region III). The realization of the project, as one of the major projects in the “Build, Build, Build” infrastructure development strategy proposed by the Philippine government and continued to the current “Build Better More” infrastructure campaign of this administration, will support the two regions’ agricultural, commercial, industrial and tourism activities and redound to the country’s overall socio-economic development.

1.2 Project Location

The Dalton Pass East Alternative Road (DPEAR) project spans 23 kilometers, beginning in Bgy. Bunga in the municipality of Carranglan and ending in Bgy. Canarem in the municipality of Aritao (**Figure ES1.2.1**). The project will pass through ancestral domains belonging to two indigenous cultural communities, namely: (i) the Kalanguya ICCs in Nueva Ecija, and (ii) the Kalanguya-Ikalahan ICCs in Nueva Vizcaya. The project will also traverse portions of Carranglan, Nueva Ecija that are within the Pantabangan-Carranglan Watershed Forest Reserve (PCWFR). The PCWFR was declared a watershed reserve pilot area by virtue of Presidential Proclamation No. 561, s. 1969, and is listed as one of the initial components of the National Integrated Protected Areas System (NIPAS) pursuant to Sec. 5 of RA 7686, s. 1991.

Figure ES1.2.2 shows the DPEAR project relative to the existing Dalton Pass and other new roads completed and planned by the DPWH.

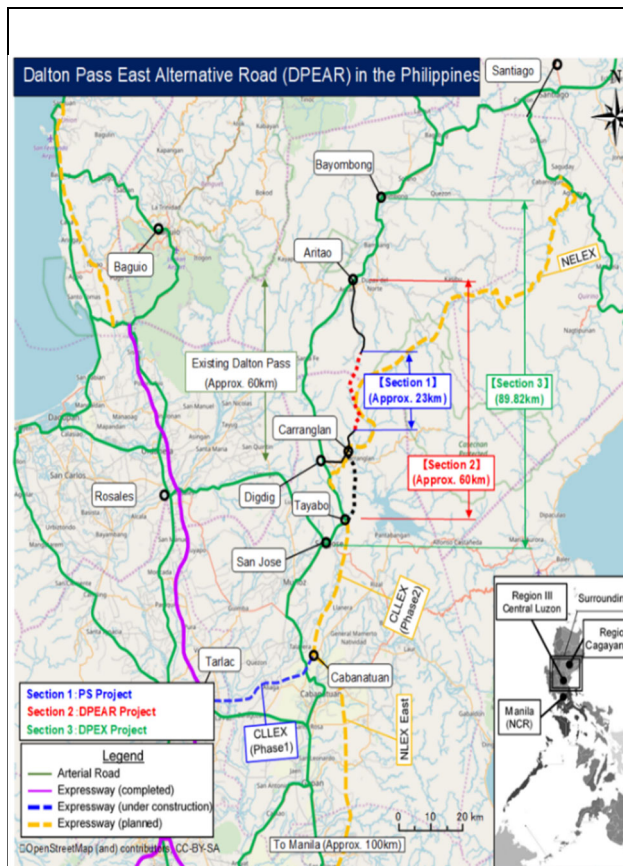


Figure ES1.2.1 Map showing project location

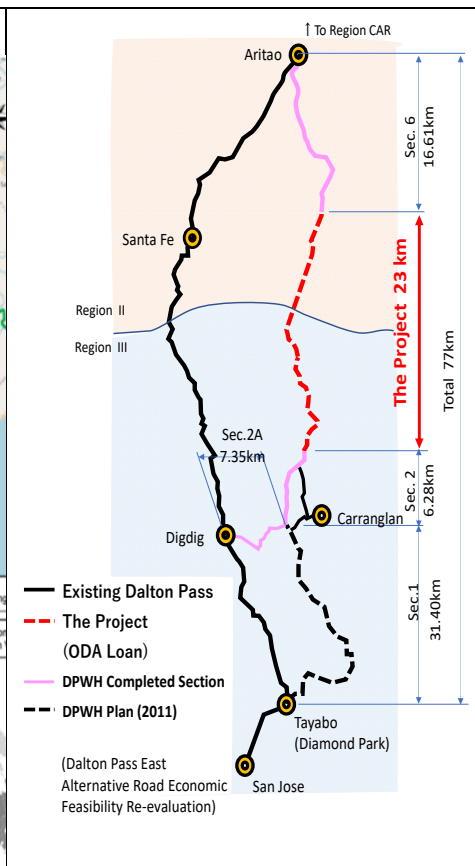


Figure ES1.2.2 Map showing this DPEAR project and its connection to existing Dalton Pass and other roads completed and planned by DPWH

Source: JICA Study Team, 2020

1.3 Civil Works Components

The civil works components of the project will include roads, bridges, tunnels, slope protection works, O&M facilities, traffic service facilities, sabo dam, and power transmission lines. **Table ES-1.3.1** is a summary description of these structures.

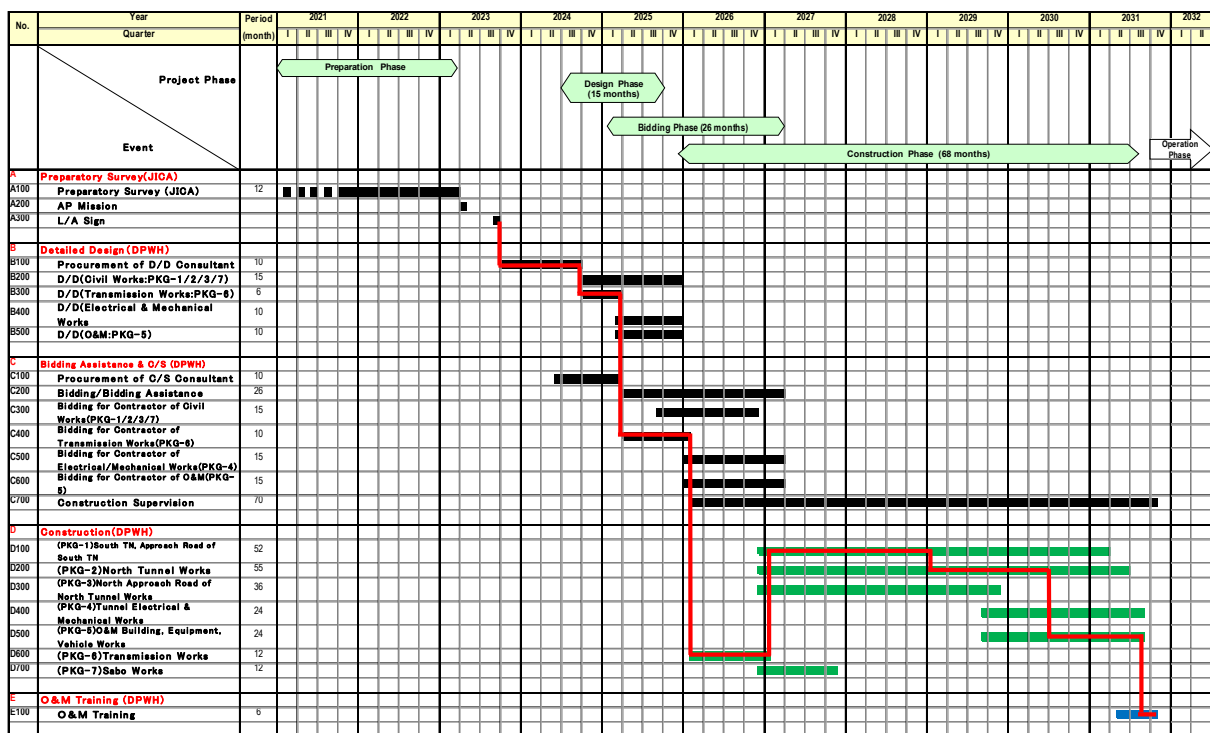
1.4 Project Implementation Schedule

The DPEAR project is currently in the Feasibility Study stage. As shown in **Figure ES-1.3.2**, the detailed engineering design (D/D) is expected to start in Q2 of 2024 and construction works are expected to proceed in Q3 of 2026 till end of 2030. This, of course, is subject to change depending on the progress of project preparation.

Table ES-1.3.1 Civil works components of the DPEAR Project

Item		Description
Road (New Construction)	Standard, Speed	Road Standard: Expressway (HSH-1) Design Speed: 60km/hour
	Total Length	23.0 km
	Total ROW Width	60 m (4-lane) for general sections As required to accommodate slopes for large cut and large fill sections
	Bridge	10 Locations Total Length: Southbound 2.86 km Northbound 3.01 km Bridge Type: PC-I Girder Bridge PC-Box Girder Bridge Steel Truss Bridge
	Tunnel	2 Locations 1) South Tunnel Southbound (2-lane) 1.61 km Northbound (2-lane) 1.57 km 2) North Tunnel Southbound (2-lane) 4.45 km Northbound (2-lane) 4.52 km
	O&M Facility	Operation Control Center
	Local Traffic Service Facility	Underpass Box Culvert 28 nos. Overpass Bridge 6 nos. Intersection 2 nos. Frontage Road
	Traffic Safety and Traffic Control Facility	Guardrail Traffic Sign Traffic Marking
Sabo Works	Sabo Facility	Sabo Dam
Power Transmission Line	Electric Facility	Power Transmission Line to Tunnels Sub Station ➤ Approx. 25km of new transmission line for the north tunnel under NUVELCO ➤ Approx. 53km of transmission line for the south tunnel under NEECO II Area 1 (i.e. newly installing for 13km, upgrading for 40km)

Source: JICA Study Team, 2022



Source: JICA Study Team, 2022

Figure ES-1.3.2 Project Implementation Schedule

1.5 Objectives of Preliminary RAP

The overarching objective of this preliminary RAP is to identify and evaluate the impacts and cost of involuntary taking of land to secure the project's right of way (ROW) in terms of displacement of people, loss of economic assets, disruption of lives, and restriction of access to economic resources and social base. To mitigate these impacts, the RAP must ensure that project-affected persons (PAPs) will be adequately compensated for their losses, provided with rehabilitation measures, and assisted to maintain, if not improve, their pre-project living standards and income generating capacity.

Specifically, this preliminary RAP aims to:

- (a) enumerate and characterize all potential project-affected persons (PAPs) who stand to lose their economic and social base due to the project
- (b) enumerate all real properties and assets that will likely be affected in part or in full, irrespective of tenurial status
- (c) determine the fair and just compensation and other entitlements due to PAPs for such losses
- (d) document reiterative public consultations to ensure meaningful participation of PAPs, LGUs and other stakeholders in resettlement and equity in the distribution of project benefits
- (e) formulate a menu of livelihood options to re-establish the PAP's income and livelihood base
- (f) identify institutional arrangements for RAP implementation and mechanisms for grievance redress by PAPs, and

- (g) estimate the cost, timetable and procedures for RAP implementation and monitoring

1.6 Scope of the Preliminary RAP

The proposed DPEAR project passes the municipalities of Aritao and Santa Fe in the province of Nueva Vizcaya in Regions II and the municipality of Carranglan in the province of Nueva Ecija in Region III.

This Preliminary RAP was prepared as part of the Feasibility Study of DPEAR Project. The RAP identifies and quantifies the potential impacts in terms of physical, economic, and social displacement due to the expected taking of land and improvements thereon to secure the project's right-of-way (ROW). Where these impacts are unavoidable, the RAP proposes ways to mitigate these impacts by way of fair and just compensation for lost assets, resettlement, if practicable, and provision of livelihood rehabilitation options.

The project-affected persons (PAPs) covered by this study only include the claimants of lands identified through existing cadastral maps. No validation of lot titles/tenurial instruments to prove ownership was conducted during this RAP study.

Figure ES-2.2.1 shows the ROW alignment across the entire 23-km project stretch identified in this feasibility study. The scope of this preliminary RAP includes the areas that are likely to be acquired permanently to secure the project's ROW for: (i) the planned road alignment consisting of 4-lane roads, 10 bridges and their approaches; (ii) the two tunnels and tunnel portals; and (iii) the areas for construction of auxiliary facilities.

Sec. 4 of the Right-of-Way Acquisition Act (RA 10752, s. 2016) and Sec. 11 of its IRR governs ROW acquisition of subsurface or sub-terranean ROW. On this basis, lands that will be traversed by the tunnel at depths >50m need not be acquired by DPWH; the PAPs will retain ownership of the properties and they can continue their economic activities on those lands even after project execution. For this reason, owners of lands that will be traversed by the proposed tunnels at depths >50 meters were not included in the RAP surveys.



Source: EarthUs, 2022.

Fig. ES-2.2.1 Map showing ROW alignment

1.7 Methodology

1.7.1 Census and Socio-economic Survey (C-SES)

Using a survey questionnaire, the census and socio-economic survey (C-SES) obtained the baseline demographic and socio-economic profile of PAPs, including:

- Name, age, sex, and educational attainment of household head (HHH), spouse and HH members
- Tenorial status, ethnicity, and linguistic affiliation
- Primary and secondary sources of income of working members
- Family income level and expenditures
- Current and preferred employment, business skills and training

- Living conditions - power supply, water supply, fuel, sanitation facilities; appliances etc. valuable items owned
- Housing conditions - type of structure, housing (wall, roof, flooring) materials, age of structure, number of rooms
- Community conditions – access to health and education
- Social organizations, community network and access to credit facilities
- Project awareness and perception of the project

1.7.2 Preliminary Assets Inventory Survey (Inventory of Losses)

All assets that will likely be acquired and/or removed to secure the project's ROW were inventoried, regardless of tenurial status or ownership, including the following:

- lands
- houses and other structural improvements on land, including burial places, especially in IP communities
- public structures and utilities, such as electricity
- trees and crops

In lieu of manual counting, inventory of trees and perennials were done using remote sensing technology. This involved image processing of multi-spectral satellite data Gaofen-2 (GF-2) and Light Detection and Ranging (LIDAR) data, supported manually by random field sampling for ground-truthing.

For this preliminary RAP study, the extent of potential losses was only estimated based on the cadastral maps. A validation survey will be undertaken during the detailed engineering design (D/D) stage.

1.7.3 Preliminary Market Price and Replacement Cost Study

Preliminary estimates were obtained of the current market value of potentially affected lands, trees and crops and the replacement cost of houses and other structural improvements.

The study relied on ocular surveys and secondary data. It employed generally accepted guidelines and practices in appraising the current market value of land, trees and crops and the replacement cost for structural improvements.

Other entitlement costs were estimated including transition allowance, disturbance fee, and special rehabilitation assistance to extremely vulnerable groups, in accordance with governing laws, particularly RA 10752, otherwise known as the "Right-of-Way Act" of 2015 and the DPWH LARRIP Policy.

1.7.4 Communication and Public Participation

A series of coordination meetings, information dissemination and public consultation meetings with various project stakeholders was carried out during resettlement planning. The participants included regional and provincial officials of the DENR and the NCIP; local government officials of Carranglan, Nueva

Ecija; Canabuan, Santa Fe; Canabuan, Aritao and Canarem, Aritao. Community consultations were also held among the barangays officials and the potential PAPs in the six barangays. Focus Group Discussions (FGDs) were held with various people’s organizations (POs) and women’s groups.

2.0 LEGAL AND POLICY FRAMEWORK

The pertinent laws and policies that bear on land acquisition and resettlement are summarized in **Table ES-2.1.1**. No significant gaps were identified between the policies and guidelines of international financing institutions (IFIs) such as the Japan International Cooperation Agency (JICA) and the World Bank (WB) and the governing Philippine laws and statutes (**Table ES-2.1.2**).

Table ES-2.1.1 Summary of Pertinent Laws and International Policy on Land Acquisition and Resettlement

Philippine Laws and Statutes	Institutional Policies of IFIs
1987 Philippine Constitution - Article III, Section 9 - Private property shall not be taken for public use without just compensation.	JICA Guidelines and World Bank OP 4.12 –
RA 10752, s. 2016 - An Act to Facilitate the Acquisition of Right-of-Way (ROW), Site or Location for National Government Infrastructure Projects - Payment of compensation for affected assets shall be based on: (i) current market value of the land; (ii) replacement cost of structures and improvements; and (iii) current market value of crops, trees, and perennials.	Involuntary resettlement and loss of means of livelihood are to be avoided by exploring all viable alternatives
CA 141 (Public Land Act, s. 1936), as amended by PD 635, s. 1975) – Sec. 112 reserves a 20m easement which the government can re-acquire for public use with compensation for structures and improvements thereon but not for land. The 20m easement was later amended to 60m.	Where unavoidable, measures must be in place to minimize impact and compensate for losses.
RA 7279, s. 1992 - Urban Development and Housing Act (UDHA) - Eviction or demolition is allowed under warranted circumstances, including when priority government infrastructure projects with available funding are about to be implemented. IA in coordination with concerned LGUs and the NHA will provide resettlement sites.	Full compensation at fair market value or replacement cost must be provided prior to project execution.
RA 8371, s. 1997- Indigenous People’s Rights Act (IPRA) - In executing priority national road infrastructure projects on lands occupied by indigenous cultural communities, DPWH shall safeguard the rights of indigenous peoples to their ancestral domains, taking into consideration their customs, traditions, values, beliefs, interests, and institutions.	Measures must enable PAPs to at least restore their standards of living and incomes to pre-project levels.
Land Acquisition, Resettlement, Rehabilitation, and Indigenous Peoples Policy (LARRIPP), s. 2007 – Prescribes compensation to eligible PAPs whose lands and improvements thereon are affected, whether severely or marginally, regardless of tenurial status.	Provision of support for alternative livelihoods and re-establishment of communities after relocation.
DO 43, s. 2020 – Sec. 2.16-B prescribes the mode of acquisition involving lands covered by Certificate of Ancestral Domain Title (CADT) through perpetual easement of Right of Way. ICC retains ownership of the land. Compensation for the land shall be at current, relevant BIR Zonal Value payable to the NCIP-accredited Tribal Council.	Meaningful consultation with and participation of PAPs in planning, implementation, and monitoring of RAPs
DPWH Department Order No. 152, s. 2017 – Prescribes the guidelines and procedures in the DPWH ROW Acquisition Manual (DRAM), in full compliance of RA 10752 and its Implementing Rules and Regulations (IRR)	Grievance mechanisms must be established for the PAPs.
DPWH Department Order No. 5, s. 2003 - whether funded locally or with foreign assistance, all DPWH projects shall be covered by a Land Acquisition and Resettlement Action Plan (LARAP).	

DPWH Department Order No. 327, s. 2003 – Compensation for affected structures at replacement cost, which is the current market prices of materials and labor to re-construct a similar structure for houses and other fixed structures with no deductions for salvaged materials.	RAP is required for projects resulting in large-scale resettlement.
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Source: *EarthUs*, 2022.

3.0 FIELD WORK AND DATA COLLECTION

3.1 Public Consultation Meetings and Focus Group Discussions (FGDs)

Reiterative information education campaigns (IEC) and public consultation meetings were held at the LGU and barangay levels. These meetings provided the venue for DPWH and the JICA-RAP study teams to disclose and address issues/concerns raised by the PAPs re the project, such as: (i) details and timeline; (ii) benefits and potential impacts on people, assets and livelihoods; (iii) ROW alignment and the affected lands and improvements; (iv) policies, laws, and procedures governing ROW acquisition; (v) compensation and entitlements due to PAPs based on current market value of land and replacement cost of structures, trees and crops; (vi) grievance redress; and (vii) participation of PAPs in the formulation and implementation of the RAP and the project. The LGU-level public consultations were held on February 15, 16 and 17 via Zoom with the LGU and barangay officials and representatives of the IPs of Santa Fe, Carranglan, and Aritao, respectively. The barangay-level public consultations were held on March 8-12 with the PAPs in the barangays of Canabuan in Santa Fe; Canabuan and Canarem in Aritao; and Salazar, Burgos and Bunga in Carranglan. A second iteration of the public consultations were held at the LGU level on July 4-5 and at the barangay level on August 2-5.

Key informant interviews (KIIs) were conducted amongst members of People’s Organizations (POs) that have stewardship agreements with DENR over the forestlands within the ROW. KIIs were also held with key LGU and barangay officials and affected rice farmers. Focus group discussions (FGDs) were conducted amongst various women’s groups in the barangays to understand their alternative livelihood preferences.

3.2 Ancestral Domains

There are two ancestral domains that the project will traverse, namely:

- (1) *Kalanguya-Ikalahan* Ancestral Domain. The *Kalanguya-Ikalahan* Ancestral Domain is covered by Certificate of Ancestral Domain Title (CADT) No. RO2-STF-0406-0458. It encompasses a total land area of 30,758.5822 hectares, and covers 23 barangays in the municipalities of Santa Fe, Aritao and Kayapa. Three of these barangays will be traversed by the project. This includes the barangays of Canabuan, Santa Fe; Canabuan, Aritao; and Canarem, Aritao, which are directly affected by the project’s ROW.
- (2) The *Kalanguya* Ancestral Domain. This is covered by CADT No. R03-CAR-1106-051 issued on November 14, 2006. It comprises a total land area of 25,373.10 hectares. The *Kalanguya* Ancestral Domain covers four barangays namely

Capintalan, Minuli, Putlan, Salazar and portions of Burgos, all in the municipality of Carranglan. The Project will only traverse portions of the ancestral land in Salazar.

3.3 Assets Inventory Survey

3.3.1 Lands

The project will traverse six barangays, namely Bunga, Burgos, and Salazar in Carranglan, Nueva Ecija; Canabuan and Canarem in Aritao, and Canabuan in Santa Fe, Nueva Vizcaya. All six barangays subsist on agricultural economy.

A total of 1,294,279.48sqm or ~129.43 hectares (ha) belonging to 107 PAPs¹ need to be acquired to secure the project's ROW. Of this, Bgy. Salazar in Carranglan has the largest share at 34.87%, followed by Bgy. Burgos with 20.66% and Bgy. Bunga with 15.66%. The three barangays in Santa Fe and Aritao share 10.12%, 14.76% and 3.93%, respectively.

3.3.2 Structures and Improvements

There are 102 structures, including 55 houses, two churches, one warehouse and 44 other minor improvements such as within the proposed ROW. These are owned by 58 PAPs. Fifty-four (54) of the residential dwellings will likely be severely affected and may need to be demolished totally. These 54 PAPs may need to relocate elsewhere.

3.3.3 Public Utilities

There are 23 public structures erected within the ROW that may need to be demolished and relocated. This includes a basketball court and a waiting shed owned by the barangay LGU of Bunga and 21 electric posts in Bunga and Burgos, which are owned by the Nueva Ecija Electric Cooperative (NEECO).

3.3.4 Trees and Perennials

The preliminary inventory of trees using remotely sensed data yielded an estimated count of 870 hardwood or timber species and 10,347 fruit-bearing trees and perennials.

3.3.5 Crops

Based on remotely sensed preliminary data, the agricultural areas comprising 32.12% of the total land cover consist of 415,668.78m² of mostly prime agricultural lands that are planted to rice.

3.4 Results of the C-SES

¹ This is based on socio-economic survey and key informant interview but absence of land ownership evidence. This will be validated and confirmed at the Detailed Engineering Design stage

The Census and Socio-economic Survey (C-SES) was undertaken from 24 March to 07 May 2022.

3.4.1 Distribution of PAPs

There were **170** PAPs identified who are living/occupying and/or doing economic activities inside the proposed ROW. Only **163** respondents agreed to be interviewed, representing 82 PAPs in Nueva Ecija and 81 PAPs in Nueva Vizcaya, distributed as follows: Bgy. Canabuan, Santa Fe, 41; Bgy. Salazar, 36; Bgy. Burgos, 25; Bgy. Bunga, 21; Bgy. Canabuan, Aritao, 21; and Bgy. Canarem, 20.

3.4.2 Demographic Characteristics

The total affected population is **659**. The HH size ranges between 1 to 11 members. The average HH size varies between 3.30 (Canarem) and 4.92 (Salazar). This translates to an average HH size of 3.92 across all barangays. Of the 163 HH, 33.7% have 5 or more members, while 66.6% have 1-4 members.

Of the HH heads, those who are in their economically productive years of 15-64 y.o. comprise nearly 99.4%, of whom 142 are males and 20 are females. All the spouses, of whom 133 are females and 13 are males, are in their economically productive age of 15-64 y.o. Of the HH members, 246 (70.2%) comprise those in their economically productive years of 15-64 y.o.; some 102 members (29.1%) comprise the young dependent population aged 0-14 y.o. while only two members (0.6%) aged 65 y.o. and over comprise the old-age dependent population.

In terms of educational attainment, only 7 (4.29%) of HHH finished college; 8 (4.91%) are college undergrads; and 2 (1.23%) went to vocational school. About 23 or 14.1% finished high school and 34 or 20.86% reached high school level. Most HHH are elementary undergraduates (40 or 24.54%) or elementary graduates (34 or 20.86%), and 3 (1.84%) had no formal schooling.

Among the spouses, there are more college graduates (15 or 10.27%); 6 (4.11%) who reached college; and 2 (1.37%) who had vocational training. Still, 28 (19.18%) are high school graduates and 26 (17.81%) reached secondary level; 24 (16.44%) finished elementary; and 26 (17.81%) are elementary undergraduates. Only 3 spouses had no formal schooling.

Nearly 64 (18.28%) of HH members have reached tertiary level of education. Of these, 21 (6.0%) were able to finish college; 36 (10.3%) went to college and 7 (2.0%) went to vocational school. About 107 (30.6%) finished or went to high school and 109 (over 31%) acquired elementary education. Only 7.14% are in the early childhood years.

The school-age population consists of 209 HH members between the age of 3 and 21. Almost 98% of this population are still in school; only 2% are out-of-school youths (OSYs). Of those currently enrolled, 58.85% go to schools located inside the barangay; 23.44% go to schools outside the barangay but within the LGU; and 15.31% go to schools outside the LGU.

In terms of ethnicity, 86 HH (52.76%) are IPs: 33.74% belong to the Kalanguya-Ikalahan ICCs of Canabuan, SF, Canabuan AR, and Canarem while 19.02% belong to the Kalanguya ICCs of Salazar. The non-IPs constitute 38% of the PAPs.

The non-IPs constitute 38% of the total households. About 95.23% of the PAPs in Bunga and 100% of the PAPs in Burgos are non-IPs. Only ~9% of the PAPs in Salazar, Carranglan and Canabuan, Santa Fe; 28.6% of the PAPs in Canabuan, Ariato; and 15.8% of the PAPs in Canarem, Aritao are non-IPs

3.4.3 Social Conditions

For domestic use, more than 83% draw their water from springs and or streams while nearly 15% sources their water from deep or shallow wells. Nearly 40% of households use toilets that are water-sealed and connected to septic tanks, while the rest rely on non-water sealed open pits. For garbage disposal, nearly 92% resort to composting.

For cooking, wood as fuel is by more than 46% while only about 32% uses liquid petroleum gas (LPG). More than 63% of households are connected to electricity, which is provided by NEECO in Nueva Ecija and NUVELCO in Nueva Vizcaya. The rest uses either kerosene lamps or solar power for lighting.

3.4.4 Economic Conditions

There are 566 persons aged 15 to 64 who constitute the employed and employable population. This represents 85.89% of the total PAP population. Of these, 162 are HH heads, 158 are spouses and 246 are HH members composed of 150 males and 96 females.

Of the HHH, 136 out of 151 or 90% are engaged in farming. The rest are employed in selling, construction work, vehicle mechanics, driving, pastoral work, government service, private companies, and own business. As it is with the HH heads, most of the spouses, i.e., 107 out of 132 or over 81% are engaged in farming. About 11% are involved in selling food items and local agricultural produce. The rest are working as Overseas Filipino Workers (OFWs) or do pastoral work, or in government service, private employ, and own business.

Among the HH members, there are nearly twice as many male workers (53 out of 88 or 60.23%) as there are females (35 or 39.77%). Most of them are engaged in farming activities, i.e., 66% of males and 29% of females, respectively. The rest of the male workers are engaged in construction work (15%); employed in government (7.55%) or private companies (7.55%); selling (1.89%); or own a

business (1.89%). The rest of the female counterparts have their own business (20%); engage in selling (14.29%); work in private companies (17.14%) or in government (11.43%); or work overseas (8.57%).

The incidence of poverty is very apparent. Roughly 61.35% of the HH have combined incomes of below Php13,000 per month. These PAPs may be considered as falling just within, if not below, the poverty threshold estimate of Php12,082/month for a family of five, as determined by the PSA in the first semester of 2021.² Moreover, there are 86 PAPs or nearly 47% of the households whose family incomes are below or just within the estimated monthly food threshold of Php8,393 for a family of five, as determined by PSA during the same period. Over 44% of the PAPs have monthly expenditures of between Php1,000 and Php8,000. This means that a greater number of PAPs in the lower income brackets have per capita incomes that are not even sufficient to meet their basic food and non-food needs.

Nearly 53% have access to Barangay Health Centers while more than 24% avail of the medical services of government hospitals outside the barangay. Only a few can afford private medical health services in the town proper. Over 50% of the households have access to education for elementary and secondary education inside the barangays.

3.4.5 Vulnerable Groups

About 60.74% of the PAPs are among the poorest of the poor whose incomes fall below PSA's poverty threshold estimate of Php12,082/month for a family of five in the first semester of 2021. The other vulnerable groups consist of female-headed HH representing 12.27% of the PAPs; 17.8% headed by solo parents; 6.13% who have members suffering from physical and psycho-social disabilities; 26.38% headed by elderlies over 60 years old; and 52.76% who belong to ICCs, many of whom are also among the poorest-of-the-poor.

3.4.6 Land Tenure

Of the 163 respondent PAPs, 141 (86.5%) are occupying and/or doing farming and other livelihood activities on private agricultural lands, while 22 PAPs (13.5%) are occupying and/or planting on lands considered as public forests and/or ancestral domains.

3.4.7 Housing Conditions

There are 55 residential structures occupied by PAPs, 54 of which are severely affected and will likely be demolished. Over 78% say they own the dwelling units, while 10.91% say they are rent-free occupants. In terms of construction materials used, 38.9% are of Type II (light); 16.7% are of Type III (semi-concrete); 22.22% are of Type IV (concrete); and 22.22% are of Type V

² Philippine Statistics Authority. <https://psa.gov.ph/content/proportion-poor-filipinos-registered-237-percent-first-semester-2021>

(mixed). The construction materials for the walls are mostly concrete (40.74%) and semi-concrete (22%) or a mix of concrete and wood or galvanized iron (22%). The materials commonly used for roofing are GI Sheets (78%) while the floorings are mostly concrete (50%) or compacted soil materials (22%) and sometimes wood (13%) or a mix of these (15%).

3.4.8 Willingness to Resettle

Of the PAPs who will lose their dwellings, 88.9% prefer to be relocated on-site; 42.6% would rather move their residence on the same plot outside of the ROW; and 46.3% would only agree to be relocated to a different plot nearby.

4.0 IMPACTS AND MITIGATION MEASURES

4.1 Loss of Land

The total area that will be required to secure the project's ROW is 1,294,279.48 m². These lands are either owned or under the stewardship of 107 landowners³ and PACBRMA holders and 56 tenants/caretaker. Taking these lands would mean loss or diminution of the very resource on which the PAPs live, grow their food, and derive their incomes.

The indigenous communities in Salazar, Santa Fe and Aritao are members of the Kalanguya-Ikalahan Indigenous Cultural Communities (ICCs) of Region II and the Kalanguya ICCs of Region III. These PAPs stand to lose portions of their ancestral domains. The lands in Salazar covered by PACBRMA are at the same time covered by CADT. The loss of parts of the ancestral domains, which is tied to their way of life, would mean loss of social, ecological, economic, and spiritual heritage of these people.

4.2 Demolition of Structures

There are 102 structures belonging to 58 PAPs that will likely be demolished. These include 54 residential structures, one (1) warehouse and two (2) churches and 44 other minor structural improvements, such as storage rooms, solar dryers, farmhouses, dirty kitchens, animal coops/pens, small stores, grave houses, a windmill, a deep well, a fence and a shed. Except for a kitchen, all the structures will be severely affected. This would mean the loss of roof over the heads of 54 homeowners and the loss of structures that support their social and economic well-being.

One basketball court, one waiting shed and 21 electric posts in Bunga and Burgos will be affected. Removal of the electric posts will significantly hamper access to power supply by these communities, which could lead to interruption of vital social and economic activities.

³ This is based on socio-economic survey and key informant interview but absence of land ownership evidence. This will be validated and confirmed at the Detailed Engineering Design stage

4.3 Loss of Crops, Trees and Perennials

Based on remotely sensed data, the estimated agricultural areas comprise 32.12% of the total land cover inside the ROW. These consist of prime agricultural lands that are planted to rice. The livelihood and income of rice farmers/farm workers will be impacted significantly by the acquisition of rice these rice production areas.

An estimated 870 standing count of timber species and 10,347 standing count of fruit trees and perennials will likely be uprooted and removed from ROW prior to construction. The removal of trees is a particularly sensitive ecological issue, particularly in the Seguim Sub-watershed and Barat Sub-watersheds, which are part of the Pantabangan-Carranglan Watershed Forest Reserve, a protected area, and an initial component of the NIPAS system. Removal of the dwindling forest cover is anathema to the intents of the PACBRMA issued to POs and the JICA-funded FMP initiative in the PCWFR protection zone. It will also deprive the POs of the subsistence and livelihoods that they derive from agro-forestry.

4.4 Displacement of People

There are 54 PAPs who will likely lose their residential dwellings, as these will be severely affected. As a result, these PAPs will be physically displaced and would need to re-establish their homes elsewhere.

Twenty-six (26) of these PAPs belong to two IP groups. The displacement of IPs from their ancestral domains will not only result in the disintegration of the IP community. It will also deprive relocating IPs access to traditional support systems and communal resources.

4.5 Loss or Diminution of Income

The taking of lands, which are the poor farmer's main source of income and livelihood will likely cause further impoverishment of this marginalized segment of the population. The worst impact will be on the poorest of the poor and other vulnerable groups such as the households who are female-headed, headed by solo parents, whose members suffer physical disabilities, headed by elderlies and belong to the indigenous peoples.

4.6 Loss or Disintegration of Social Support Systems

Physical dislocation will cause disenfranchisement of PAPs due to loss of access to basic health services, education, credit, and social network. Resettling them away from their present residences will completely deprive them of the usual social amenities, conveniences, and social support systems.

4.7 Impoverishment of Vulnerable Groups

These vulnerable PAPs will likely suffer impoverishment and disenfranchisement, if deprived of their sources of livelihood, access to social services and social support systems.

4.8 Mitigation Measures

The following social safeguards are proposed to mitigate the identified impacts on PAPs: (i) compensation at current market value for land; (ii) compensation at replacement cost for structures and other improvements; (iii) compensation for trees and crops at current market value; (iv) on-site resettlement of families whose dwellings will be severely affected; and (v) provision of alternative livelihood and employment opportunities, including skills trainings, for those whose sources of income will be adversely affected, especially the economically productive PAPs who may lose their present livelihoods and economic opportunities; (vi) ensuring access by relocating PAPs to basic education, health, credit support and other social services in the new place of residence; and (vii) special consideration for indigenous peoples.

5.0 PRELIMINARY COST OF COMPENSATION AND OTHER ENTITLEMENT

5.1 Compensation for Land, Structures, Crops, Trees and Perennials

The preliminary estimate of total cost of compensation and other entitlement to mitigate the impacts on PAPs will include:

- 1) Compensation to 107 landowners⁴ for land at current market value amounting to **Php129,970,108.40** for surface land and **Php301,916.95** for sub-surface land
- 2) Compensation to 58 structure owners at replacement cost amounting **Php10,652,623.07**
- 3) Compensation to undetermined number of owners of trees and perennials at current market value amounting to **Php25,597,559.00**

5.2 Other Entitlement

The compensation for other entitlements to 163 PAPs will be in the form of disturbance compensation, financial assistance, inconvenience allowance and livelihood skills training amounting to **Php4,535,000.00**.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Recommended Total Cost of RAP Implementation

Overall, the preliminary cost estimates for compensation and entitlement amounts to **Php171,057,207.42**. The total preliminary cost for RAP implementation is **Php215,662,928.16**. As shown in **Table 6.1.1** this includes the entire budget for: (i) compensation and other entitlements; (ii) external monitoring and evaluation; (iii) monitoring and grievance procedures involving the two ICCs; and (iv) miscellaneous costs.

⁴ This is based on socio-economic survey and key informant interview but absence of land ownership evidence. This will be validated and confirmed at the Detailed Engineering Design stage

Table 6.1.1 Total Preliminary Cost of RAP Implementation

Particulars	Entity	Quantity	Unit Cost, Php	TOTAL, Php
Preliminary Cost of Compensation and Other Entitlements	163 PAPs	(Per category of PAPs)	-	171,057,207.42
Cost of External Monitoring and Evaluation	EMA	L. S.	5,000,000.00	5,000,000.00
Cost of MET/JGMT Monitoring and Grievance Resolution	IP Representatives (2 ICCs)	L. S.	10,000,000.00	20,000,000.00
Sub-total				196,057,207.42
Miscellaneous Costs	As necessary	L. S.	10% of Sub-total	19,605,720.74
TOTAL				215,662,928.16

Source: EarthUs, 2022.

6.2 Menu of Livelihood Options

As a policy, the Project will provide related employment opportunities for both the skilled and unskilled PAPs. Aside from this, a preliminary Menu of Livelihood Options were identified by barangay, according to the employment, employable skills, livelihood/business preferences and trainings needs of PAPs. These are matched with the local conditions, the indigenous resources available, the current opportunities and the development trends in the locality or in the region.

For Bunga and Burgos, integrated natural farming systems with a mix of livestock, freshwater fishponds, agro-forestry and high value crops is a potential industry. Livelihood enterprises that would support these may include:

- Improvement of agricultural productivity
- Improvement of livestock productivity
- Fresh water fisheries
- Product manufacturing and processing
- Eco-tourism by protecting natural resources
- Hospitality service

In common, Salazar (Carranglan), Santa Fe and Aritao have these as natural capital: the meandering pristine river systems, well-preserved forest cover and a thriving indigenous cultural community. The following are potential business activities:

- Improvement of agricultural productivity - mechanization
- Improvement of livestock productivity: medium-scale poultry and piggery
- Free-range chicken production
- Mechanized rice reaper and thresher services
- Plantation: Flowers, coffee, cacao and high value vegetables
- Fresh water fisheries

- Agro-ecotourism by protecting natural resources and Hospitality service: waterfalls, river picnic groves, rubber tubing; agro-ecocultural tourism with flower gardens, coffee shops, and IP-hosted Kalanguya cultural festivals and showcase of indigenous handicrafts; mountain biking; trail hiking
- Product manufacturing and processing – fruit/turmeric candies, cassava flour
- Operation of business – water station, gasoline station

6.3 RECOMMENDED INSTITUTIONAL ARRANGEMENTS FOR RAP IMPLEMENTATION

6.3.1 RAP Implementation Committee

The DPWH will initiate the organization of the RAP Implementation Committee (RIC) in each LGU or group of LGUs, whichever is practicable. The RIC shall be composed of representatives of these offices: DPWH-UPMO-RMC1, the DPWH Regional Office and District Engineering Office (DEO), the concerned LGUs, the NCIP provincial and/or regional office, affected barangays, and the representatives of PAPs. The latter will have separate representation for ICCs/IPs communities affected by the project. Selection of these ICC/IP representatives shall follow the procedures of the NCIP, as specified in the two (2) Memorandum of Agreement with the ICCs/IPs.

6.3.2 Grievance Redress Mechanism

Pursuant to the DRAM and the LARRIPP, the PAPs may file their complaints at the appropriate desk of the DPWH-UPMO-RMC1. The latter must act on the complaint within 15 days. If it fails to do so, the complainant may appeal the case to the DPWH Regional Office concerned, which should act on the complaint within thirty days. If this again fails, the aggrieved PAP may elevate the case to any court of law.

A special mechanism for grievance redress and monitoring of project and RAP implementation is provided for in the MOAs with the two ICCs. This is in the form of a Monitoring and Evaluation Team (MET) for Kalanguya-Ikalahan IPs and the Joint Monitoring and Grievance Team (JGMT) for Kalanguya IPs.

6.3.3 Monitoring

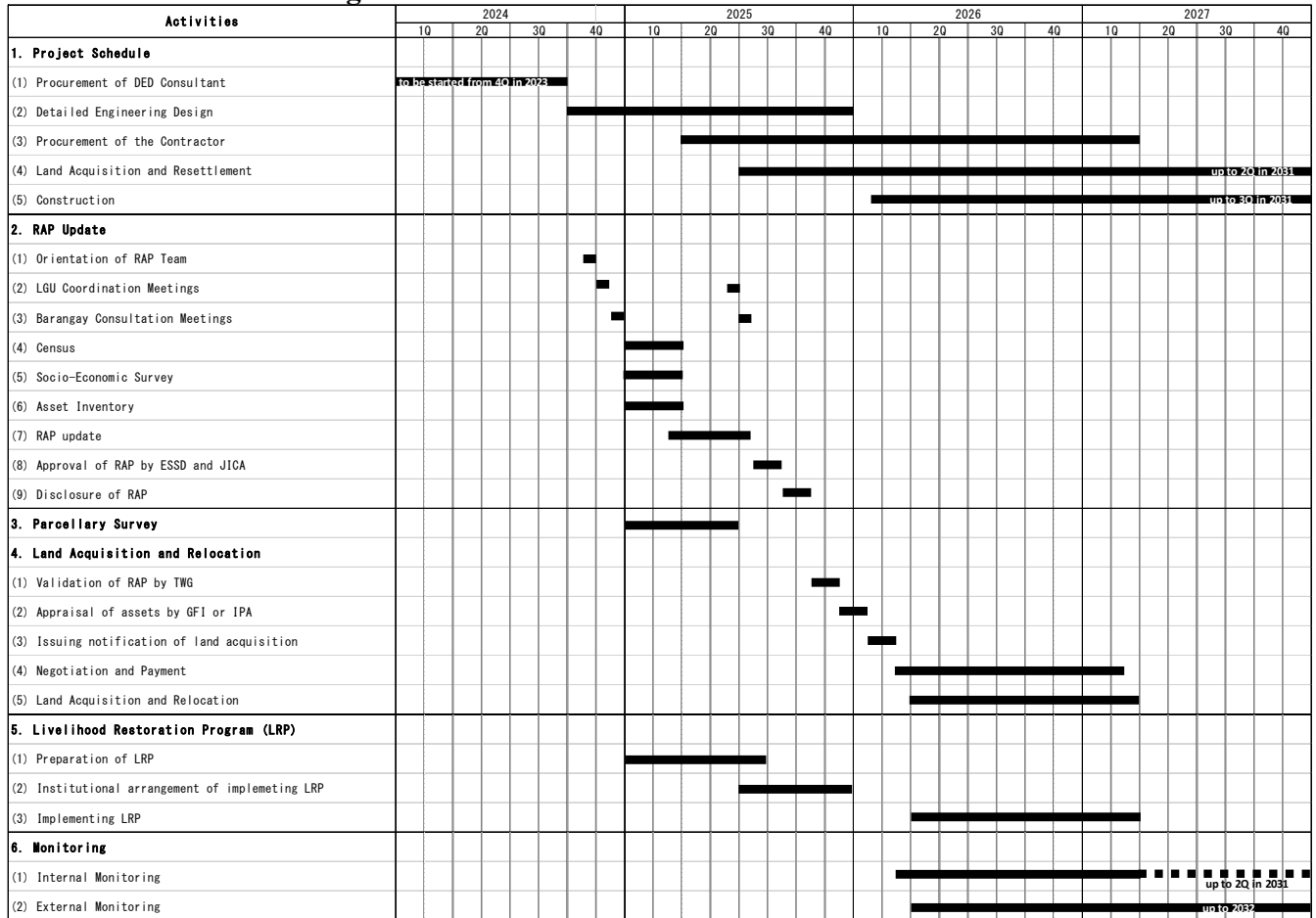
To keep in check the progress of RAP implementation, a two-tiered monitoring system will be put in place, namely:

Internal Monitoring - this will include the supervision and in-house monitoring an internal monitoring agent (DPWH-ESSD) of the RAP implementation, with the following objectives: (i) to check whether land acquisition and resettlement is implemented as planned in the RAP, and (ii) to review unforeseeable issues during the RAP preparation.

External Monitoring – this will be an independent periodic review and assessment by an external monitoring agent of the following: (i) achievement of resettlement objectives; (ii) restoration of the economic and social base of PAPs; (iii) effectiveness and sustainability of entitlements; and (iv) the needs for further mitigation measures.

6.3.4 Implementation Schedule

The provisional implementation schedule of land acquisition and the LRP is shown in **Figure 6.3.1**.



Source: JICA Study Team, 2022

Figure 6.3.1 Provisional Implementation Schedule

6.4 NEXT STEPS

The Next Steps shall be implemented during the D/D stage, when the final design of the ROW alignment shall have been determined. The next steps will basically entail updating this Preliminary RAP and include the following processes:

- (1) Parcellary survey to delineate the lands that will be affected by the project and identify the owners of these land parcels

- (2) Census-tagging/Socio-economic Survey to obtain their socio-economic profile and update the Master List of PAPs
- (3) Updated inventory of losses (IOL) and an updated Market Valuation and Replacement Cost Survey
- (4) Due Diligence to verify documentary evidence of ownership of affected properties subject to compensation
- (5) Reiterative Public Consultations with PAPs, LGUs, and other concerned agencies, particularly the NCIP and other stakeholders on the RAP updating activities, progress and results
- (6) Institutional Arrangements, which will entail organizing the RAP Implementation Committee (RIC) and mobilizing the Monitoring and Evaluation Team (MET)/Joint Monitoring and Grievance Team (JGMT) identified in the MOA with the representatives of the ICCs

1.0 INTRODUCTION

1.1 RATIONALE

This Preliminary Resettlement Action Plan (RAP) was prepared by Phil. EarthUs Consultancy Co., Inc., a consultancy services and development company duly registered with the Philippines Securities and Exchange Commission (SEC), in compliance with the requirements set forth in the Terms of Reference (TOR) for consulting services for the Preparation of Resettlement Action Plan (RAP) for the Preparatory Study on Dalton Pass East Alternative Road (DPEAR) Project. The Preparatory Study is being carried out by Nippon Koei in Joint Venture (JV) with Katahira and Engineers International, Nippon Engineering Consultants Co., Ltd., and Central Nippon Expressway Co., Ltd. The project will be implemented by the Department of Public Works and Highways Unified Project Management Office – Road Management Cluster I (DPWH-UPMO-RMC1), with funding from Overseas Development Assistance (ODA) of Japan International Cooperation Agency (JICA).

The DPEAR project will serve as an alternate route to the existing Dalton Pass segment of the Pan-Philippine Highway (PPH), otherwise known as Maharlika Highway. This highway is already experiencing heavy traffic mostly from slow-moving cargo trucks plying the route, which becomes worse due to frequent landslides and poor visibility during heavy rainfall. DPEAR is envisioned to relieve this traffic congestion; facilitate safe transport of people, goods, and services; and improve connectivity, not only with the National Capital Region (NCR), but also between Cagayan Valley (Region II) and the eastern part of the Central Luzon (Region III). The realization of the project, as one of the major projects in the “Build, Build, Build” infrastructure development strategy proposed by the Philippine government and continued to the current “Build Better More” infrastructure campaign of this administration, will support the two regions’ agricultural, commercial, industrial and tourism activities and redound to the country’s overall socio-economic development.

1.2 PROJECT DESCRIPTION

1.2.1 Background

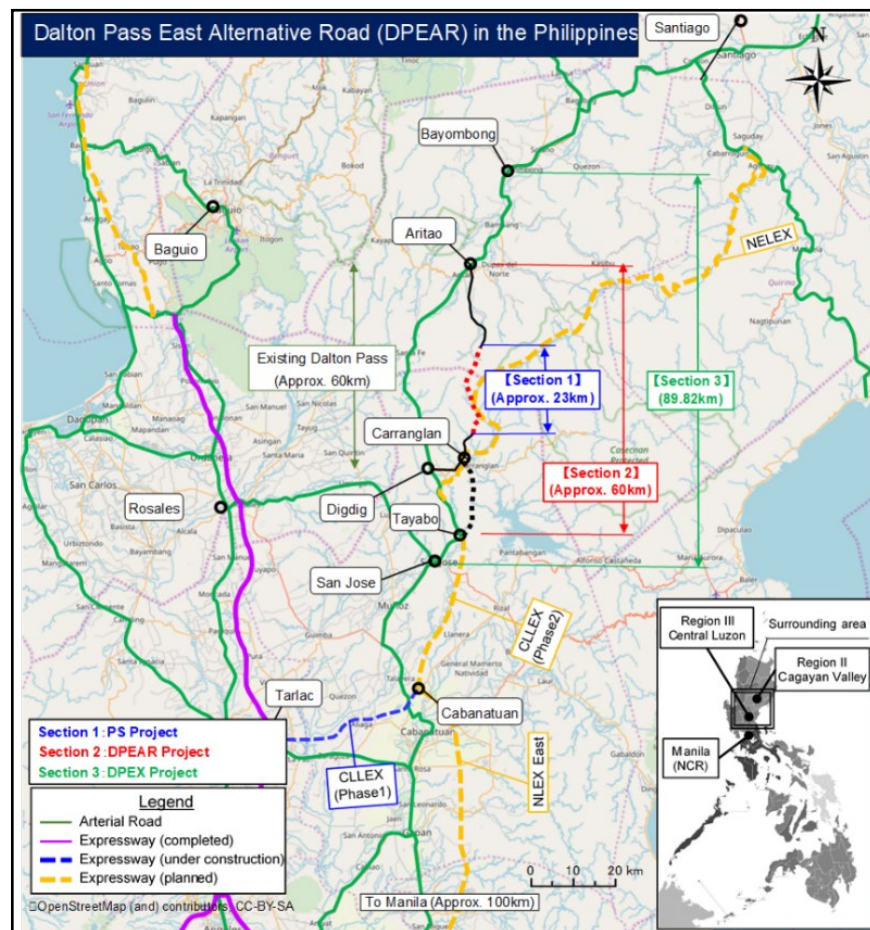
The PPH is classified as the north-south backbone of the country’s arterial road network and is the most important trunk road in the country. The north Luzon section of the PPH functions as the major artery leading to/from Region II. It has a critical section located between Carranglan in Nueva Ecija and Aritao in Nueva Vizcaya, so-called Dalton Pass, which is prone to landslide/rockfall rendering the section impassable and resulting to isolation of Region II.

The Government of Philippines (GOP) through the Department of Public Works and Highways (DPWH) has carried out several planning studies on DPEAR over three decades. Upon the request of DPWH, JICA Study Team initiated a preparatory survey in September 2019 to confirm the necessity and validity of

the project, mainly for the road tunnel and its access sections.

1.2.2 Project Location

The DPEAR begins at approximately KM 180+000 of the PPH in Malasin, San Jose City, Province of Nueva Ecija going eastward then ends and merges with PPH at KM 237+000 in Aritao, Province of Nueva Viscaya. The project, identified as Section 1 in **Figure 1.2.1**, spans 23km, beginning in Bgy. Bunga in the municipality of Carranglan and ending in Bgy. Canarem in the municipality of Aritao.



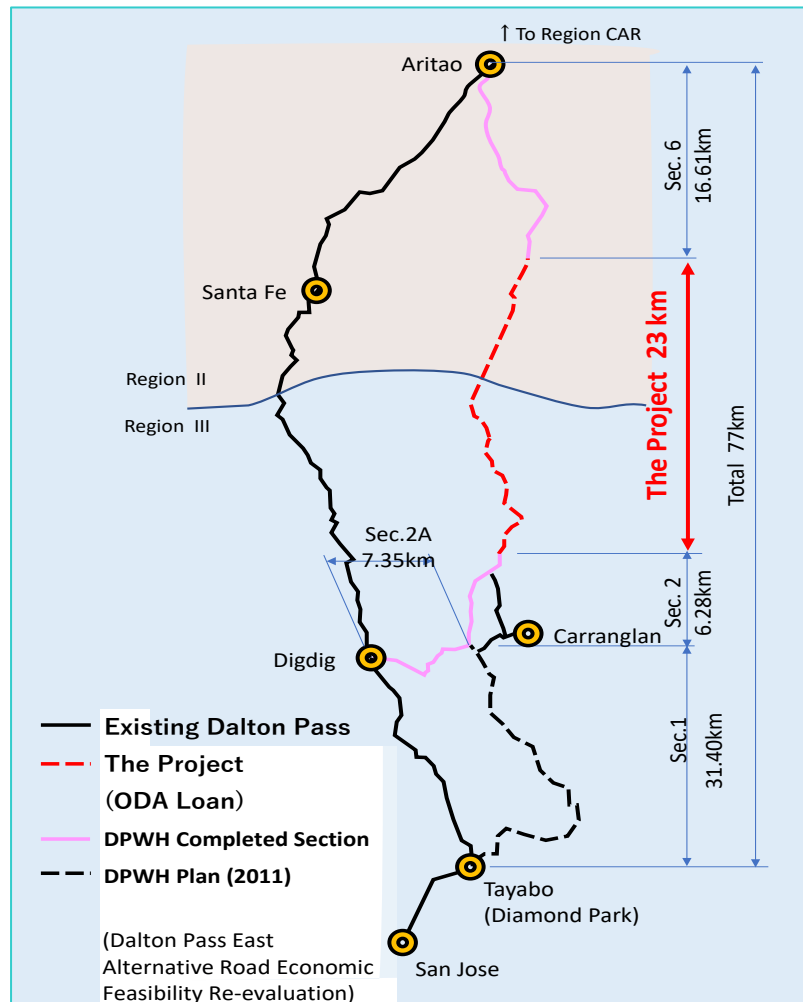
Source: JICA Study Team, 2020

Figure 1.2.1 Map showing project location

The project will pass through portions of ancestral domains belonging to two indigenous cultural communities, namely: (i) the Kalanguya ICCs/IPs in Nueva Ecija and (ii) the Kalanguya-Ikalahan ICCs/IPs in Nueva Vizcaya.

The project will also traverse portions of Carranglan, Nueva Ecija that are within the Pantabangan-Carranglan Watershed Forest Reserve (PCWFR). The PCWFR was declared a watershed reserve pilot area by virtue of Presidential

Proclamation No. 561, s. 1969. PCWFR is listed as one of the initial components of the National Integrated Protected Areas System (NIPAS) pursuant to Sec. 5 of RA 7686, s. 1991.



Source: JICA Study Team, 2020

Figure 1.2.2 Map showing the DPEAR project and its connection to existing Dalton Pass and other roads completed and planned by DPWH

In terms of tectonic setting, Dalton Pass sits precariously on the zone of the Digdig Fault line, a splay of the Central Philippine Fault. The earthquake which struck northern Luzon in July 1990 caused substantial damage to transport infrastructure facilities, particularly that of the Dalton Pass section of the PPH. The said highway was closed for months and needed about half a year to repair. The economic activities in the Cagayan Valley and the Cordillera Administrative Regions were severely affected.

1.2.3 Civil Works Components

The civil works components of the DPEAR project will include roads, bridges, tunnels, slope protection works, O&M facilities, traffic service facilities, sabo dam, and power transmission lines.

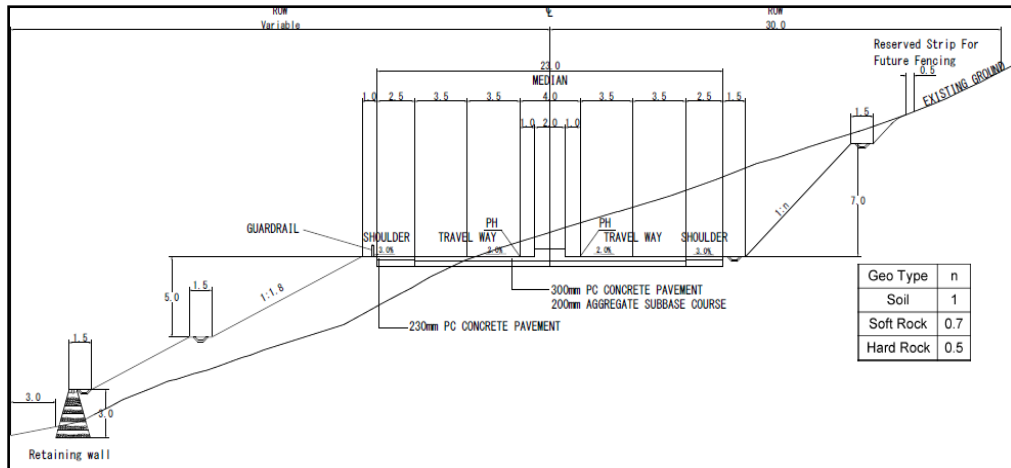
Table 1.2.1 is a summary description of these structures.

Table 1.2.1 Civil works components of the DPEAR Project

Item		Description
Road (New Construction)	Standard, Speed	Road Standard: Expressway (HSH-1) Design Speed: 60km/hour
	Total Length	23.0 km
	Total ROW Width	60 m (4-lane) for general sections As required to accommodate slopes for large cut and large fill sections
	Bridge	10 Locations Total Length: Southbound 2.86 km Northbound 3.01 km Bridge Type: PC-I Girder Bridge PC-Box Girder Bridge Steel Truss Bridge
	Tunnel	2 Locations 1) South Tunnel Southbound (2-lane) 1.61 km Northbound (2-lane) 1.57 km 2) North Tunnel Southbound (2-lane) 4.45 km Northbound (2-lane) 4.52 km
	O&M Facility	Operation Control Center
	Local Traffic Service Facility	Underpass Box Culvert 28 nos. Overpass Bridge 6 nos. Intersection 2 nos. Frontage Road
	Traffic Safety and Traffic Control Facility	Guardrail Traffic Sign Traffic Marking
Sabo Works	Sabo Facility	Sabo Dam
Power Transmission Line	Electric Facility	Power Transmission Line to Tunnels Sub Station ➤ Approx. 25km of new transmission line for the north tunnel under NUVELCO ➤ Approx. 53km of transmission line for the south tunnel under NEECO II Area 1 (i.e. newly installing for 13km, upgrading for 40km)

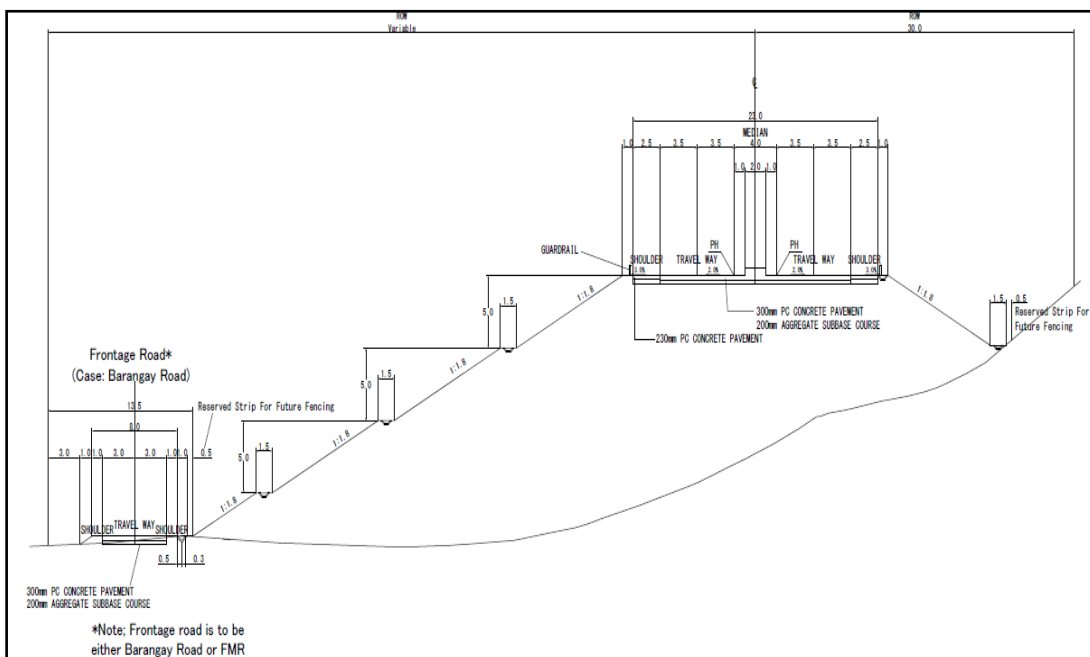
Source: JICA Study Team, 2022

The typical cross-section drawings of these structures are shown in **Figure 1.2.3** to **Figure 1.2.10** below.



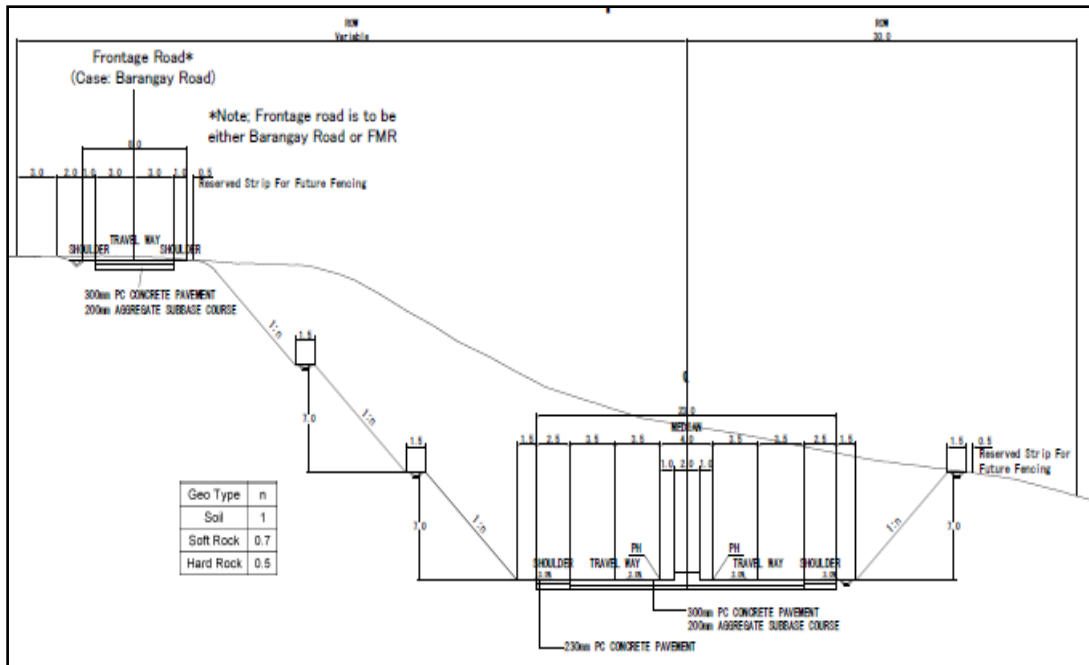
Source: JICA Study Team, 2022

Figure 1.2.3 Typical cut and fill section with retaining wall



Source: JICA Study Team, 2022

Figure 1.2.4 Typical Fill and High Fill Section

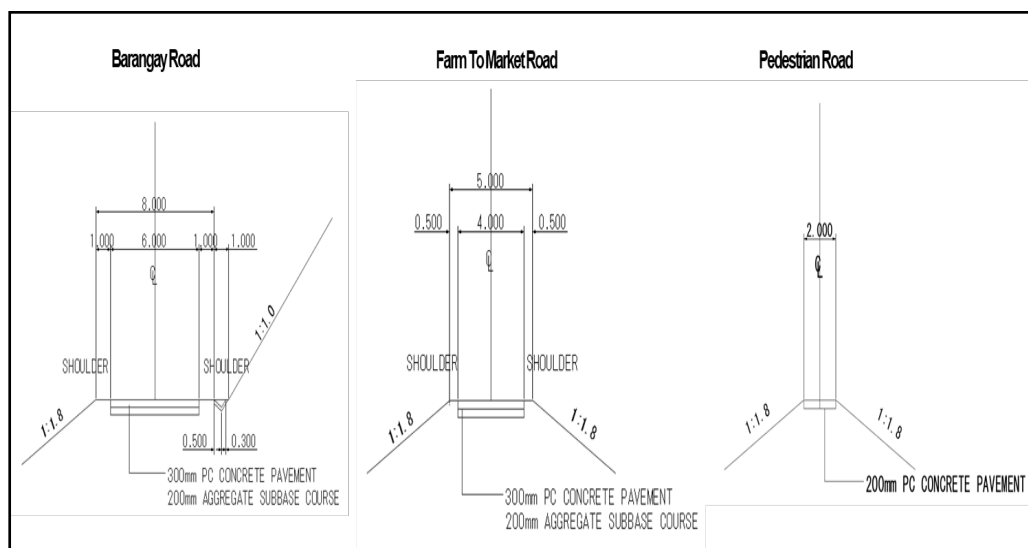


Source: JICA Study Team, 2022

Figure 1.2.5 Typical Cut and Deep Cut Section

Overpass bridges and underpasses will be provided to secure existing local road traffic even after DPEAR is constructed. The types of overpass bridges include:

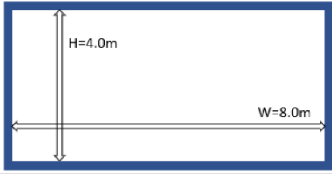
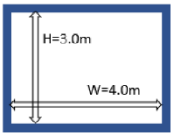
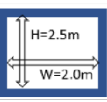
- 1) Barangay road - W = 7.32m (two-lane)
- 2) Farm-to-market road - W = 4.0m (one-lane)



Source: JICA Study Team, 2022

Figure 1.2.6 Typical frontage roads

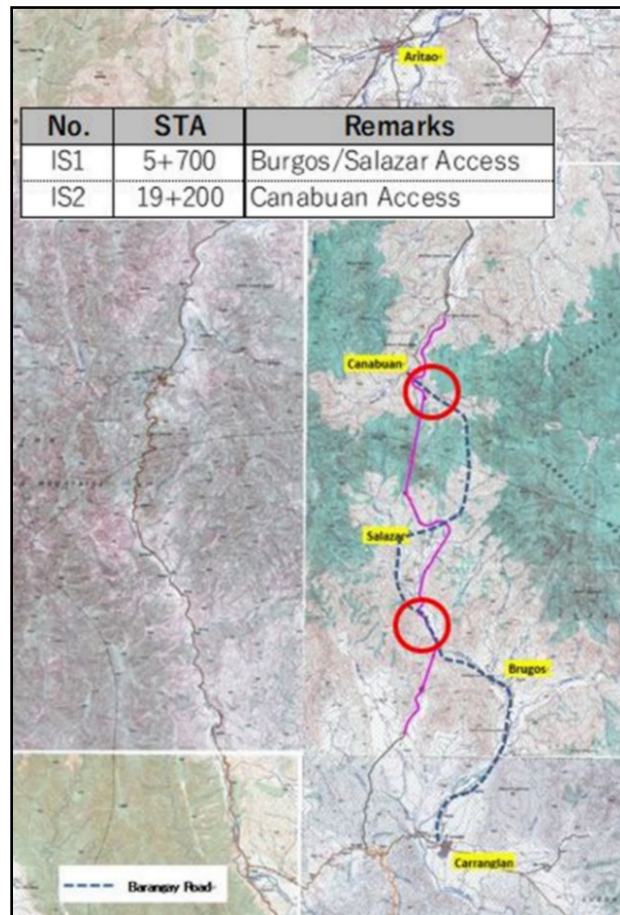
The types of pedestrian underpasses are shown in **Figure 1.2.7**.

	Barangay Road (BR)	Farm to Market Road (FMR)	Pedestrian Road (PR)
Required Clearance			

Source: JICA Study Team, 2022

Figure 1.2.7 Typical underpasses

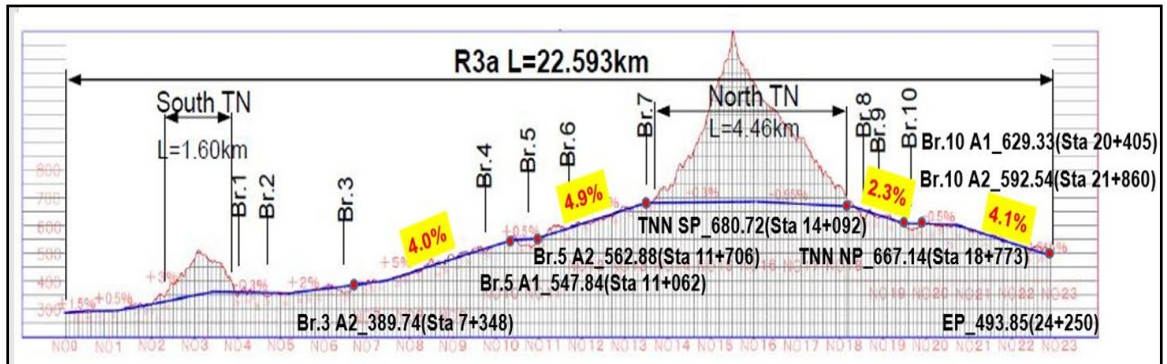
Two intersections (IS1 and IS2) will provide access to the communities via existing barangay roads (**Figure 1.2.8**).



Source: JICA Study Team, 2022

Figure 1.2.8 Map showing access to the communities

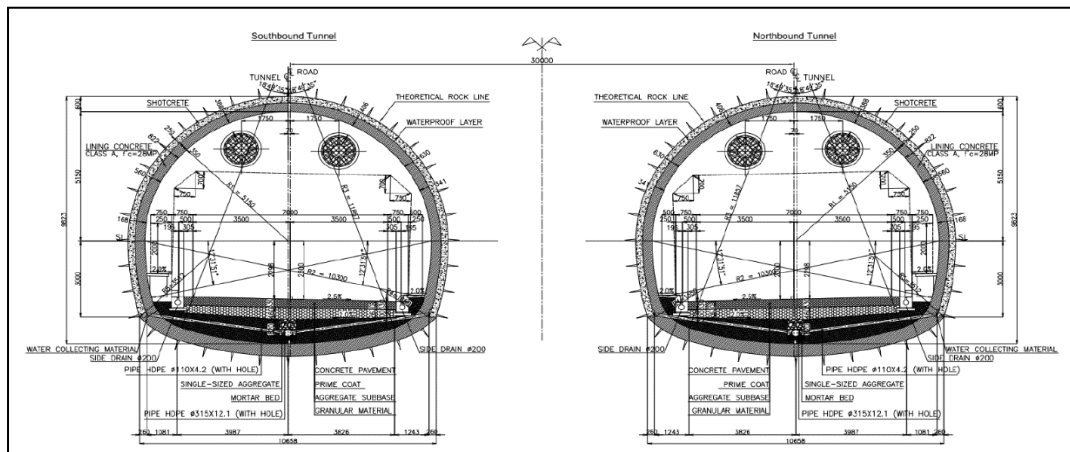
The profile of the proposed DPEAR project showing locations of tunnels and bridges is shown in **Figure 1.2.9**.



Source: JICA Study Team, 2022

Figure 1.2.9 Profile of DPEAR project showing location of bridges and tunnels

The tunnels (**Figure 1.2.10**) will have lanes of 3.5-meter width (2 lanes per tunnel) and 5-meter clearance. These will have lighting, ventilation, and emergency facilities.



Source: JICA Study Team, 2022

Figure 1.2.10 Typical Tunnel Section

1.2.4 Project Implementation Schedule

The DPEAR project is currently in the Feasibility Study stage. As shown in **Figure 1.2.11**, the Detailed Engineering Design (DED) is expected to start in Q4 of 2024 and construction works are expected to proceed in Q2 of 2026 till Q3 of 2031. This, of course, is subject to change depending on the progress of project preparation.

- (b) enumerate all real properties and assets (lands, houses, trees, crops and other improvements¹, including social structures) that will likely be affected in part or in full, irrespective of tenurial status
- (c) determine the fair and just compensation for lands, houses and other structural improvements, trees and crops, including other entitlements due to PAPs for loss of assets and livelihood sources
- (d) document reiterative communication, consultation, and coordination meetings with PAPs, affected communities, local government units (LGUs), related agencies and other stakeholders to ensure meaningful dialogue, public participation, and equity in the distribution of benefits of the project
- (e) identify the skills, competencies, and capabilities of PAPs; evaluate present and future economic opportunities in the barangay and/or the LGU; and formulate a menu of livelihood options to help PAPs re-establish their income and livelihood base
- (f) identify institutional arrangements for RAP implementation, including mechanisms for grievance redress by PAPs
- (g) estimate the cost and timetable of RAP implementation; and
- (h) outline the procedures, identify the indicators, and propose institutional mechanisms for monitoring the implementation of land acquisition and resettlement process.

The above objectives are in keeping with governing laws, policies, legal issuances, and jurisprudence of the country, as will be discussed in Section 2. These objectives are also compliant with the resettlement policies and guidelines of international financial institutions (IFIs), such as the JICA Guidelines for Environmental and Social Considerations (2010) and the World Bank's Operational Policy No. 4.12 (WB OP 4.12).

1.4 RAP METHODOLOGY

The methods employed in this preliminary RAP Study consist of the following:

1.4.1 Census and Socio-economic Survey (C-SES)

The census and socio-economic survey (C-SES) were undertaken to enumerate and obtain the baseline demographic and socio-economic profile of PAPs, their living conditions, vulnerabilities, preferences and options for resettlement and livelihood restoration, and access to social and financial facilities. The questionnaire also captured their awareness and perception of the project.

Using a survey questionnaire, the survey obtained the following information about PAPs:

¹ "improvements" is defined as any structure and/or vegetation on the land which "improves" its overall value. When appended to "structures" (e.g. structures and improvements), it refers to other structures added to the main structure like garage, toilet, animal cage/pen, etc.

- Name, age, sex, and educational attainment of household (HH) head, spouse and each HH member
- Tenurial status, ethnicity, and linguistic affiliation
- Primary and secondary sources of income of working members
- Family income level and expenditures
- Current and preferred employment, business skills and training
- Living conditions - power supply, water supply, fuel, sanitation facilities; appliances etc. valuable items owned
- Housing conditions - type of structure, housing (wall, roof, flooring) materials, age of structure, number of rooms
- Community conditions – access to health and education
- Social organizations, community network and access to credit facilities
- Project awareness and perception of the project

The C-SES questionnaire is found in **Appendix A**. The questionnaire was designed in consultation with the JICA Study Team and DPWH-Environment and Social Service Division (ESSD), first in the English language, and then in the vernacular (Ilocano translation²) for use in the field. The results of the survey were collated and processed into summary tables. Gender-disaggregated data were prepared as appropriate.

1.4.2 Preliminary Assets Inventory Survey (Inventory of Losses)

The assets inventory survey/inventory of losses went hand in hand with the C/SES. The properties/assets were photographed, geo-referenced by GPS (Global Positioning System) and plotted on a map. All assets that will likely be acquired and/or removed to secure the project’s ROW were inventoried, regardless of tenurial status or ownership, including the following:

- lands
- houses and other structural improvements on land
- burial places and graves, especially in IP communities
- trees and crops
- public structures and utilities, such as electric posts

For purposes of this preliminary RAP, the extent of potential losses was only estimated based on the cadastral maps.

1.4.3 Trees and Crops Inventory

In lieu of manual counting, trees inventory was done through remote sensing (RS) techniques. This involved image processing of multi-spectral satellite data Gaofen-2 (GF-2) and Light Detection and Ranging (LIDAR) data, supported manually by random field sampling for ground-truthing. The vegetation cover analysis involved several steps that included the following:

² The Ilocano dialect is considered as the universal dialect in the northern areas of the Philippines. Indigenous Peoples of North Luzon speaks the dialect as fluently as their native IP tongue.

- 1) Point clouds to raster conversion, classification, and re-classification of LIDAR (Vector) to delineate the canopy and vegetation cover
- 2) Principal Components Analysis (PCA) to separate landcover characteristics
- 3) Image merging or fusion of LIDAR-derived and GF2-derived image products to produce “hybrid” or “pseudo-” or “synthetic” images to estimate the area covered by trees and crops
- 4) Derivation of Digital Surface Model (DSM) and Digital Terrain Model (DTM) to estimate the average height, represented by Canopy Height Model (CHM), area covered and volume of harvestable trees
- 5) Estimation of relative abundance of tree species using ground data

The crops inventory, on the other hand, was done through field data gathering. Only affected rice fields were listed and geo-tagged. Owners of rice paddies were sampled and interviewed to determine the yield over the last five years.

1.4.4 Preliminary Market Price and Replacement Cost Study

The preliminary valuation adhered to the principle of just compensation. Just Compensation is defined as the amount of the loss for which a property owner has established a claim to compensation. It is the payment of the Market Value of that which was taken. In a strict sense, the term is synonymous with indemnity, that is, a payment, no more and no less than sufficient to make good the loss.³

Market Value is defined as the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm’s-length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion.⁴

In the absence of a parcellary survey, preliminary estimates were obtained of the current market value of potentially affected lands, trees and crops and the replacement cost of houses and other structural improvements.

The study relied on ocular surveys and secondary data. It employed generally accepted guidelines in appraising the current market value of land, trees and crops and the replacement cost for structural improvements based on the criteria listed below.

- (1) Land
 - Bureau of Internal Revenue (BIR) zonal classification and value
 - location
 - configuration
 - proximity to key development centers

³ Appraisal Terminology and Handbook, 4th Edition, American Institute of Real Estate Appraisers, Copyright 1962, Pages 104 to 105

⁴ International Valuation Standards 2022, IVS 104, Bases of Value, Paragraph 30.1

- present or actual use
 - potential or highest and best use
 - affected area
 - estimated degree of impact, whether severe or marginal
 - prevailing market value or price of similar lands sold in the area within the last six (6) months
- (2) Structures (Residential and other Structures such as Worship Places, Burial Sites)
- building classification
 - type of building/structural materials
 - age of structure
 - present or actual use
 - affected floor area
 - degree of impact, whether severe or marginal
 - cost to construct a new, similar structure at prevailing price of materials + labor + transportation of construction materials + transaction cost without depreciation
- (3) Public Facilities and Utilities (Water, Power, Communication, Sports, etc.)
- whether presently used or abandoned
 - degree of impact, whether severe or marginal
 - cost to construct a similar structure at prevailing price of materials and labor
- (4) Trees
- species and vegetative stage
 - diameter at base height (DBH)
 - canopy diameter
 - prevailing market value
- (5) Crops
- type of crops
 - average yield in the last five years
 - prevailing market value
- (6) Other Costs

As a rule, Compensation for Land = Current market value of land + transaction cost. Transaction cost means the cost involved in transferring ownership of the property including administrative charges, taxes, Registry of Deeds (ROD) registration and building permit costs, as may be necessary.

Replacement Cost for Structures = Current market value of materials and labor + transport (cost of hauling materials to the construction site) + transaction costs (such as registration and building permit costs) to

construct a new, similar structure regardless of depreciation without deduction of cost of salvageable materials.

Other entitlement costs were estimated including transition allowance, disturbance fee, and special rehabilitation assistance to extremely vulnerable groups, in accordance with the DPWH ROW Acquisition Manual (DRAM), which included applicable provisions from the DPWH Land Acquisition, Resettlement, Rehabilitation and Indigenous Peoples' Policy (LARRIPP), and existing laws, particularly RA 10752, otherwise known as the "Right-of-Way Act" of 2016.

1.4.5 Communication, Consultation and Public Participation

A series of coordination meetings, information dissemination and public consultation meetings with various project stakeholders was carried out during resettlement planning. The participants included regional and provincial officials of the DENR and the NCIP; local government officials of Carranglan, Nueva Ecija; Canabuan, Santa Fe; Canabuan, Aritao and Canarem, Aritao. Community consultations were also held among the officials and potential PAPs in the six barangays. The minutes of these meetings are found in **Appendix B**.

1.4.6 Review of Institutional Capacity for RAP Implementation

A review was made of the institutional mandates and capacity of the concerned government and non-government agencies that will implement and monitor the RAP, based on DPWH and national policies, guidelines, and legal statutes, as well as the Memorandum of Agreement (MOA) between DPWH, NCIP and representatives of NCIP Indigenous Cultural Communities/Indigenous Peoples (ICCs/IPs).

1.5 RIGHT-OF-WAY LIMITS AND SCOPE OF PRELIMINARY RAP

1.5.1 Right of Way Limits

The proposed DPEAR project will pass through the municipalities of Aritao and Santa Fe in the province of Nueva Vizcaya in Regions II and the municipality of Carranglan in the province of Nueva Ecija in Region III. The ROW alignment traverses six (6) barangays, distributed as shown in **Table 1.5.1**.

Table 1.5.1 Barangays in the Project Area

Region	Province	Municipality	Barangay
Region II	Nueva Vizcaya	Aritao	Canarem (inside the ancestral domain)
			Canabuan (inside the ancestral domain)
		Santa Fe	Canabuan (inside the ancestral domain)
Region III	Nueva Ecija	Carranglan	Bunga (outside the ancestral domain)
			Burgos (outside the ancestral domain)
			Salazar (inside the ancestral domain)

Source: JICA Study Team, 2022

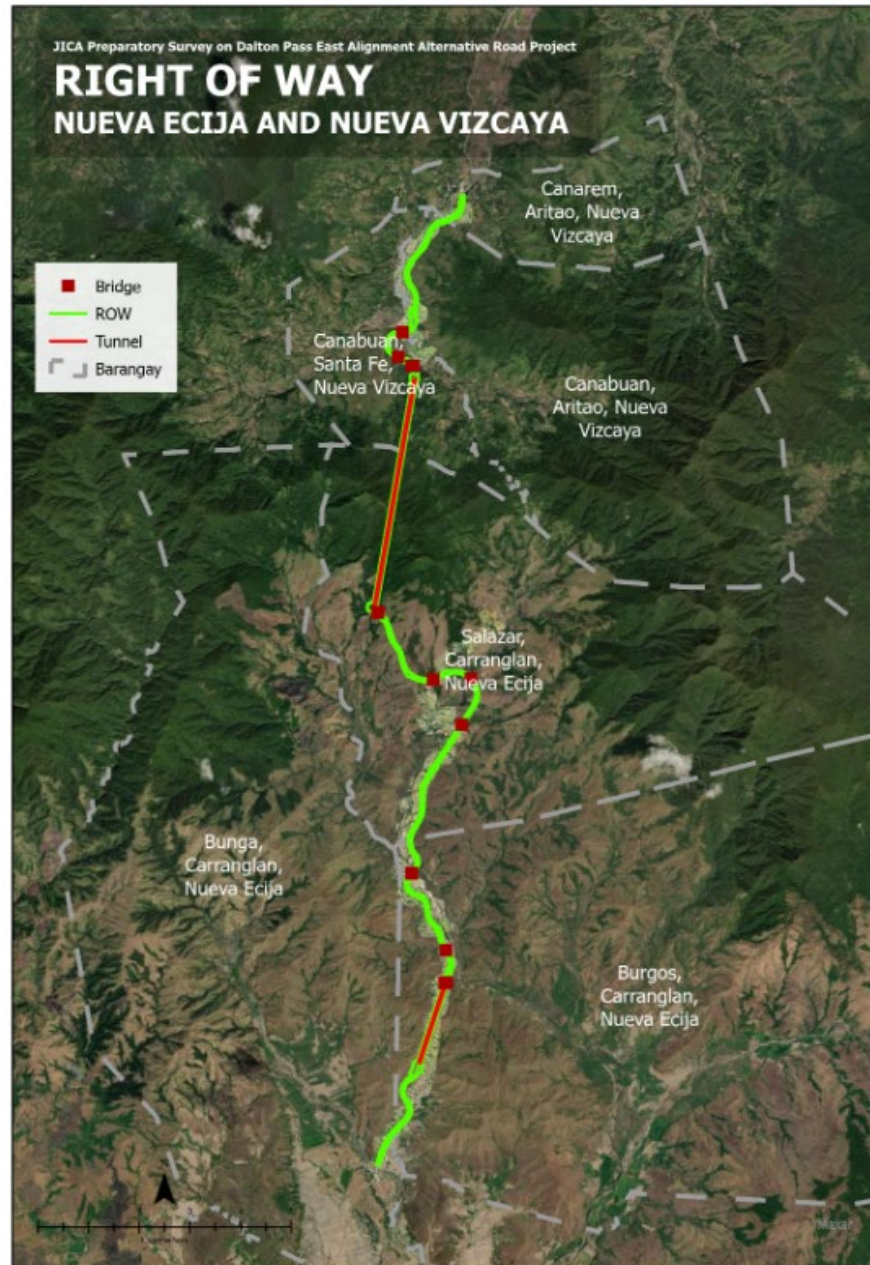
1.5.2 Scope of Preliminary RAP

This Preliminary RAP was prepared as part of the Feasibility Study of DPEAR Project. It covers the areas within the project's tentatively delineated Right-of-Way (ROW) limits. The RAP identifies and quantifies the potential impacts in terms of physical, economic, and social displacement due to the expected taking of land and improvements thereon before project implementation. Where these impacts are unavoidable, the RAP proposes ways to mitigate these impacts by way of fair and just compensation for lost assets, resettlement of would-be displaced families and rehabilitation of their social and economic base through livelihood and social development.

The PAPs covered by this study only include the claimants of lands identified through the cadastral survey. No validation of lot titles, tenurial instruments or similar proof of ownership was conducted during this RAP study.

Subsequent modifications of the alignment during the DED stage should prompt a review and update of this RAP based on a parcellary survey. The latter should be able to provide a definite delineation of the lot boundaries and enable the enumeration of their present owners/users. Only then can a thorough inventory of losses be undertaken, and a final Master List of PAPs generated after re-validation based on new C-SES and tagging of structures and improvements.

Figure 1.5.1 shows the ROW alignment across the entire 23-km project stretch identified in the feasibility study.



Source: EarthUs, 2022

Fig. 1.5.1 Map showing ROW alignment and location of tunnel and bridges

The scope of this preliminary RAP includes the areas that are likely to be acquired permanently to secure the project's ROW for:

- a) the planned road alignment consisting of 4-lane roads of 60-meter ROW width (i.e., 30 meters on both sides from the centerline) for general sections and the required ROW width to accommodate slopes for the large cut and large fill sections
- b) the ten (10) bridges and their approaches
- c) the two tunnels and tunnel portals

d) the areas for construction of auxiliary facilities for tunnel operation and maintenance

There are two categories of affected lands within the tunnel sections: those lands where the tunnel will be located shallower than 50m from the land surface; and those lands where the tunnel will be located deeper than 50m from the land surface. Moreover, there are parts of the tunnel section inside the ancestral domain (Brgy. Salazar, Carranglan, Nueva Ecija and Brgy. Canabuan, Sta. Fe, Nueva Vizcaya), and there are parts outside ancestral domain (Brgy. Burgos, Carranglan, Nueva Ecija). Refer to **Figure 3.2.1** for reference.

For sections of the tunnel where the depth of the tunnel is equal to or less than 50m and are within the ancestral domain, the mode of acquisition for the affected lands and structures is through easement-of-ROW in accordance with IRR of RA 10752. Where the depth is more than 50m, the government shall not be prevented from entry into use of such private and government lands by surface owners or occupants.

For sections of the tunnel outside the ancestral domain and where the depth of the tunnel is equal to or less than 50m, the affected lands and structures will be acquired either through negotiation of sale or easement of right of way. Where the depth of the tunnel is greater than 50m, compensation for the ROW is not necessary, in accordance with Section 3.10 of DPWH Department Order No. 152 s. 2017 pursuant to the IRR of RA 10752.

Considering that acquisition for ROW of sub-surface or sub-terranean lands at depths greater than 50 meters will not be compensated, these were not included in the RAP surveys.

The laws and policies governing ROW acquisition in ancestral domains and non-ancestral domain lands, including sub-terranean ROW acquisition, are discussed in **Section 2** below.

2.0 LEGAL AND POLICY FRAMEWORK

The acquisition by DPWH of the ROW of DPEAR project shall be governed by the following laws, policies, and guidelines.

2.1 PHILIPPINE LAWS ON LAND ACQUISITION AND RESETTLEMENT

2.1.1 Philippine Constitution

The basic legal foundation of land acquisition and resettlement in all government projects in the country is the 1987 Philippine Constitution, particularly the following:

Article II, Section 10 - The State shall promote social justice in all phases of development.

Article III, Section 9 - Private property shall not be taken for public use without just compensation.

Article XIII, Section 10 - Urban or rural poor dwellers shall not be evicted, nor their dwellings demolished, except in accordance with the law and in a just humane manner. No resettlement of urban or rural dwellers shall be undertaken without adequate consultation with them and the communities where they are to be relocated.

Only the court of law has exclusive and final authority in determining “just compensation” and that “valuation for just compensation laid down in the statutes may serve only as a guiding principle or one of the factors in determining just compensation but it may not substitute the court’s own judgment as to what amount should be awarded and how to arrive at such amount.”⁵

2.1.2 RA 10752, s. 2016 - An Act to Facilitate the Acquisition of Right-of-Way (ROW), Site or Location for National Government Infrastructure Projects Development and Housing Act

Republic Act 10752 repealed the previous ROW Act (RA 8974). This new enabling law aims to fast track and simplify negotiated sale as the preferred mode of ROW acquisition by making the price offer and terms of negotiation more attractive and just for the owners than the current rules. It enables Implementing Agencies (IAs) to quickly adopt a market-based price without fear of audit disallowance, while ensuring that the rights of property owners and PAPs are duly protected. The specific provisions pertinent to DPEAR are as follows:

⁵ G. R. No. 173520 30 January 2013 National Power Corporation vs. Spouses Rodolfo Zabala and Lilia Baylon. See also G.R. No. 150936, G.R. No. 185124 and G.R. No. 180979, where the court declared that the determination of just compensation is a purely judicial function.

Section 1 - Declaration of Policy – The State shall ensure that owners of real property acquired for national government infrastructure projects are promptly paid just compensation.

Section 2 – Coverage of the Act – “national government projects” - referring to all national government infrastructure, engineering works and service contracts, including projects undertaken by government-owned and controlled corporation, all projects covered by the Build-Operate-and-Transfer (BOT) Law (RA 6957, as amended by RA 7718), that involves site acquisition, supply and/or installation of equipment and materials, implementation, construction, completion, operation, maintenance, improvement, repair, and rehabilitation, regardless of the source of funding.

Section 4 - Modes of Acquisition Real Property – The government may acquire the right-of-way, site, or location for any infrastructure project through donation, negotiated sale, expropriation, quit claim, easement and exchange or barter.

Section 5 - Negotiated Sale:

(1) Compensation Price - Payment of compensation for affected assets shall be based on:

- a) current market value of the land
- b) replacement cost of structures and improvements; and
- c) current market value of crops, trees, and perennials

Compensation at replacement cost shall also apply to all owners of structures and improvements who do not have legally recognized rights to the land, and who meet all the following criteria:

- a) Must be a Filipino citizen
- b) Must not own any real property or any other housing facility, whether in an urban or rural area
- c) Must not be a professional squatter or a member of a squatting syndicate, as defined in Republic Act No. 7279, otherwise known as the “Urban Development and Housing Act of 1992”
- d) Must not occupy an existing government ROW

(2) Quit claim – By virtue of Presidential Decree 635, s.1975, the government reserves the right to use the 60-meter easement on lands granted to private individuals under Section 112 of Commonwealth Act 141 (Public Land Act, s. 1936), as amended.

(3) Easement of ROW – DPWH may negotiate the easement of ROW, if affected property is so minimal that the cost of segregating the affected portion will be much more than the value of the property. In such case, DPWH shall compensate the affected portion based on BIR zonal value for land plus replacement cost for improvements. The PAP retains ownership of the property.

(4) Exchange or Barter – The property owner may choose to exchange his property with an old, abandoned road or government lot near the project

instead of being paid the money value of her/his lot. This may be favorably considered, especially if the lot is the PAP's only property. The exchange shall be on a value for value basis.

(5) Use of Government Financial Institutions and Independent Property Appraisers

To determine compensation, the IA may engage the services of either (i) government financial institution (GFI) with adequate experience in property appraisal to be selected by the IA through a competitive process; or (ii) an independent property appraiser (IPA) accredited by the Bangko Sentral ng Pilipinas (BSP) or a professional association of appraisers recognized by BSP.

Section 6 - Expropriation – Expropriation is the right of the government to exercise its power of eminent domain. It is last resorted to when negotiations with owner fails within the prescribed 30-day period. DPWH may initiate expropriation proceedings by depositing to the court the total amount of the following:

- a) 100% BIR Zonal Valuation
- b) Replacement cost for structures and other improvements
- c) Current Market Value of crops trees and perennials

Section 9 – Relocation of Informal Settler Families (ISFs) - The government, through the Housing and Urban Development Coordinating Council (HUDCC, defunct, now the Department of Human Settlements and Urban Development (DHSUD) by virtue of RA 11201, s. 2018) and one of its key shelter agencies, the National Housing Authority (NHA), in coordination with the LGUs and implementing agencies concerned, shall establish and develop resettlement sites for informal settlers, including the provision of adequate basic services and community facilities, in anticipation of informal settlers that have to be removed from the right-of-way site or location of future infrastructure projects, pursuant to the provisions of Republic Act No. 7279, otherwise known as the “Urban Development and Housing Act of 1992”. Whenever applicable, the concerned LGUs shall provide and administer the resettlement sites.

The implementing agency shall diligently observe humane and just procedures provided for in Sections 28 and 29 of Republic Act No. 7279.

2.1.3 Commonwealth Act 141 (Public Land Act, s. 1936), as amended by PD 635, s. 1975

CA141, otherwise known as the “Public Land Act” enacted in 1936, is the general law governing the classification, delimitation, survey and disposition of alienable lands of the public domain. One of the modes of acquiring public lands under this law is by voluntary administrative legalization of imperfect title—more popularly known as “Free Patent”. It is intended to legalize the undocumented private land rights of Filipinos who are found to be occupying and cultivating such lands for a certain period of time.

Sec. 44 of the Act provides that any natural-born citizen of the Philippines who, since July 4, 1926 or prior thereto, has continuously occupied and cultivated, either by himself or through his predecessors-in-interest, a tract or tracts of agricultural public lands subject to disposition, or who shall have paid the real estate tax thereon shall be entitled to have a free patent issued to him for such tract or tracts of such land not to exceed twenty-four hectares.

A member of the national cultural minorities who has continuously occupied and cultivated, either by himself or through his predecessors-in-interest, a tract or tracts of land, whether disposable or not since July 4, 1955, shall be entitled to the right to the issuance of free patent... provided that at the time of application he is not the owner of any real property secured or disposable under this Act.

Sec. 112 of the Act reserves a 20-m strip of the property acquired under this Act, which the government can re-acquire as easement of ROW when needed for public use, with compensation only for improvements on the land but not for land. This 20-meter easement was later increased to 60 meters, by virtue of PD 635, s. 1975, which provides that: “**Section 1.** Section 112 of Republic Act No. 141, as amended, is hereby amended to read as follows: “**Sec. 112.** Said land shall further be subject to a right-of-way not exceeding sixty (60) meters in width for public highways, railroads, irrigation ditches, aqueducts, telegraph and telephone lines, and similar works as the Government or any public or quasi-public service or enterprise, including mining or forest concessionaires, may reasonably require for carrying on their business, with damages for the improvements only.”

2.1.4 RA 7279, s. 1992 - Urban Development and Housing Act (UDHA)

RA 7279 is meant to promote urban development by addressing the incidence of informal settlements and guiding the treatment and rehabilitation of informal settlers. The law is also blanketly applied to relocate ISFs affected by the implementation of priority national government projects.

Section 28 - Eviction or demolition as a practice is discouraged except under the following circumstances: (i) when persons or entities occupy danger areas such as esteros, railroad tracks, garbage dumps, riverbanks, shorelines, waterways, and other public places such as sidewalks, roads, parks, and playgrounds; (ii) when priority government infrastructure projects with available funding are about to be implemented; or (iii) when there is a court order for eviction and demolition.

Section 29 – LGUs, in coordination with the National Housing Authority, are mandated to implement the resettlement of persons living in danger areas such as “esteros”, railroad tracks, garbage dumps, riverbanks, shorelines, waterways, and other public places.

Section 21 - These agencies shall provide relocation sites with basic facilities including water supply, power, roads, and sewerage and solid waste disposal

system; and basic services such as health, education, communication, security, recreation, relief, and welfare.

Section 22 - Socialized housing and resettlement projects shall be located near areas where employment opportunities are accessible and relocatees shall be given priority in government livelihood programs.

Section 23 - The LGUs, in coordination with the Presidential Commission for the Urban Poor (PCUP) and concerned government and non-government agencies, shall provide resettlement beneficiaries the opportunity to organize themselves into cooperatives and self-help groups, be represented, air grievances participate in the decision-making process and prevent the incursion of professional squatters and squatting syndicates into their communities.

2.1.5 RA 8371, s. 1997- Indigenous Peoples' Rights Act (IPRA)

In the execution of priority national road infrastructure projects on lands occupied by indigenous cultural communities, the DPWH shall safeguard the rights of indigenous peoples to their ancestral domains, taking into consideration their customs, traditions, values, beliefs, interests, and institutions. This is pursuant to the following basic tenets under Section 2 (Declaration of State Policies) of RA 8371:

- a) The State shall recognize and promote the rights of ICCs/IPs within the framework of national unity, and development
- b) The State shall protect the rights of ICCs/IPs to their ancestral domains to ensure their economic, social, and cultural well-being and shall recognize the applicability of customary laws governing property rights or relations in determining the ownership and extent of ancestral domain
- c) The State shall recognize, respect, and protect the rights of ICCs/IPs to preserve and develop their cultures, traditions, and institutions. It shall consider these rights in the formulation of national laws and policies
- d) The State shall take measures, with the participation of the ICCs/IPs concerned, to protect their rights and guarantee respect for their cultural integrity, and to ensure that members of the ICCs/IPs benefit on an equal footing from the rights and opportunities which national laws and regulations grant to other members of the population, and
- e) The State recognizes its obligations to respond to the strong expression of the ICCs/IPs for cultural integrity by assuring maximum ICC/IP participation in the direction of education, health, as well as other services of ICCs/IPs, to render such services more responsive to the needs and desires of these communities.

Section 12 of the Act provides for an Option to Secure Certificate of Title Under Commonwealth Act 141, as amended, or the Land Registration Act 496. Individual members of cultural communities, with respect to their individually-owned ancestral lands who, by themselves or through their predecessors-in-interest, have been in continuous possession and occupation of the same in the concept of owner since time immemorial or for a period of not less than thirty

(30) years immediately preceding the approval of this Act and uncontested by the members of the same ICCs/IPs shall have the option to secure title to their ancestral lands under the provisions of Commonwealth Act 141, as amended, or the Land Registration Act 496.

For this purpose, said individually owned ancestral lands, which are agricultural in character and actually used for agricultural, residential, pasture, and tree farming purposes, including those with a slope of eighteen percent (18%) or more, are classified as alienable and disposable agricultural lands. This option shall be exercised within twenty (20) years from the approval of this IPRA law.

2.2 DPWH LAND ACQUISITION AND RESETTLEMENT POLICY AND GUIDELINES

2.2.1 Land Acquisition, Resettlement, Rehabilitation, and Indigenous Peoples Policy (LARRIPP), s. 2007

The LARRIPP is the embodiment of DPWH policies, principles and guidelines governing land acquisition, involuntary resettlement, and impact on indigenous peoples due to infrastructure projects. LARRIPP is applied to projects funded by the WB, Asian Development Bank (ADB) and JICA.

Specifically, LARRIPP prescribes the following:

(1) Eligibility

Eligible PAPs are those who are residing, occupying, doing business and/or using the resources within the limits of the project area as of the date of census. They are eligible for compensation for their affected assets, as follows:

a) Land

- Legal owners of agricultural, residential, commercial, and institutional land who have full title, tax declaration, or who are covered by customary law (e.g., possessory rights, usufruct, etc.) or other acceptable proof of ownership
- Users of arable land who have no land title or tax declaration
- Agricultural lessees, tenants, or caretakers

b) Structures

- Owners of structures who have full title, tax declaration, or who are covered by customary law (e.g., possessory rights, usufruct, etc.) or other acceptable proof of land ownership
- Owners of structures, including shanty dwellers, who have no land title or tax declaration or other acceptable proof of ownership.

- Renters

(2) Category of Impact

- Severe – PAPs are entitled to full compensation in accordance with RA 10752 if more than 20% of the property or even less than 20% if the remaining portion of the property is no longer economically viable for continued use as intended.
- Marginal – PAPs are entitled to compensation for affected portion only if less than 20% of the structure is affected or even more than 20% if the remaining portion of the property or asset is still viable for continued use as intended.

(3) Entitlement/Compensation

- Land - based on the current market value
- Structures – based on replacement cost for the affected portion of the structure at current cost of materials, labor, and contractor’s cost, with no deduction for salvaged materials
- Facilities – based on the cost of reconnecting the facilities, such as water, power, and telephone
- Other Entitlements/Assistance
 - Business Income Loss – income rehabilitation assistance based on the latest copy of PAP’s income tax record for the period corresponding to the stoppage of business activities, but not to exceed Php 15,000.00
 - Inconvenience Allowance of Php 10,000.00 for PAPs with severely affected structures, which require relocation and new construction
 - Rehabilitation Assistance – Cost of skills training and other livelihood development equivalent to Php15,000.00 per family, if the present means of livelihood is no longer viable and PAPs will have to engage in a new income-earning activity
 - Rental subsidy for renting PAPs, equivalent to the prevailing average monthly rental of similar structure of equal type and dimension as the house lost

(4) Rights of Indigenous Peoples

Chapter 4 Section A stipulates that when infrastructure project which require land acquisition (including structures and other improvements, crops, trees and perennials) is located in an officially declared ancestral domain, then the project will require Free and Prior Informed Consent (FPIC). Further, if an infrastructure project is not voluntarily initiated or solicited by the ICCs/IPs, the DPWH must forge a Memorandum of Understanding/Agreement (MOU/A) with the NCIP.

For the DPEAR, two separate MOAs between the DPWH, the NCIP and the two ICC/IP groups have been forged on December 19, 2018 and November 12, 2019, respectively. These MOAs serve as the principal legal and policy consideration in the payment of compensation and other entitlements, and the provision of assistance to the affected ICCs/IPs. This is pursuant to DPWH DO 43, s. 2020, which governs the acquisition of ROW in ancestral domains, as explained in **Section 2.2.2** below. The salient features of the MOAs are discussed more thoroughly in **Section 4.4.5**. The copies of the MOAs are found in **Annex 1**.

(5) Public Consultation and Participation

DPWH shall hold reiterative meetings and public consultations with concerned local government units (LGUs), national government agencies and the PAPs to inform and engage them about:

- the benefits and impacts of the project
- the potentially affected families
- the entitlements and just compensation for affected assets
- the procedures for evaluating compensation and entitlement
- the negotiation procedures; and
- the channels available to PAPs and related procedures for complaints and grievance

2.2.2 DPWH Department Order No. 152, s. 2017

To achieve a more effective and expeditious implementation of projects, all offices of DPWH are directed to use and observe the provisions of the updated DRAM. The DRAM is a step-by-step guide governing the entire ROW acquisition process, in full compliance of RA 10752 and its Implementing Rules and Regulations (IRR). It prescribes the objectives, workflow, procedures, lead and support entities and report formats at every stage of the project, from cradle to grave, i.e., from pre-feasibility to post-project ROW management.

2.2.3 DPWH Department Order No. 5, s. 2003

This is a reiteration of the DPWH policy that all projects, whether funded locally or with foreign assistance, shall be covered by a Land Acquisition and Resettlement Action Plan (LARAP).

2.2.4 DPWH Department Order No. 327, s. 2003

Annex B of this order specifically stipulates that:

- (1) Replacement Cost is the amount necessary to replace the improvement and/or structure based on current market prices for materials, equipment, labor, contractor's profit and overhead and all other costs associated with the acquisition and installation in place of the affected improvements and/or structures.

- (2) Replacement cost is the current market prices of materials and labor to reconstruct a similar structure for houses and other fixed structures with no deductions for salvaged materials.

2.2.5 Other Relevant Regulations

- (1) DENR Administrative Order (AO) No. 37, s. 1996 (revising DENR AO No. 21, s. 1992)

It defines scope of the EIS system, procedure of the EIS system, public participation and social acceptability, environmental monitoring and guarantee funds, administrative appeals, roles and responsibilities of relevant parties, schedule of fees, fines, penalties and sanctions, transitory provisions and effectivity.

- (2) ICC⁶ Project Evaluation Procedures and Guidelines

The guidelines will apply to revenue generating projects of government agencies, government-owned and controlled corporations (GOCCs) and private firms/entities whose programs and projects qualify under the conditions set for private sector access to ODA. It defines to evaluate a project from various viewpoints and elements of social analysis.

- (3) ICC Guidelines and Procedures

It requests the proponent agencies to design and submit ROW acquisition plan and resettlement action plan. These plans will be aid the evaluation of social acceptability and feasibility of the project.

2.3 JICA GUIDELINES FOR ENVIRONMENTAL AND SOCIAL CONSIDERATION (April 2010)

The key policies and principles governing involuntary resettlement prescribed in JICA Guidelines on Social and Environmental Considerations (April 2010) are as follows:

- Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives.
- Where unavoidable, effective measures to minimize impact and to compensate for losses must be agreed upon with the people who will be affected.
- People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated in a timely manner. Full compensation at fair market value or replacement cost must be provided prior to project execution.

⁶ ICC stands for Investment Coordination Committee and is established under National Economic and Development Authority (NEDA).

- Measures must be available for PAPs to improve their standards of living, income opportunities, and production levels, or at least to restore these to pre-project levels. Besides monetary compensation, these include such measures as the provision of support for alternative livelihoods and re-establishment of communities after relocation.
- Meaningful consultation with and participation of PAPs and their communities must be promoted in the planning, implementation, and monitoring of RAPs, in the form, manner, and language that are understandable to them.

- Appropriate and accessible grievance mechanisms must be established for the PAPs.

- For projects that will result in large-scale involuntary resettlement, RAPs must be prepared and made available to the public.

2.4 GAP ANALYSIS

Table 2.4.1 shows the result of gap analysis between JICA Guidelines/WB OP 4.12 and the land acquisition legislation regulations in Philippines. It is worthy to note that there are no significant gaps observed between international best practice and legal and policy framework governing ROW acquisition in the country.

Table 2.4.1 Gap Analysis between JICA/WB Guidelines and Legislations/Policies in the Philippines Adopted/Applied for this Project

No	JICA Guidelines and World Bank OP 4.12	Laws/Policies/Guidelines of Philippines	Major Gap	Proposed Gap Filling Measures/Remarks
1	Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives. (JICA GL)	<ul style="list-style-type: none"> ➤ No person shall be deprived of life, liberty, or property of law, nor shall any person be denied the equal protection of the laws (Phil. Constitution, Art. III, Sec. 1). ➤ The project shall be evaluated from finance, economy, technology, social and institutional aspects. As for technology and social aspects, environmental impact and land acquisition shall be checked. (NEDA-ICC Project Evaluation Procedures and Guidelines, Sec. 8 to 10, Annex E and F) 	No significant gap.	None. Nonetheless, the project explores viable design alternatives and proposes the optimum plan to minimize involuntary resettlement and loss of livelihood, where unavoidable.
2	When population displacement is unavoidable, effective measures to minimize impact and to compensate for losses should be taken. (JICA GL)	<ul style="list-style-type: none"> ➤ Private properties shall not be taken for public purpose without just compensation. (Constitution of the Republic of the Philippines, Article II, Section 9). 	No significant gap.	None.
3	People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities and production levels to pre-project levels. (JICA GL)	<ul style="list-style-type: none"> ➤ For loss of business/ income for PAPs whose structures are severely affected, they will be entitled to an income rehabilitation assistance based on the latest copy of the tax record for the period of corresponding of the stoppage of business activities or PhP 15,000, whichever is higher. (DPWH LARRIPP Chapter 3) ➤ Other measures include employment of skilled and unskilled PAPs during project construction; livelihood trainings for vulnerable groups; and other entitlements 	No significant gap.	None.

No	JICA Guidelines and World Bank OP 4.12	Laws/Policies/Guidelines of Philippines	Major Gap	Proposed Gap Filling Measures/Remarks
		and assistance to PAPs to at least restore their lives and livelihoods to pre-project level.		
4	Compensation must be based on the full replacement cost as much as possible. (JICA GL)	<ul style="list-style-type: none"> ➤ Private property shall not be taken for public use without just compensation. (Constitution of the Republic of the Philippines, Article II, Section 9). ➤ RA 10752, RA 8371, DPWH DO 152 s. 2017, DPWH DO 43 s. 2020, the MOAs between DPWH, NCIP and the ICCs as well as the DPWH LARRIPP provides for just compensation at fair market value, as follows: <ul style="list-style-type: none"> ➤ Land : the current market price including taxes (i.e. Capital Gains Tax, transfer tax documentary tax and other incidental/transactional expenses to transfer land title to the GOP) ➤ Structure and other improvements : replacement cost for structure and other assets including cost for licenses and permits to reconstruct the structure ➤ Crops and Trees : current market price (RA10752 Section 5) ➤ For affected lands within the ADs, acquisition is through Easement-of-ROW: the ICCs/IPs retain ownership of the land is retained by the ICC/IP and still, the affected land is compensated based on current BIR Zonal Valuation. ➤ For affected structures, other improvements, trees/crops/perennials owned by ICC/IPs, compensation is based on replacement cost at current market value 	No significant gap.	None.

No	JICA Guidelines and World Bank OP 4.12	Laws/Policies/Guidelines of Philippines	Major Gap	Proposed Gap Filling Measures/Remarks
5	Compensation and other kinds of assistance must be provided prior to displacement. (JICA GL)	<ul style="list-style-type: none"> ➤ Land outside AD : To be paid 50% of the negotiated price of the affected land, and the balance will be paid when the transfer of land title or annotation of a deed of sale on the title is completed. ➤ Land Within AD: To be paid 50% of the Computed BIR Zonal Valuation of the affected land, and the balance will be paid when the Easement Agreement has been annotated in the CADT. ➤ Structure and Other Improvement, Crops, Trees: To be paid 70% of the negotiated price of affected assets, and the balance will be paid when the land is cleared. (RA10752 Sec. 5) ➤ In all cases, compensation and entitlements due to PAPs shall be fully paid prior to start of construction works. 	No significant gap.	None.
6	For projects that entail large-scale involuntary resettlement, resettlement action plans must be prepared and made available to the public. (JICA GL)	<ul style="list-style-type: none"> ➤ The implementing agency shall prepare land acquisition and resettlement plan for the project funded by the government. (NEDA ICC Guidelines and Procedure Annex B) ➤ Resettlement Action Plan will be prepared as per the project stage, and it will be finalized and disclosed at the detailed design stage. (DPWH DO No. 152, s. 2017) ➤ For PAPs who are IPs, an Indigenous People's Action Plan (IPAP) must be prepared 	No significant gap	None.
7	In preparing a resettlement action plan, consultations must be held with the affected	<ul style="list-style-type: none"> ➤ The implementing agency with assistance local government and the office of Media Affairs shall conduct the extensive public information campaign among the local 	No significant gap	None.

No	JICA Guidelines and World Bank OP 4.12	Laws/Policies/Guidelines of Philippines	Major Gap	Proposed Gap Filling Measures/Remarks
	people and their communities based on sufficient information made available to them in advance. (JICA GL)	<p>inhabitants that will be affected by the project to acquaint them with the objectives and benefits to be delivered from the project. (EO 1035 Section 3)</p> <p>➤ Consultation meetings shall be held at each barangay that will be traversed by the project. (DPWH DO No. 152 series of 2017)</p>		
8	When consultations are held, explanations must be given in form, manner, and language that are understandable to the affected people. (JICA GL)	All information on the project must be made public in a language and form easily understandable to the people. (DENR AO No. 37 series of 1996 Section 4)	No significant gap	None.
9	Appropriate participation of affected people must be promoted in planning, implementation, and monitoring of resettlement action plans. (JICA GL)	➤ The implementing agency, with assistance from local government and the office of Media Affairs shall conduct the extensive public information campaign among the local inhabitants who will be affected by the project to acquaint them with the objectives and benefits to be delivered from the project. (EO 1035 Sec. 3)	No significant gap	None.
10	Appropriate and accessible grievance mechanisms must be established for the affected people and their communities. (JICA GL)	<p>➤ Resolution of issues by Alternative Dispute Resolution (ADR) by the neutral third party is recommended. (RA9285 Section 2)</p> <p>➤ The grievance shall be filed by the PAP with the municipal Resettlement Implementation Committee (RIC) who will act within 15 days upon receipt thereof, except complaints and grievances that specifically pertain to the valuation of affected assets, since such will be</p>	No significant gap	None. For ICCs, a grievance redress mechanism is provided for in the MOAs, which calls for the organization of the Monitoring and Evaluation Team (MET) for Kalanguya-Ikalahan IPs and the Joint Grievance and Monitoring Team (JGMT) for Kalanguya IPs.

No	JICA Guidelines and World Bank OP 4.12	Laws/Policies/Guidelines of Philippines	Major Gap	Proposed Gap Filling Measures/Remarks
		<p>decided upon by the proper courts. If no understanding or amicable solution can be reached, or if the PAP does not receive a response from the RIC within 15 days of registry of the complaint, he/she can appeal to the concerned Regional Office, which should act on the complaint/grievance within 15 days from the day of its filing. If the PAP is not satisfied with the decision of the Regional Office, he/she, as a last resort, can submit the complaint to any court of law (DPWH LARRIPP Chapter 6)</p>		
11	<p>Affected people are to be identified and recorded as early as possible to establish their eligibility through an initial baseline survey (including population census that serves as an eligibility cut-off date, asset inventory, and socioeconomic survey), preferably at the project identification stage, to prevent a subsequent influx of encroachers of others who wish to take advance of such benefits. (WB OP 4.12 Para.6)</p>	<p>The first date of census is regarded as the cut-off date to define eligibility and affected assets. (DPWH DO152 series of 2017)</p>	No significant gap	None.
12	<p>Eligibility of benefits includes the PAPs who have formal legal rights to land (including customary and traditional</p>	<p>All owners of structures and improvements, including shanty dwellers, who do not have legally recognized rights to the land, and who meet all the following criteria shall be entitled to compensation for structures and</p>	No significant gap.	None.

No	JICA Guidelines and World Bank OP 4.12	Laws/Policies/Guidelines of Philippines	Major Gap	Proposed Gap Filling Measures/ Remarks
	land rights recognized under law); the PAPs who do not have formal legal rights to land at the time of census but have a claim to such land or assets; and, the PAPs who have no recognizable legal right to the land they are occupying. (WB OP 4.12 Para.15)	<p>improvements:</p> <ul style="list-style-type: none"> ➤ Must be a Filipino citizen ➤ Must not own any real property or any other housing facility, whether in an urban or rural area ➤ Must not be a professional squatter or a member of a squatting syndicate, as defined RA 7279 (RA10752, Section 5) <p>Informal settlers who are marginalized are to be resettled if resettlement is feasible, unless they chose to be compensated for their structures.</p>		
13	Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based. (WB OP 4.12 Para.11)	<p>For loss of business/income, the PAPs will be entitled to an income rehabilitation assistance for severely affected structures (business) for the period corresponding to the stoppage of business activities (LARRIPP).</p> <p>Skills training and other development activities will be provided in coordination with other government agencies, if the present means of livelihood is no longer viable and the PAP will have to engage in a new income activity.</p>	No significant gap	None. The prepared RAP uses land-based resettlement strategy and the provision of livelihood options and the assistance to be provided to the PAPs will improve on, upgrade, or align new opportunities with their former business/livelihood.
14	Provide support for the transition period (between displacement and livelihood restoration). (WB OP 4.12 Para.6)	<ul style="list-style-type: none"> ➤ House tenants of severely affected: Equivalent to 1 month rent of a similar structure within the same area ➤ Shop owners of severely affected: Computed income loss during demolition and reconstruction of their shop but not to exceed 1 month period (DPWH DO No. 327 series of 2003) 	No significant gap	None.
15	Particular attention must	➤ Protect human rights, culture, and land of	No significant gap	None.

No	JICA Guidelines and World Bank OP 4.12	Laws/Policies/Guidelines of Philippines	Major Gap	Proposed Gap Filling Measures/ Remarks
	be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, landless, elderly, women and children, ethnic minorities etc. (WB OP4.12 Para.8)	<p>indigenous people. (RA8371 Section 2)</p> <ul style="list-style-type: none"> ➤ Provide opportunities of vocational training (DO No. 327 series of 2003) ➤ Provide appropriate assistance to socially vulnerable groups (DPWH LARRIPP Chapter 2) 		
16	For projects that entail land acquisition or involuntary resettlement of fewer than 200 people, abbreviated resettlement plan is to be prepared. (WB OP 4.12 Para.25)	<p>Abbreviated Resettlement Action Plan shall be prepared at the cases below:</p> <ul style="list-style-type: none"> ➤ Numbers of affected persons are less than 200 ➤ In case numbers of affected persons are more than 200, no physical displacement involved, or scale of land acquisition is small. (DPWH LARRIPP) 	No significant gap	None.

Source: JICA Study Team, 2022.

3.0 FIELD WORK AND DATA COLLECTION

3.1 PUBLIC CONSULTATION MEETINGS

Reiterative information education campaigns (IEC) and public consultation meetings were held at the LGU and barangay levels. These meetings provided the venue to disclose to all stakeholders and solicit their opinions, recommendations, issues, and concerns regarding the project. Specifically, the following topics were disclosed and issues/concerns were addressed by the DPWH and JST including the RAP study team: (i) the details and timeline of the project; (ii) the benefits and potential impacts of the project on people, assets and livelihoods; (iii) the ROW alignment and the affected lands and improvements thereon; (iv) the policies, laws, guidelines and procedures governing ROW acquisition and resettlement; (v) the compensation and entitlements due to PAPs for their affected assets, based on current market value and replacement cost; (vi) the channels available to PAPs for complaints and grievances; and (vii) the cooperation and participation of PAPs in the field surveys and stakeholder consultations to inform the formulation of the RAP.

The LGU-level 1st public consultations were held on February 15-17, 2022 via Zoom with the officials and representatives of the barangays and the indigenous peoples of Santa Fe, Carranglan, and Aritao, respectively. The LGU-level 2nd public consultations were held on July 4-5, 2022 via Zoom.

The second level of 1st public consultations were held on March 8-12, 2022 in the barangays of Canabuan in Santa Fe; Canabuan and Canarem in Aritao; and Salazar, Burgos and Bunga in Carranglan. The 2nd public consultations at the same barangays were held from August 2-5, 2022.

Consultation meetings at the barangay level were held by face-to-face and announced to PAPs with the following method.

- DPWH issued a letter to LGUs requesting to support for holding consultation meetings.
- LGUs requested the assistance of the affected barangays through barangay captains.
- Barangay captains instructed respective barangay counselor to visit PAPs to inform the date and venue of consultation meetings directly

At the 1st barangay level meetings held before the field survey, a request letter of cooperation from DPWH to LGUs was issued on 23 February 2022. As per instruction from LGUs, barangay captains and barangay counselors secure sufficient time for announcing consultation meetings to PAPs.

Same as the 1st barangay level meeting, a request letter of cooperation from DPWH to LGUs was issued on 5 July 2022 in order to held the 2nd barangay level meetings for Draft RAP to secure sufficient time for announcing consultation meetings to PAPs.

The minutes of these meetings are found in **Appendix B**. The summary of the minutes is in **Table 3.1.1**.

Table 3.1.1 Summary of the Minutes of Public Consultations

Date/ Venue	No. of Attendees		Issues and Concerns	
	Male	Female	Question	Answer
FIRST PUBLIC CONSULTATION				
March 12, 2022/ Barangay 1st Public Consultation – Brgy. Hall, Bunga, Carranglan, Nueva Ecija via Zoom	19	17	<p>Q1. (Bgy. Rep. 1): Has the “mohon⁷” been measured 60m or 30m from the 2-lane proposal?</p> <p>Q2. (PAP 1): Is there a payment from DPWH for the affected crops when owner has no land title?</p> <p>Q3. (PAP 2): Is there a payment for a church property bought with no land title?</p> <p>Q4. (Bgy. Rep 2): Is there payment for a house built on a public land?</p>	<p>A1. (DPWH Rep. 1): The stone marks the centerline of the possible ROW. Final ROW alignment will be known when the DED is completed.</p> <p>A2. (DPWH Rep. 2): There can be a replacement cost for the affected crops once the ownership criteria is established but will not receive any compensation for the land.</p> <p>A3. (EarthUs Rep. 1): The government will pay the replacement cost for the church structure but not the cost of land.</p> <p>A4. (DPWH Rep. 2): Yes. There will only be a compensation at replacement cost for the house structure and other improvements affected by the project but not for land.</p>
March 11, 2022/ Barangay 1st Public Consultation – Brgy. Hall, Burgos, Carranglan, Nueva Ecija via Zoom	16	22	<p>Q1. (Bgy. Rep. 1): Are there jobs available for the locals?</p> <p>Q2. (PAP 1): What happens next if a house with no land title got affected by the project?</p> <p>Q3. (PAP 2): Is there a compensation if land property was bought without a land title?</p> <p>Q4. (unknown):</p>	<p>A1. (DPWH Rep. 1): Yes. It is DPWH policy to employ locals, especially the PAPs who meet the job qualifications.</p> <p>A2. (DPWH Rep. 2): There can be a replacement cost for the affected house if it meets the ownership criteria but will not receive any compensation for the land.</p> <p>A3. (DPWH Rep. 2): Notice of Taking letter will be given to PAPs which lists down the documents needed for the compensation process. A land title or any proof of ownership should be secured.</p> <p>A3. (EarthUs 1): Take note that there are types of lands such as forest lands or ancestral domains that are inalienable and indisposible. Forestlands cannot be titled. Ancestral domains cannot have a separate title apart from the CADT. The government cannot purchase such lands even if claimant has a “land title”.</p> <p>A4. (EarthUs 1):</p>

⁷ A concrete monument dug deep into the ground to serve as marker of lot parcels, or property boundary

			Ten years ago, lands were given to locals by DENR without certification. How do we support our land ownership claim?	The forestlands are owned by the State. Some forestlands are covered by stewardship contracts with locals, for example Community-Based Forest Management (CBFM) Agreement, allows locals to manage and earn livelihood from the land. The CBFMA is effective for 25 years and renewable for another 25 years. Since it is a public domain, it cannot be sold or alienated. However, compensation will be paid for structures, improvements, trees, and crops on the land.
March 10, 2022/ Barangay 1st Public Consultation – Brgy. Hall, Salazar, Carranglan, Nueva Ecija	34	9	<p>Q1. (PAP 1): In relation to 4-lane proposal, will there be changes to the affected properties?</p> <p>Q2. (PAP 2): What happens if there is no agreement with the price given by the property appraisers?</p> <p>Q3. (PAP 1): In what way will the government obtain the ROW if the CADT areas are inalienable?</p> <p>Q4. (Bgy. Rep. 1): Where do you plan to designate the dumping site? Can we give recommendations?</p> <p>Q5. (PAP 3): Having timely planned the planting of our trees and crops, how do we decide the changes relative to the new project to avoid the impact?</p>	<p>A1. (DPWH Rep. 3): The originally proposed ROW will now be transformed into a 4-lane road to consider traffic congestion but will still be 60m in width.</p> <p>A2. (DPWH Rep 2): The court shall make the final decision through Expropriation in case there is no agreement between the parties regarding the compensation price.</p> <p>A3. (EarthUs 1): DPWH will negotiate an easement agreement with the IP representatives so the project can proceed. In case of easement, the DPWH will pay the market value or replacement cost of trees, crops, structures and other improvements on it but the IPs retain ownership of the land.</p> <p>A4. (DPWH Rep. 2): As indicated in the MOA between the DENR and LGUs, dumping site will be designated and monitored by concerned IP community. The Environment Management Plan (EMP) also includes the designation of appropriate disposal site as a mitigation of environmental impacts due to excavation of earth materials.</p> <p>A5. (DPWH Rep.2): A Notice of Taking letter will be sent to PAPs showing the accurate ROW in the time of DED phase implementing also the 2-year prohibition of planting.</p>
March 9, 2022/ Barangay 1st Public Consultation – Brgy. Hall, Canarem, Aritao,	17	16	<p>Q1. (Bgy. Rep 1): Where would all the disposable materials from the tunnel go?</p> <p>Q2. (PAP 1):</p>	<p>A1. (DPWH Rep. 1): Before construction, the dumping site will be designated in consultation with the IP representatives, for unusable excavated earth materials that cannot be used in the project. The community has the prerogative to use the disposable materials as needed.</p> <p>A2. (EarthUs 1):</p>

Nueva Vizcaya			<p>What will happen to the small portion of land that is outside the ROW?</p> <p>Q3. (PAP 2): What will happen if the free patent property has set up improvements already?</p> <p>Q4. (PAP 3): Who will do the inventory of the affected trees and crops?</p> <p>Q5. (Bgy. Rep. 2): What are the next steps when compensation was not given even when the property was affected by the project?</p> <p>Q6. (PAP 4): Who is responsible in making annotations on a land title and how?</p>	<p>The government can opt to acquire the remaining portion of the land if it is no longer economically viable for continued use as intended.</p> <p>A3. (DPWH Rep. 2): The government will compensate all structures and improvements on the free patent property but not for the land.</p> <p>A4. (EarthUs 1): The RAP Study team has experts who will conduct the inventory of trees and crops that will be affected by the project.</p> <p>A5. (DPWH Rep. 2): DPWH Grievance Redress Procedure allows you to raise your concern about a project. You may write a letter addressed to the Regional Director/District Engineer and if not acted within 15 days, you may elevate the case to any court of law.</p> <p>A6. (DPWH Rep. 2): DPWH processes requests on adding annotations to a land title, which is then submitted to the Registry of Deeds or to the Land Registration Authority.</p>
March 9, 2022/ Barangay 1st Public Consultation – Brgy. Hall, Canabuan, Aritao, Nueva Vizcaya	20	13	<p>Q1. (IPMR): Is there another FPIC Process since the MOA indicated only 1 tunnel and 2 lanes instead of two tunnels and 4 lanes?</p> <p>Q2. (LGU Rep. 1): Will there be a hiring for enumerators in the census survey?</p> <p>Q3. (Bgy. Rep. 1): Will the property owner be part of the census even if the only affected property is the land?</p> <p>Q4. (Bgy. Rep 2): What will happen to the properties outside the ROW that would be affected by the</p>	<p>A1. (DPWH Rep. 1): The lanes changed from 2 lanes to 4 but the width is still 60m meaning the proposed ROW dimensions were not changed.</p> <p>A1. (DPWH Rep 2): A consent from NCIP was requested for the conduct of feasibility study where possible deviations from the original proposed design may be proposed.</p> <p>A2. (EarthUs 1): Yes. We prefer to hire locals and train them as enumerators. They will be trained to do geo-mapping using GPS and to administer the survey questionnaire properly.</p> <p>A3. (EarthUs 1): Yes. The landowners, the structure owners and even tenants and rent-free occupants and users of the lands are considered PAPs. They will all be included in the census.</p> <p>A4. (DPWH Rep. 1): An Environment Management Plan will be prepared as part of the ECC requirements. This issue on disposal of construction wastes and excess earth materials will be addressed in the said EMP.</p>

			<p>construction's excess dirt?</p> <p>Q5. (LGU Rep 1): How many lots are affected by the project?</p> <p>Q6. (IPMR): Where will all disposable materials be dumped?</p> <p>Q7. (Bgy. Rep. 1): Can the barangays use the disposable materials?</p> <p>Q8. (LGU Rep. 3): Is there a compensation for having only a land ownership?</p>	<p>A5. (EarthUs 1): The project is still in the feasibility stage so the RAP study can only make a preliminary enumeration of the affected properties. What you can see from these maps are only the lots identified by cadastral survey from long time ago. During the DED, the parcellary survey will give us more concrete information on the affected lots.</p> <p>A6. (DPWH Rep. 2): A dumping site for all the disposable materials will be designated by the IP representatives.</p> <p>A7. (EarthUs 1): The excess, unsuitable or disposable earth materials will be donated to the barangay and the barangay may use the same for any improvement they plan to undertake or for any beneficial use these may have for the community.</p> <p>A8. (EarthUs 1): Just compensation at current market value will be paid to all landowners who will be affected by the project.</p>
<p>March 8, 2022/ Barangay 1st Public Consultation – Brgy. Hall, Canabuan, Santa Fe, Nueva Vizcaya</p>	19	17	<p>Q1. (IPMR): What type of boundaries are shown in the maps: political or CADT?</p> <p>Q2. (LGU Rep. 2): What will happen to our water irrigation that could be affected by the project?</p> <p>Q3. (LGU Rep. 3): What does "Access to Villages" mean?</p> <p>Q4. (IPMR): Are accurate ROW information about the affected properties readily available to the people?</p>	<p>A1. (EarthUs 1): The maps are processed satellite image overlaid with cadastral maps. Boundaries were drawn by the survey contractor in consultation with LGUs and the local guides to estimate physical boundaries. More definitive maps will be available when the parcellary survey is done during the DED stage.</p> <p>A2. (EarthUs 1): During the DED study, this concern will be studied. DPWH will coordinate with concerned agencies to mitigate any adverse impact on water irrigation.</p> <p>A3. (DPWH Rep. 1): There are two intersections to be constructed by the DPEAR project that will allow transit of the villagers to/from the existing barangay roads.</p> <p>A4. (DPWH Rep. 1): Accurate ROW alignment information will be available after the parcellary survey during the DED stage.</p>

			<p>Q5. (LGU Rep. 4): What happens to free patent titles that were sold to a new owner?</p> <p>Q6. (LGU Rep. 5): Is there an increase in cost of lot property if gold is found?</p> <p>Q7. (Bgy. Rep. 1): What are the requirements needed for a property with a tax declaration to get evaluated?</p> <p>Q8. (Bgy. Rep 2): Who will be providing compensation to the PAPs?</p>	<p>A5. (DPWH Rep. 2): Free patent landowners may have their properties acquired by DPWH through Donation or Negotiated Sale. DPWH will do a documentary due diligence to trace the property's history since its possession by the original owner.</p> <p>A6. (DPWH ReP. 2): DPWH will hire the services of Government Financing Institution (GFI) or an Independent Private Appraiser (IPA) or an expert who can ascertain the presence of gold and evaluate the cost of the affected property accordingly.</p> <p>A7. (DPWH Rep. 2): The owner needs to secure a formal transfer certificate of title (TCT) to serve as proof of ownership, along with a 30-year record of continuous tax payment by the owner.</p> <p>A8. (DPWH Rep. 2): DPWH will pay the compensation to the rightful owners/PAPs.</p>
February 17, 2022/ LGU 1 st Public Consultation – Carranglan, Nueva Ecija via Zoom	10	5	<p>Q1. (LGU Rep. 1): What is the date of consultation in Barangay Burgos?</p> <p>Q2. (LGU Rep. 2) Can we have a copy of the plans for the project design?</p> <p>Q3. (LGU Rep. 3) What are the ways to compensate individual property owners? What mode of acquisition can be used?</p> <p>Q4. (Bgy. Rep. 1): What is next for the trees guarded by the CBFM in the ROW?</p> <p>Q5. (DPWH Rep 3):</p>	<p>A1. (EarthUs 1): We propose the 1st week of March. We will seek the barangay officials' prior approval before setting the date.</p> <p>A2. (DPWH Rep. 2): As soon as the FS-level ROW design alignment is finalized, DPWH can provide you with a copy of the plans. Final layout of the plan is still subject to further consultations with the stakeholders.</p> <p>A3. (DPWH Rep. 2): In ancestral domains, an easement agreement is the preferred mode of acquisition according to the MOA. Compensation of the affected structures will be at replacement cost, while structures and improvements including crops and trees will be compensated for at current market value.</p> <p>A4. (EarthUs 1): There will be an inventory of trees affected by the ROW. These will be compensated for at current market value. The PAPs should be able to present a legitimate proof of CBFM agreement with the DENR. The eligible PAPs will be the people's organization (PO) or individual members of the PO, as the case may be.</p> <p>A5. (EarthUs 1): No. CBFM or ISF areas are considered as public lands and therefore cannot be sold or</p>

			Is there compensation for the POs for the lands affected in the ROW?	titled. POs can only have tenurial instruments or stewardship contracts with the DENR, which are valid for 25 years. Thus, POs will only be compensated at replacement cost for structures or current market value for trees and crops but not for land.
February 16, 2022/ LGU 1 st Public Consultation – Aritao, Nueva Vizcaya via Zoom	9	6	<p>Q1. (IPMR): According to MOA, the project will be constructing 2 lanes, is there going to be another MOA to cover the four-lane alignment with bigger area?</p> <p>Q2. (Bgy. Rep. 1): What are the steps to be taken by the DPWH in regard to the concerns involving non-payment of affected properties by the first contractor hired by DPWH Region 2?</p> <p>Q3. (LGU Rep. 1): Will there be another municipal level public consultations in Aritao?</p>	<p>A1. (DPWH Rep. 2): There will be no change in MOA regarding the expansion to 4-lane since the width of the ROW is still at 60 meters.</p> <p>A1. (DPWH Rep 1): This matter will be resolved between the DPWH UPMO RMC1, the NCIP and ICC representatives.</p> <p>A2. (EarthUs 1): Apologies but this is not the venue for grievance redress involving other projects. Please understand that this consultation is only about the current DPEAR FS and this preliminary RAP Study. Kindly ask questions relevant to this project only.</p> <p>A3. (EarthUs 1): No. The next consultations will be at the barangay level. There will be one consultation prior to the conduct of C-SES and survey and another to present the results of the C-SES survey. The RAP team will coordinate with the barangay chairpersons, who will in turn inform you of the schedule, venue, and arrangements.</p>
February 15, 2022/ LGU 1 st Public Consultation – Santa Fe, Nueva Vizcaya via Zoom	11	10	<p>Q1. (LGU Rep. 1): Who will provide the cost of relocating the informal settlers?</p> <p>Q2. (LGU Rep. 2): Will the LGU officials work with the RAP team in the resettlement planning?</p> <p>Q3. (Bgy. Rep. 1): What is the final engineering design and where are the accurate locations that will be affected by the project?</p> <p>Q4. (IPMR 1):</p>	<p>A1. (DPWH Rep. 2): It is the local government’s duty per RA7279 to provide relocation sites to resettling PAPs if necessary, in coordination with the housing agencies such as the NHA. The DPWH coordinates with the LGUs and NHA re the institutional and budget arrangements. DPWH also provides transport assistance to resettling PAPs.</p> <p>A2. (EarthUs 1): If relocation will be necessary, the DPWH and the RAP team as instructed will coordinate the preparation of the resettlement plan and institutional arrangements.</p> <p>A3. (DPWH Rep. 1) The FS study is in progress. The next stage is the DED, where the designs will be finalized. The DPWH will have another round of consultations to present this to the concerned LGUs and other stakeholders.</p> <p>A4. (DPWH Rep. 2):</p>

			<p>Where will be the dumping site of the dirt and rocks excavated by the project?</p> <p>Q5. (LGU Rep. 3): Why is JICA the one sponsoring the project?</p>	<p>The environmental consultants will also be holding public consultations in parallel. That will be the venue to answer this question.</p> <p>A5. (DPWH Rep. 1): JICA is the only international financial institution who offered a grant to undertake this FS. This is highly favorable in terms of savings for the government.</p>
SECOND PUBLIC CONSULTATION				
<p>August 5, 2022 Friday 9:00am-12:00pm Barangay 2nd Public Consultation Brgy. Hall, Bunga, Carranglan, Nueva Ecija</p>	7	9	<p>Q1. (PAP 1): Who will be paid for the affected lands and structures?</p> <p>Q2. (PAP 1): Why did DPWH survey properties under the new alignment? Why can't DPWH use the old road alignment, which will mean lesser lands to acquire?</p>	<p>A1. (EarthUs Rep. 1): The legal owners of the affected lands will be compensated. Tenants, caretakers, rent-free occupants and others who built structures on the land will be <u>compensated for the structures only</u>. If tenants planted trees and crops, they will also be compensated for the same.</p> <p>A2. (DPWH Rep. 1): The new ROW survey is for Dalton Pass East Alternative Road. The old alignment may or may not be considered. Nothing is final at this point. The alignment will only be finalized once detailed engineering design (DED) is completed and approved.</p>
<p>August 4, 2022 Thursday 1:00pm-4:30pm Barangay 2nd Public Consultation Brgy. Hall, Burgos, Carranglan, Nueva Ecija</p>	15	5	<p>Q1. (PAP 1): What will happen if the title is not available at the time of construction?</p> <p>Q2. (PAP 2): When will they receive the payment or compensation for their losses?</p> <p>Q3. (PAP 3): Will he be compensated if the tunnel will pass under his property?</p> <p>Q4. (PAP 4): What will happen if the title is still under their parents or grandparents who have already passed on.</p> <p>Q5. (PAP 5): Shall we get paid for the trees and crops we planted if we do not own the land?</p>	<p>A1. (EarthUs Rep. 1): Payment will only be made to those who submitted the required title and other documents. You should process the titles while there is still enough time before the project starts.</p> <p>2. (DPWH Rep. 2): It should be settled before the construction of the project.</p> <p>A3. (EarthUs Rep. 1): If the tunnel will be constructed 50 meters and below, trees and crops will not be affected. There will be no compensation for land. The owner may continue using his property.</p> <p>A4. (EarthUs Rep. 1): You need to have the property titled in the name of living heirs. The process may involve lengthy extra-judicial procedures, especially if the heirs have disagreements over the property. Again, there is still time, better work on updating your titles and your taxes.</p> <p>A5. (EarthUs Rep. 1): Yes, you will be compensated for trees and crops you planted, but the owner will be paid the compensation for the land.</p>

			<p>Q6. (PAP 6): Is it guaranteed that most of the skilled workers and laborers will be hired from our barangay once the project starts?</p>	<p>A6. (EarthUs Rep. 1): Yes. Provided they are suitable for the required posts. And since there is still time to upgrade your skills, it is best to do so by taking advantage of training and skills development program offered by TESDA, DTI and other government and non-government institutions.</p>
<p>August 4, 2022 Thursday 9:00am-12:00pm Barangay 2nd Public Consultation Brgy. Hall, Salazar, Carranglan, Nueva Ecija</p>	24	12	<p>Q1. (PAP 1): What will happen to lands where there are no declared owners?</p> <p>Q2. (PAP 2): What happens to a land acquired thru patent and sold without title?</p> <p>Q3. (PAP 3): What will happen to patents released by DENR which will not be covered or compensated even if it falls on project coverage area?</p>	<p>A1. (DPWH Rep. 2): The provisions of RA10752 will apply, which means we use the perpetual easement as mode of acquisition, payable to the account of ICC organization (WADAKKA for Region 3).</p> <p>A2. (DPWH Rep. 2): There will be no payment for lands because it will be considered as original patent, hence acquired as easement of ROW. However, you will be compensated for damaged houses, trees, and crops.</p> <p>A3. (DPWH Rep. 2): I would advise you to coordinate with DENR to request if it is possible for you to be granted or issued replacement lands to cover for your loss.</p>
<p>August 3, 2022 Wednesday 9:00am-12:00pm Barangay 2nd Public Consultation Brgy. Hall, Canarem, Aritao, Nueva Ecija</p>	12	19	<p>Q1. (PAP 1): Will this project affect my property which is in the project area?</p> <p>Q2. (PAP 2): Why was the project design changed from 30 meters to 60 meters? We do not understand the change in the project.</p> <p>Q3. (PAP 3): Almost 2000 square meters of my land were affected by the DPWH bridge project in 2015. Up to now I have not received any compensation for it. If the project will be expanded to 60 meters, then I will lose more of my property. I already lost my trust due to the previous experience with non-payment. I hold a patent to the land issued by DENR.</p>	<p>A1. (DPWH Rep. 3): There is no final design as yet; the final DED shall provide the final list of affected properties.</p> <p>A2. (DPWH Rep. 3): The initial design back then was only 1 tunnel with 2 road lanes. This was changed to 4 lanes while the FS is being prepared and where the traffic demand had increased and showed that the 2 lane initial requirement will not carry the traffic demand.</p> <p>A3. (DPWH Rep. 2): If the patent was issued prior to 1997, the government reserves a 20-meter easement that it can use for any project. However, if the patent was issued after 1977, then a 60-meter easement shall be required from the patent holder. If the land was sold by the original patent holder, then the title shall now be changed to TCT. In this case, 100% of the current value of the land shall be paid to the new owner because the title has ceased to be a patent.</p>

<p>August 2, 2022 Tuesday 1:00pm-4:30pm Barangay 2nd Public Consultation Brgy. Hall, Canabuan, Aritao, Nueva Ecija</p>	<p>19</p>	<p>10</p>	<p>Q1. (PAP 1): Does the tunnel really have two holes?</p> <p>Q2. (PAP 2): How is the compensation process when it comes to individually titled properties?</p> <p>Q3. (Rep.1 of ICCs): Why are there lots specified in the map? (referring to posted map beside projector)</p>	<p>A1. (DPWH Rep. 3): Yes. The two holes have the combined width of 60m.</p> <p>A2-1. (EarthUs Rep. 1): Please confirm. According to your barangay officials, some PAPs have titles awarded to them through the Public Land Act or Commonwealth Act 141 (1936), while others were awarded individual Homestead patents by the DENR sometime in the 1980's prior to the enactment of IPRA (1997). Then, the NCIP consolidated all the lands within the ancestral domain into a Certificate of Ancestral Domain Title after 1997. (The attendees confirmed that this is the case.)</p> <p>A2-2. (DPWH Rep. 2): Once the parcellary survey is done during the DED stage, we will clarify actual extent of affected lands, then we will verify actual ownership, whether individually titled or part of the CADT, then finalize the compensation process accordingly.</p> <p>A3-1. (EarthUs Rep. 1): These maps show the individual lots that will be affected by the proposed ROW. Those lots were identified in past Cadastral survey(s) and were taken from the records of the Registry of Deeds or the LGUs Assessor's Office.</p> <p>A3-2. (DPWH Rep. 2): This cadastral map shows the individual lots with dimensions. If you are individual owners of these lots, as long as you have the proof of ownership, your claims will be processed.</p> <p>Now, what type of titles do you have? What is the current status? What year are these titles? If Free Patent, then it's OCT. We did not include this in the presentation because we thought you only have one title, i.e., CADT. But if you are a holder of free patent, you need to have an Original Certificate of Title (OCT), or if you are not the original owner, a Transfer Certificate of Title (TCT).</p> <p>Commonwealth Act 141 (CA 141) or the Public Land Act says that all patented lands were awarded to qualified farmers on the condition that the beneficiaries will make the land productive and pay taxes. Another provision of this Act is that owners shall return the 20-m strip of land when the government needs it for public use. Gov't agencies include DPWH, NIA, etc. For patent titles dated 1977 onwards, this reserved strip was increased to 60-m. For patented lands, only improvements such as houses, pig pens, crops, etc. will be</p>
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			<p>Q4. (PAP4)</p> <p>What is the best thing to do so that our lives will not be unduly disturbed? The last survey identified where the road will pass and all the land that will be affected. What preparations are necessary for us to do to get the best advantage of this project?</p>	<p>compensated to the owner, but not the land.</p> <p>A4. (DPWH Rep. 2): We have consultants/experts who meticulously study the feasibility of the project and propose measures to mitigate impacts on ‘would-be affected’ families.</p> <p>Talk among yourselves what you collectively want to do, together with your community leaders, whether . For example, if Jose is already a second owner of the patented land and he has a Transfer Certificate of Title (TCT). If Jose’s land will be affected by the project, then he will be compensated directly for the land and the house and other improvements thereon, if any, at current market value. But if Jose as the original patent OCT holder transferred the title to his/her child without Deed of Sale, the reserved strip of 20-m or 60-m, as the case will be, need to be returned to the government.</p>
<p>August 2, 2022 Tuesday 9:00am-12:00pm Barangay 2nd Public Consultation Brgy. Hall Canabuan, Santa Fe, Nueva Vizcaya</p>	21	23	<p>Q1. (PAP 1): Is the survey final?</p> <p>Q2. (PAP 2): Do the two tunnels encompass the 60m?</p> <p>Q3. (PAP 3): Can you train us to have other skills and help us find job opportunities in the project?</p> <p>Q4. (Brgy. Rep. 1): Does the DPWH have other recommendations to avoid the agricultural lands that will be affected?</p> <p>Q5. (Brgy. Rep. 2 and Rep 3): (Both concerned with the width of 60m). There was a feasibility study before where less lands will be affected. Is</p>	<p>A1. (DPWH Rep. 1): No. Final ROW alignment and involved PAPs will be known during the DED stage.</p> <p>A2. (DPWH Rep.1): (Referring to the cross-section in the presentation) Yes. We can see that the midline between two holes of the tunnel shows 30m with 15m on the sides from centerline of each hole making up the total proposed 60m width of the tunnel. Again, everything is not yet final since we are still in the feasibility stage.</p> <p>A3. (EarthUs Rep. 1): Trainings are part of our recommendations for Livelihood Development, particularly construction-related skills such as masonry, welding and heavy equipment operation. Having these skills set will qualify you for employment in the project. This early, your leaders may start coordinating with your LGUs, TESDA, and other agencies who can provide these kinds of training.</p> <p>A4. (EarthUs Rep. 1): The alignment presented is the result of Feasibility Study. There will be a final alignment to be identified during the DED stage. By that time, you will know which lands will really be affected.</p> <p>A5-1. (DPWH Rep. 1): I hear your concerns and those are important points to consider however, we cannot easily reroute the road and change the ROW alignment. Experts consider geometrical design, stability and safety of the tunnel.</p>

			<p>it possible to use that old alignment instead and make bridges on top of rice fields (viaduct).</p> <p>Q6: (PAP 1): Can trainings for us come from DPWH directly and not involve the LGUs?</p>	<p>A5-2. (DPWH Rep. 2): This feasibility study helps us determine if the project is technically, economically, environmentally, and socially feasible, to be able to secure a loan to fund it. The viaduct may prove more costly with less benefits; it will not be economically viable. On the other hand, there are future economic opportunities through the proposed road project. These agricultural lands on the side of the road will eventually become commercial areas with higher land values. Try to look at the project in terms of better economic opportunities for many people.</p> <p>A5-3. (DPWH Rep. 1): With regards to the 60m width, 20m will be for each hole of the tunnel, 5m will be for the slope on both sides. It is designed that way to provide passage for construction equipment and mobility of the workers so as not to delay the project.</p> <p>A6-1. (EarthUs Rep. 1): DPWH does not have a mandate to train people. The LGUs with the help of TESDA, DTI, DOST, DA are the ones who can possibly provide these trainings.</p> <p>A6-2. (DPWH Rep. 2): We will ensure that the budget for these trainings will go through TESDA, DTI, DOST, DA but they will need to coordinate with the LGU to indicate the people who will be entitled to get these trainings. We have quarterly monitoring activities until post evaluation to confirm the training effectiveness.</p>
<p>July 5, 2022 Tuesday 9:00am-10:00am LGU 2nd Public Consultation Mun. of Carranglan, Nueva Ecija</p>	11	6	<p>Q1. (LGU Rep. 1): What is the schedule of the public consultations in concerned barangays?</p>	<p>A1. (EarthUs Rep. 1): Tentatively 1st week of August. We shall finalize the dates and notify you and the barangays accordingly.</p>
<p>July 4, 2022 Monday 1:30pm-3:00pm LGU 2nd Public Consultation Mun. of Aritao, Nueva Vizcaya</p>	5	6	<p>Q1. (LGU Rep 1): What is the status of FPIC issued by NCIP?</p> <p>Q2. (LGU Rep 2): Does the project already identified possible resettlement areas in Aritao?</p>	<p>A1. (DPWH Rep. 1): The DPWH has already secured certificate of pre-condition.</p> <p>A2. (EarthUs Rep. 1): Since the affected PAPs that reside in the ROW areas are only nine families (six in Canarem and two in Canabuan), the project may provide financial assistance to these families to resettle instead of constructing a resettlement area, which would be too costly.</p>

			Q3. (LGU Rep 3): May I request for the list of affected households?	A3. (EarthUs Rep. 1): The list is still preliminary. A final Master list of PAPs will be made available will when the Final RAP is prepared during the D/D stage.
July 4, 2022 Monday 8:00am- 11:30am LGU 2 nd Public Consultation Municipality of Santa Fe, Nueva Vizcaya	7	6	Q1. (LGU Rep 1): It was mentioned that the replacement for the trees to be cut shall be Narra and Mahogany species.	A1. (DPWH Rep. 1): The MENRO recommended changing Narra and Mahogany to indigenous or endemic species that thrive in the areas e.g., in Canarem there is a species which is used by IPs for coffin, also Lauaan, Tangile, Guijo and other dipterocarp trees. The project can also provide facilities for nurseries at the barangays for seedling production. This can be a livelihood project for the PAP communities while the project is on-going.

Source: EarthUs, 2022.

In addition, Focus Group Discussions (FGDs) were held from August 2 to 5, 2022 with the purposes of obtaining current situation on livelihoods of PAPs and their interests to livelihood options. The minutes of these meetings are found in **Appendix B**. The summary of the minutes is in **Table 3.1.2**.

Table 3.1.2 Summary of Focus Group Discussions

Date/ Venue	No. of Attendees		Issues and Concerns	
	Male	Female	Question	Answer
August 5, 2022/ FDGs – Brgy. Hall, Bunga, Carranglan	0	5	Q1. (EarthUs Rep. 1): What types of livelihood/business do you engage in right now? Q2. (EarthUs Rep. 1): Are you a member of women’s organization in your community? Q3. (EarthUs Rep. 1): What types of livelihood business are you interested in?	A1. (Participant 1): The participants help their husbands/male members in family activities. A2. (Participant 2): No. A3. (Participant 3): The participants are interested to venture into three or four options according to the following priorities: (1) eco-tourism; (2) resort operation and hospitality service with sari-sari store/canteen/coffee/bakeshops operation; (3) improved livestock production (piggery, poultry, carabao, cow) and (4) product manufacturing and processing (assuming they can improve agricultural production).
August 5, 2022/ FDGs – Brgy. Hall, Bunga, Carranglan	0	5	Q1. (EarthUs Rep. 1): What types of livelihood/business do you engage in right now? Q2. (EarthUs Rep. 1): Are you a member of women’s organization in your community? Q3. (EarthUs Rep. 1):	A1. (Participant 1): The participants help their husbands/male members in family activities. A2. (Participant 2): No. A3. (Participant 3): The participants are interested to venture into three or four options according to the following priorities: (1) Agri-eco-tourism; (2) resort operation and hospitality service with

			What types of livelihood business are you interested in?	sari-sari store/canteen/coffee/bakeshops; (3) improved livestock production (piggery, poultry, carabao, cow) and (4) Food products manufacturing and processing.
August 4, 2022/ FDGs – Brgy. Hall, Salazar, Carranglan	0	7	Q1. (EarthUs Rep. 1): What types of livelihood/business do you engage in right now? Q2. (EarthUs Rep. 1): Are you a member of women’s organization in your community? Q3. (EarthUs Rep. 1): What types of livelihood business are you interested in?	A1. (Participant 1): Most of participants help their husbands/male members in family activities while others raise livestock and poultry. A few sell food and delicacies. A2. (Participant 2): No. We are still unorganized at the moment although there are plans to form a women’s group. A3. (Participant 3): The participants preferred and prioritized the following livelihood/business options: (1) Medium-scale livestock, swine, poultry and duck production; (2) agro-eco-cultural tourism with flower gardens, coffee/bakeshops shops, and IP-hosted Kalanguya-Ikalahan cultural festivals and nature-tourism such as river-park, mountain biking and trekking; (3) High-value vegetable, coffee, and cacao production; and (4) Food processing.
August 3, 2022/ FDGs – Brgy. Hall, Canarem, Aritao	0	14	Q1. (EarthUs Rep. 1): What types of livelihood/business do you engage in right now? Q2. (EarthUs Rep. 1): Are you a member of women’s organization in your community? Q3. (EarthUs Rep. 1): What types of livelihood business are you interested in?	A1. (Participant 1): Most of participants help their husbands/male members in family activities while others raise livestock. A2. (Participant 2) One participant is a member of Nueva Vizcaya Abot-Palad Coop., a cooperative operating in Bayombong, N. Ecija. A3. (Participant 3) The participants give priority to the following alternative livelihood /business options: (1) Medium-scale swine, free-range chicken and organic duck production; (2) Food manufacturing and processing: e.g., fruit/turmeric candies, cassava flour, root crops, baked goods, etc.; (3) Handicrafts: basket weaving and broom-making; and (4) High-value vegetable gardening.
August 2, 2022/ FDGs – Brgy. Hall, Canabuan, Santa Fe	0	16	Q1. (EarthUs Rep. 1): What types of livelihood/business do you engage in right now? Q2. (EarthUs Rep. 1): Are you a member of women’s organization in your community? Q3. (EarthUs Rep. 1):	A1. (Participant 1): Most of participants help their husbands/male members in family activities. Others raise livestock, particularly, piggery production is a lucrative business. A2. (Participant 2): Some are members of Kayonito Canabuan Women’s Association (KWCA) while others are members of Spanish Canabuan Farmer’s Traders Association (SCAFATA). Both have just recently organized.

			What types of livelihood business are you interested in?	A3. (Participant 3): The participants give priority to the following alternative livelihood /business options: i) improved livestock production (medium-scale piggery, poultry), ii) agro-eco-cultural tourism with flower gardens, coffee/bakeshops, and IP-hosted Kalanguya cultural festivals and showcase of indigenous handicrafts, notably broom and baskets, iii) improved vegetable production, and iv) food processing.
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Source: EarthUs, 2022.

3.2 ANCESTRAL DOMAINS

There are two ancestral domains that the project will traverse, namely⁸:

(1) *Kalanguya-Ikalahan* Ancestral Domain. The Kalanguya-Ikalahan Ancestral Domain is covered by Certificate of Ancestral Domain Title (CADT) No. RO2-STF-0406-0458. It encompasses a total land area of 30,758.5822 hectares, and covers 23 barangays in the municipalities of Santa Fe, Aritao and Kayapa. Three of these barangays will be traversed by the project. This includes the barangays of Canabuan, Santa Fe; Canabuan, Aritao; and Canarem, Aritao, which are directly affected by the project’s ROW.

(2) The Kalanguya Ancestral Domain is covered by CADT No. R03-CAR-1106-051 issued on November 14, 2006. It comprises a total land area of 25,373.10 hectares. The Kalanguya Ancestral Domain covers four barangays namely Capintalan, Minuli, Putlan, Salazar and portions of Burgos, all in the municipality of Carranglan. The Project will only traverse portions of the ancestral land in Salazar.

The map showing the two ancestral domains is found in **Figure 3.2.1**.

⁸ The Ancestral Domains have a different feature from the general land, and preferable treatments are provided to IP communities such as exemption of land tax. In case that a plot inside the Ancestral Domains is proved to be owned by a non-IP legally, such plot will no longer belong to the Ancestral Domains.

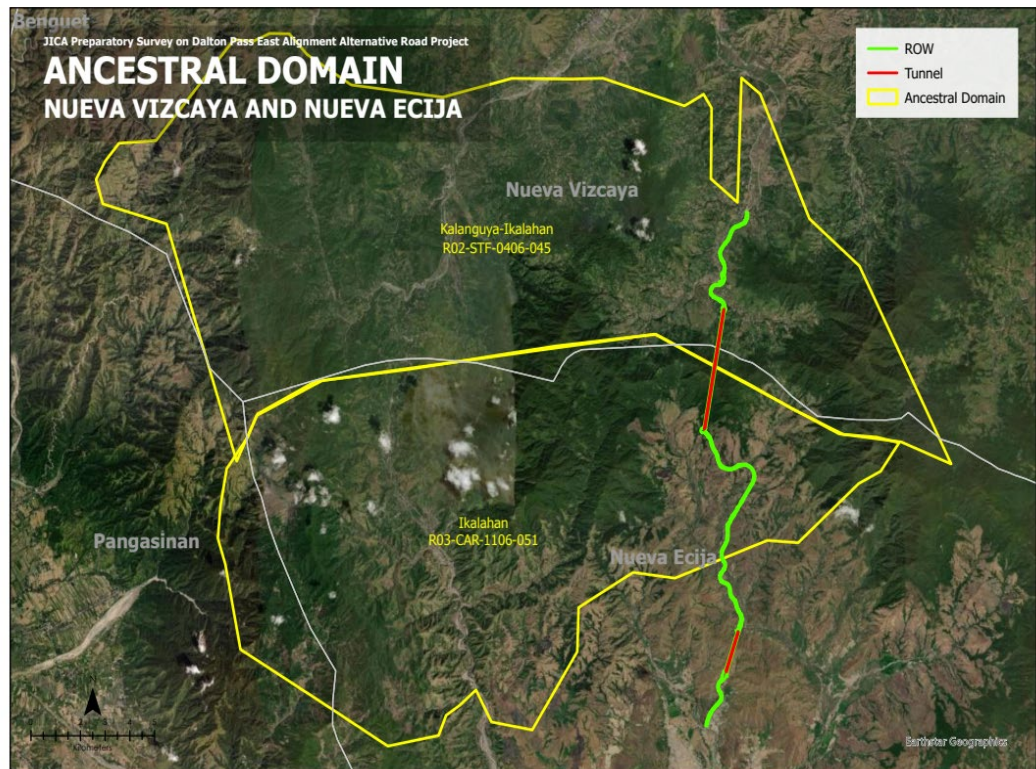


Fig. 3.2.1 Map showing ROW alignment within the ancestral domains

3.3 CADASTRAL MAPS

The cadastral maps were collated by the Cadastral Surveyor. **Appendix C** shows the Preliminary Master List of Affected Lots Based on Cadastral Maps. These were used to identify the potential PAPs who will be affected by the project.

Figures 3.4.1 to 3.4.6 are barangay satellite maps showing the ROW alignment and the cadastral lots identified, including improvements thereon that will likely be acquired to secure the project's ROW.

3.4 BARANGAYS AFFECTED

The project will traverse six (6) barangays, namely Bunga, Burgos, and Salazar in Carranglan, Nueva Ecija; Canabuan and Canarem in Aritao, and Canabuan in Santa Fe, Nueva Vizcaya. All six barangays subsist on agricultural economy.

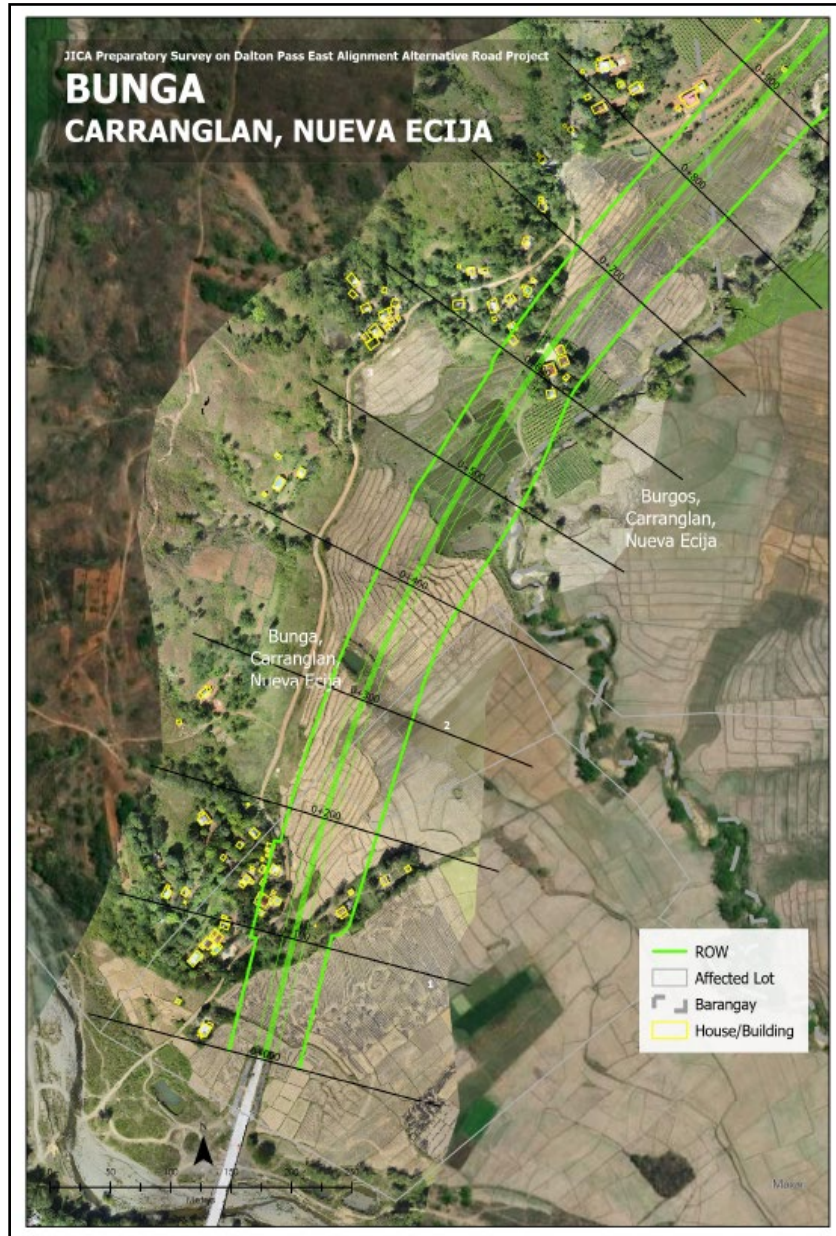
Bunga, Burgos and Salazar are three (3) of the 17 barangays of the municipality of Carranglan. Canabuan is one of the 16 barangays of Santa Fe, while Canabuan and Canarem are two (2) of the 22 barangays of Aritao.

3.4.1 Barangay Bunga, Carranglan

Bunga, the southernmost barangay, will be traversed by 3.7 km of the project. The scope of the RAP survey works begins at the end of the existing/completed part of the DPEAR in Barangay Bunga, Carranglan, Nueva Ecija. It is located approximately 380 meters northeast from the Barangay Road; 950 meters northeast from Baluarte-Daldalayap Road; 1.4 kilometers northeast from Bunga Elementary School; 1.5 kilometers northeast from Bunga Integrated High School; 8.5 kilometers northwest from the Carranglan Municipal Hall (town proper); and, about 14 kilometers northeast from Maharlika Highway.

Based on census survey, the project will affect 202,717.82 sqm (~20.27 ha) of land located between Km 0+000 and Km 3+700, including the portal of south tunnel between Km 2+350 and Km 2+550 (**Figure 3.4.1**). These lots belong to, are occupied and/or used for economic livelihood activities by 21 households (HH).

Between Km 2+550 and Km3+700 the south tunnel will traverse Lot. No. 5 at depths >50 meters. Pursuant to Section 11 of the IRR of RA 10752, which governs subsurface/sub-terranean ROW, this lot need not be acquired by the DPWH.

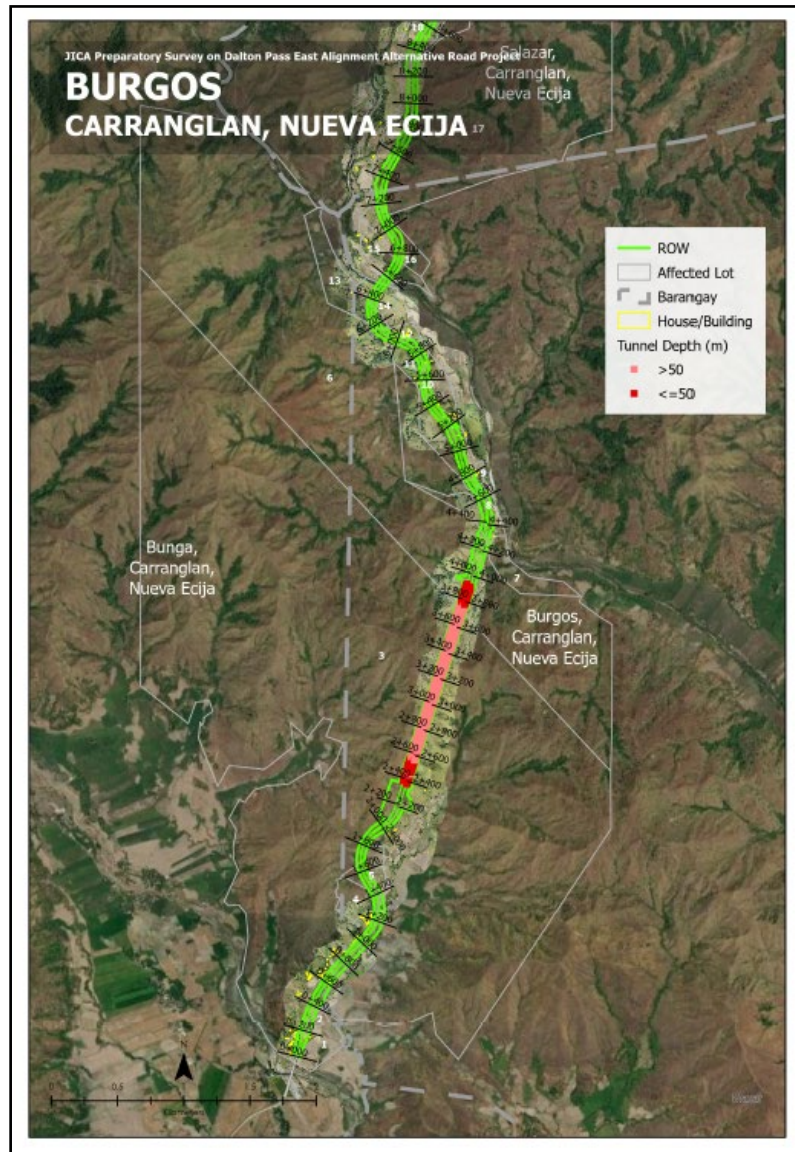


Source: EarthUs, 2022

Fig. 3.4.1 Map showing ROW alignment and affected lots in Bgy. Bunga.

3.4.2 Barangay Burgos, Carranglan

The project's ROW alignment spans 3.0 kilometers in this barangay. Based on the DPEAR census survey, it will traverse 267,420.57 sqm (~26.74 ha) of land located between Km 3+700 and Km 6+700, including the area of the south tunnel portal between Km3+750 and Km3+950 (**Figure 3.4.2**). These lots belong to and/or are used by 25 HH for their economic activities.



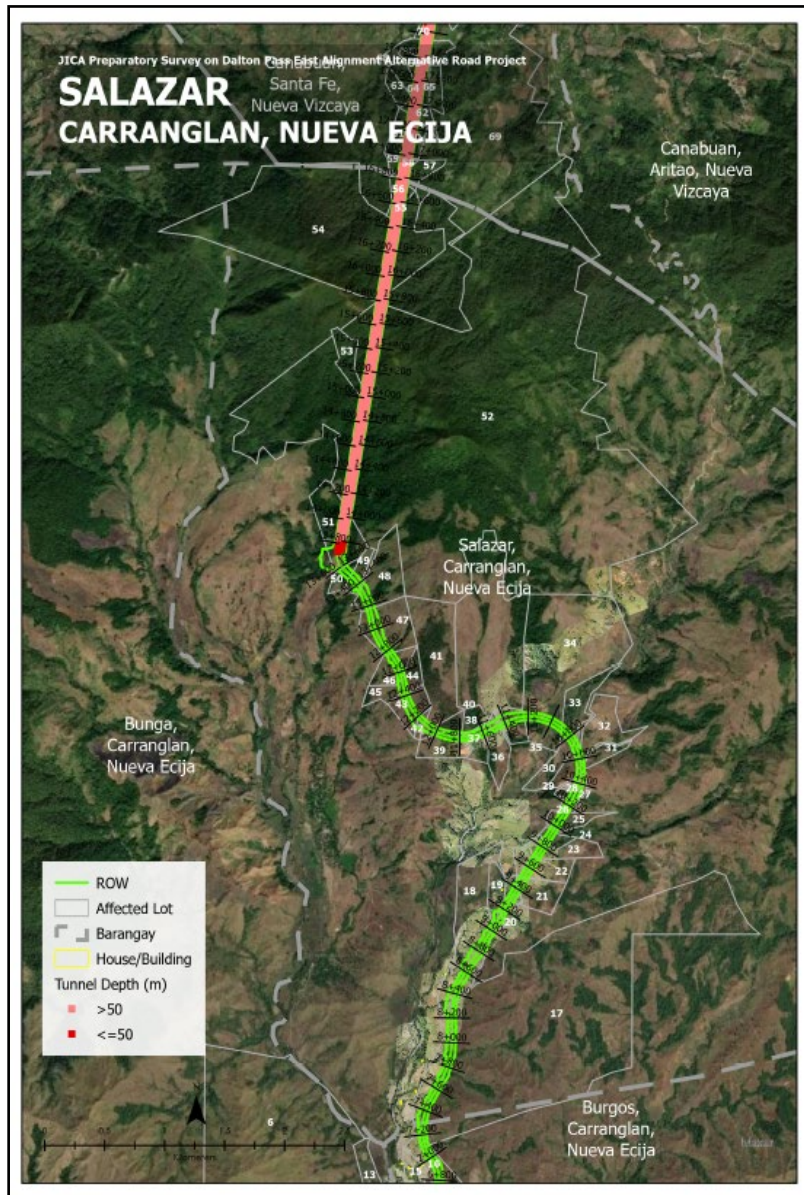
Source: EarthUs, 2022

Fig. 3.4.2 Map showing ROW alignment and affected lots in Bgy. Burgos.

3.4.3 Barangay Salazar, Carranglan

Salazar is part of the ancestral domain of the Kalanguya indigenous cultural communities in Nueva Ecija. The proposed alignment traverses approximately 10.1 kilometers of ROW. Based on the DPEAR census survey, this will involve the acquisition of 451,315.68 sqm (~ 45.13 ha) of land located between Km 6+700 up to the end of the south portal of the north tunnel in Km 13+800 (Figure 3.4.3). These lots belong to, occupied and/or are used by 36 HH for livelihood activities.

From Km 13+800 up to Km 18+100 in Canabuan, Santa Fe, the subterranean ROW of the north tunnel will traverse lands at depths >50 meters. Pursuant to Section 11 of the IRR of RA 10752, these lots need not be acquired by the DPWH.



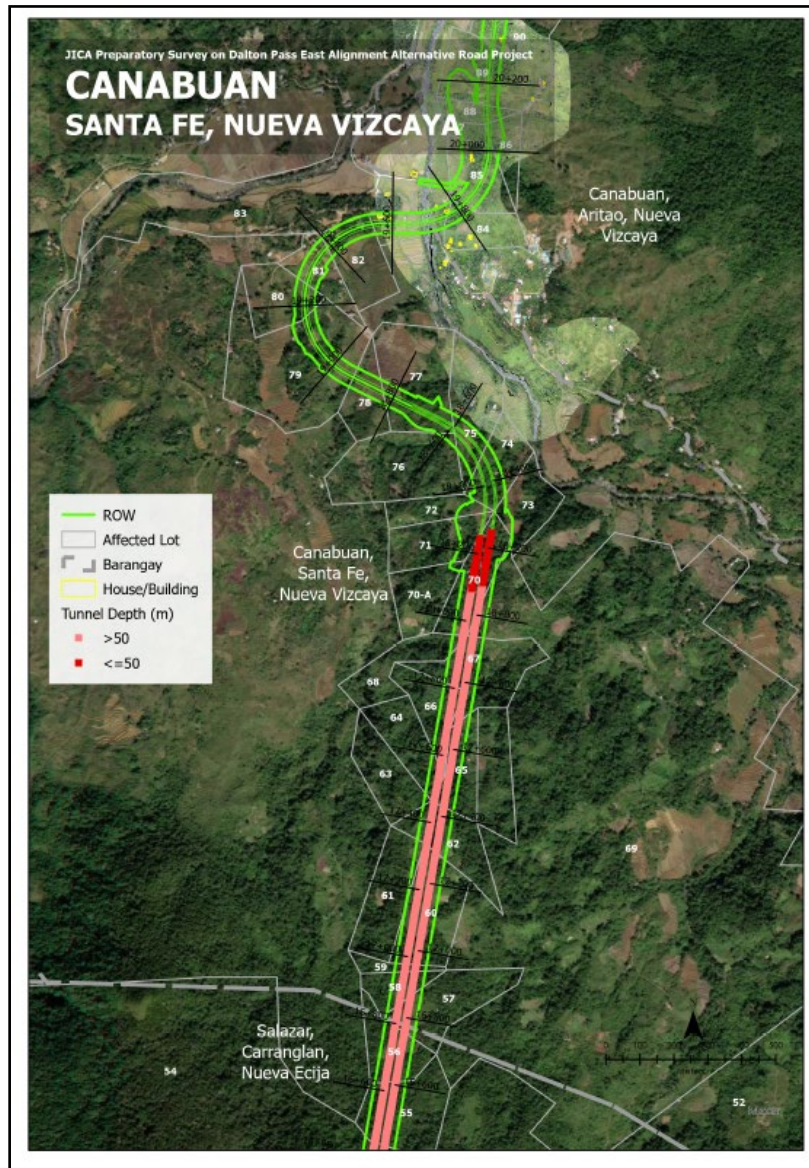
Source: EarthUs, 2022

Fig. 3.4.3 Map showing ROW alignment and affected lots in Bgy. Salazar.

3.4.4 Barangay Canabuan, Santa Fe

Canabuan belongs to the ancestral domain of the Kalanguya-Ikalahan indigenous cultural communities of Nueva Vizcaya.

Significantly, there are no clear-cut physical boundaries between barangay Canabuan, Santa Fe, Canabuan, Aritao and Canarem, Aritao. According to barangay officials, this is because some residents opted to officially register with the barangay of their choice. For example, some residents of Canabuan, Santa Fe are officially “registered voters” of Canabuan, Aritao or Canarem, Aritao and vice versa.



Source: EarthUs, 2022

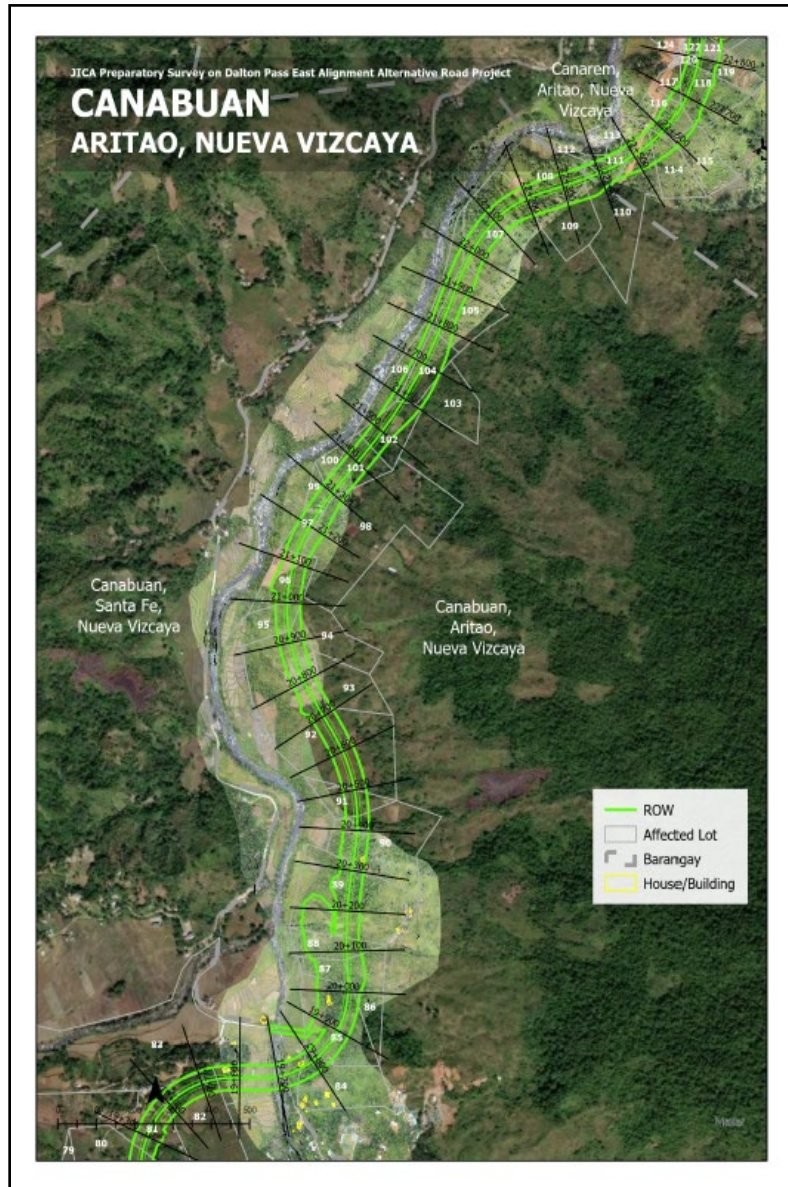
Fig. 3.4.4 Map showing ROW alignment and affected lots in Bgy. Canabuan, Santa Fe

Based on the DPEAR census survey, the project will traverse some 4.6 kilometers of Bgy. Canabuan, Santa Fe. Starting from the north portal of the north tunnel (depth $\leq 50\text{m}$), it will affect 130,940.02 sqm (~ 13.09 ha) of land located between Km 18+100 (around the end portal of the north tunnel) and Km 21+400 (**Figure 3.4.4**). These lots belong to, are occupied and/or used by 40 HH for their economic activities. These lots need to be acquired to secure the project's ROW.

3.4.5 Barangay Canabuan, Aritao

Based on the DPEAR census survey, the project will traverse 3.6 kilometers and affect 191,083.12 sqm (~ 19.11 ha) of land located between Km 18+150 (end

portal of the north tunnel) and Km 21+800 (**Figure 3.4.5**). These lots belong to 21 HH. These lots need to be acquired to secure the project's ROW.



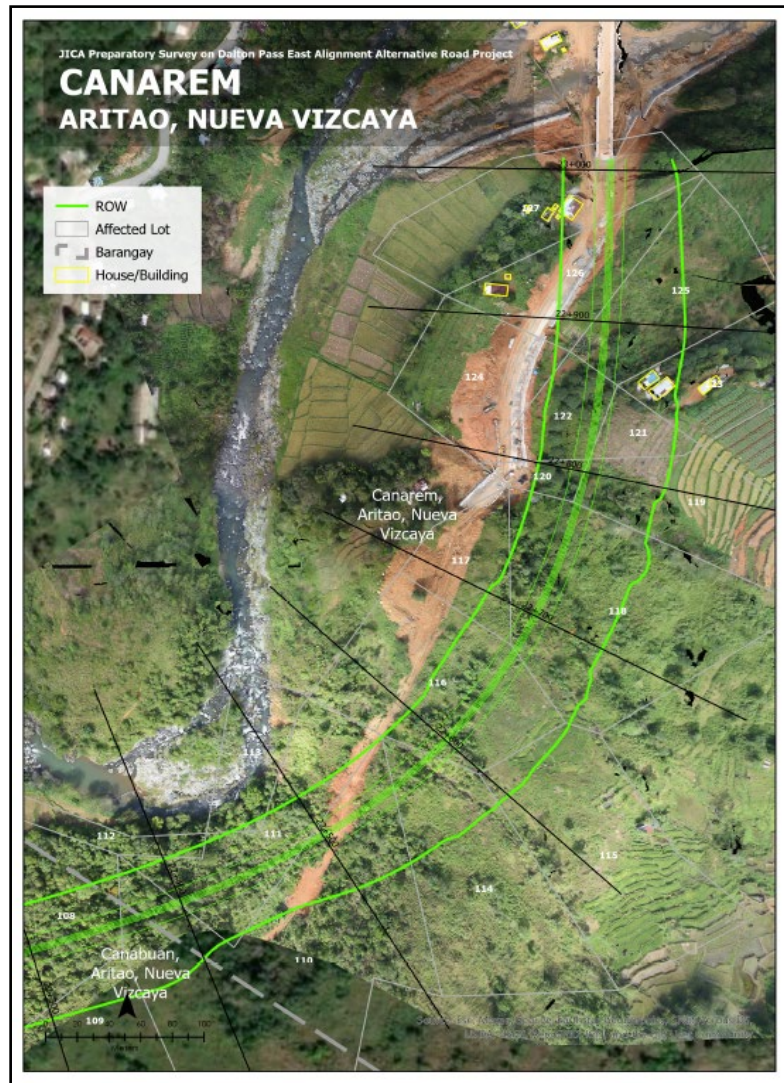
Source: EarthUs, 2022

Fig. 3.4.5. Map showing ROW alignment and affected lots in Bgy. Canabuan, Aritao

3.4.6 Barangay Canarem, Aritao

The scope of RAP survey works terminates at the existing bridge in Barangay Canarem. It is located approximately 220 meters south from Aritao-Canabuan Provincial Road; 450 meters southeast from Iglesia ni Cristo-Lokal ng Canarem; 650 meters southeast from Canarem Barangay Hall; 1.2 kilometers south from Santa Clara High School; 14.9 kilometers southeast from Maharlika Highway; and about 16 kilometers southeast from the Aritao Municipal Hall (town proper).

Based on the DPEAR census survey, the project will traverse 50,802.27sqm (~5.08ha) of land located between Km 18+100 (end portal of the north tunnel) and Km 21+400 (**Figure 3.4.6**). These lots belong to, are occupied and/or used by 20 HH for economic livelihood. These lots need to be acquired to secure the project's ROW.



Source: EarthUs, 2022

Fig. 3.4.6 Map showing ROW alignment and affected lots in Bgy. Canarem, Aritao

3.5 SOCIO-ECONOMIC PROFILE OF PROJECT-AFFECTED PERSONS

The Census and Socio-economic Survey (C-SES) was undertaken from 24 March to 07 May 2022. The C-SES resulted in the enumeration of the PAPs and their socio-economic conditions, tenurial status, affected dwellings and other structural improvements, access to social support services, livelihood, resettlement preferences, and awareness, perception, issues, and concerns regarding the project.

The C-SES surveyors were composed of two teams: one team covered the municipality of Carranglan, Nueva Ecija and another team covered the municipalities of Santa Fe and Aritao in Nueva Vizcaya.

The socio-economic profile of PAPs is described below. The unit of analysis is the “household”, defined by the Philippine Statistics Authority (PSA) as a composite group of individuals sharing the same dwelling and pooling various income sources for common use.⁹ Collectively, the surveyed group is also referred to as “PAPs”.

There were **170** PAPs identified who are living/occupying and/or doing economic activities inside the proposed ROW. However, only **163** respondents were interviewed, representing 82 PAPs in Nueva Ecija and 81 PAPs in Nueva Vizcaya. Seven (7) houses in Canabuan, Santa Fe were not available for interview despite several callbacks.

As shown in **Table 3.5.1**, about 73% of the respondents were the household heads (HHH); 21.47% were spouses; and 5.52% were either adult children or relatives of the HHH. Bgy. Canabuan, Santa Fe has the greatest number of PAPs (40), followed in sequence by Bgy. Salazar (36), Bgy. Burgos (25), Bgy. Bunga (21), Bgy. Canabuan, Aritao (21) and Bgy. Canarem (20). Two-thirds (110) of the total respondents were male and only a third (53) were female.

Table 3.5.1 Barangay Distribution of C-SES Respondents

Mun./Prov.	Barangay	Sex	HH Head	Spouse	Other HH Members	Total
Carranglan	Bunga	Male	19	0	0	19
		Female	1	1	0	2
		All	20	1	0	21
	Burgos	Male	16	0	1	17
		Female	3	5	0	8
		All	19	5	1	25
	Salazar	Male	28	1	0	29
		Female	2	5	0	7
		All	30	6	0	36
Santa Fe, Nueva Vizcaya	Canabuan	Male	22	0	2	24
		Female	6	8	2	16
		All	28	8	4	40
Aritao, Nueva Vizcaya	Canabuan	Male	9	1	1	11
		Female	2	7	1	10
		All	11	8	2	21
	Canarem	Male	9	0	1	10
		Female	2	7	1	10
		All	11	7	2	20
Total Population	Male	103	2	5	110	
	Female	16	33	4	53	
	All	119	35	9	163	

⁹ This distinction is made to avoid confusion with the term “family”, which could have a larger inclusive meaning by recognizing bonds of affiliation and affinity, and/or which pertains to units arising from the bond of marriage or cohabitation. A household, thus, could have more than one family and considering one as “family” means more than just blood ties.

Source: EarthUs, 2022.

The summary profile of PAPs and their affected assets is found in **Appendix D**.

3.5.1 Demographic Characteristics

(1) Barangay Demographic Profile

The general demographic characteristics of the barangays are shown in **Table 3.5.2**.

Table 3.5.2 General Barangay Demographics

Indicators	Bunga	Burgos	Salazar	Canabuan SF	Canabuan Ar	Canarem, Ar
Population	3916	4231	943	2047	774	946
Growth Rate, % ^{1/}	-0.02	2.04	-5.24	4.64	7.35	2.94
Ave. HH Size	4.1	4.17	4.27	5.09	5.08	4.48
Economically Active Pop'n., %	64.81	65.37	67.41	61.21	65.05	60.61
Youth population (14 y.o. & below), %	30.36	30.65	29.39	35.09	32.32	34.93
Elderlies (65 y.o. & over), %	4.82	3.98	3.2	3.7	2.63	4.46
Youth dependency ratio ^{2/}	47	47	44	57	50	58
Old age dependency ^{2/}	7	6	5	6	4	7

Legend: ^{1/} Over the last 5 years (2015-2020); ^{2/} For every 100 working population

Source: PSA, 2020.

Barangay Burgos has the biggest population among the six barangays, while Canabuan Aritao has the least. Over the last five years since 2015, Canabuan, Aritao has the highest population growth rate of 7.35% followed by Canabuan, Santa Fe with 4.64%. Bunga and Salazar have negative growth rates of 0.02% and 5.24%, respectively, during the same period. HH size averages between 4.1 to 5.09.

As high as 67.41% of the population (Salazar) are economically active. Overall, the actual and potential members of the work force aged 18-64 years old (y.o.) averages 64.08%. The youths aged 14 and below constitute at least 30%, while the elderlies who are 65 y.o. and over constitute 3.8% on average.

Youth dependency ratio is high, especially in Nueva Vizcaya, with as many as 58 persons to every 100 working men and women. Old-age dependency ratio is rather low at 4-7 elderly to every 100 working members of the population.

(2) PAPs Population and HH Size

As shown in **Table 3.5.3**, there are 163 respondent PAPs in the six barangays, with a total population of 659. Over half of the PAP

population (354 or 53.71%) belonging to 82 HH are from Nueva Ecija, while 305 or over 46% belonging to 81 HH are from Nueva Vizcaya.

Bgy. Salazar has the greatest number of persons affected (177 or 26.86%). This is followed by Canabuan, Santa Fe, with 164 persons (24.89%); then Burgos, with 103 (15.63%). Canarem, Aritao has the least number of affected population (66 persons or 10.02%), followed by Bunga with 74 (11.23%) and Canabuan, Aritao, with 75 (11.38%).

The size of affected households ranges from 1 to 11 members. The average HH size varies between 3.30 (Canarem) and 4.92 (Salazar). This translates to an average HH size of 3.92 across all barangays. Of the 163 HH, 56 HH (34.4%) have 5 or more members, while 107 HH (65.6%) have smaller families with 1-4 members.

Table 3.5.3 PAPs Population and Household Size

Mun/Prov	Barangay	HH Size										Total	Percent to	Total	Percent to	Ave.
		1	2	3	4	5	6	7	8	9	11	HH	Total HH	Pop.	Total Pop.	HH Size
Carranglan, N.E.	Bunga	2	2	7	6	2	1	1	0	0	0	21	12.88%	74	11.23%	3.52
	Burgos	0	2	6	9	4	3	1	0	0	0	25	15.34%	103	15.63%	4.12
	Salazar	0	3	6	9	4	6	4	3	1	0	36	22.09%	177	26.86%	4.92
Santa Fe, N.V.	Canabuan	4	5	5	12	3	7	3	0	1	0	40	24.54%	164	24.89%	4.10
Aritao, N.V.	Canabuan	4	3	3	6	3	1	0	0	0	1	21	12.88%	75	11.38%	3.57
	Canarem	3	6	3	1	4	3	0	0	0	0	20	12.27%	66	10.02%	3.30
TOTAL		13	21	30	43	20	21	9	3	2	1	163	100%	659	100%	3.92
Percent		7.4%	14.1%	19.0%	25.2%	12.9%	13.5%	4.3%	1.8%	1.2%	0.6%	100%				

Source: EarthUs, 2022.

(3) Age

Table 3.5.4 shows the age of HH heads and their spouses by sex. There are 163 HH heads to 146 spouses. This could mean that 17 HH are headed by solo parents who are either widows/widowers or unmarried.

Of the HH heads, those who are in their economically productive years of 15-64 y.o. comprise nearly 99.4%, of whom 142 are males and 20 are females. Only one male HH head is past the economically productive years of 65-87 y.o.

All the spouses, of whom 133 are females and 13 are males, are in their economically productive age of 18-64 y.o.

There are 350 HH members in all. These are distributed by age according to **Table 3.5.5**. Salazar has the greatest number of HH members (101) followed by Canabuan, SF (90). Some 102 members or 29.1% comprise the young dependent population aged 0-14 y.o. while 246 members (70.2%) comprise those in their economically productive

years of 15-64 y.o. There are only two members (0.6%) aged 65 y.o. and over who comprise the old-age dependent population.

Table 3.5.4 Age Distribution of HH Heads and Spouses

Household Role	Age Range	Sex	Nueva Ecija			Nueva Vizcaya			TOTAL	% of Total
			Carranglan			Santa Fe	Aritao			
			Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
HH Head	15 to 59 y.o.	Male	17	16	29	28	13	9	112	68.71%
		Female	1	1	1	3	2	0	8	4.91%
	60 to 64 y.o.	Male	3	6	5	5	4	7	30	18.40%
		Female	0	2	1	4	2	3	12	7.36%
	65 to 87 y.o.	Male	0	0	0	0	0	1	1	0.61%
		Female	0	0	0	0	0	0	0	0.00%
Total HH Heads			21	25	36	40	21	20	163	100%
Spouse	15 to 59 y.o.	Male	0	2	1	4	2	2	11	7.53%
		Female	16	19	28	29	14	12	118	80.82%
	60 to 64 y.o.	Male	0	0	0	1	0	1	2	1.37%
		Female	2	4	5	2	0	2	15	10.27%
Total Spouses			18	25	34	36	16	17	146	100%
TOTAL			39	50	70	76	37	37	309	

Source: EarthUs, 2022

Table 3.5.5 Age Distribution of HH Members

Household Role	Age Range	Nueva Ecija			Nueva Vizcaya			Total	Percent to Total
		Carranglan			Santa Fe	Aritao			
		Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Household Member 1	0 - 14 years old	4	4	6	9	5	2	29	
	15 - 59 years old	12	19	29	22	7	8	98	
	60 to 64 years old	1	0	0	1	0	1	3	
	65-87 years old	0	0	0	0	0	1	1	
Household Member 2	0 - 14 years old	2	5	4	7	4	3	26	
	15 - 59 years old	8	12	21	16	8	4	68	
	60 to 64 years old	0	0	0	1	0	0	1	
	65 to 87 years old	0	0	0	1	0	0	1	
Household Member 3	0 - 14 years old	1	3	6	6	2	3	21	
	15 - 59 years old	3	5	12	9	4	4	37	
Household Member 4	0 - 14 years old	0	1	4	4	1	1	12	
	15 - 59 years old	2	3	8	8	2	3	25	
Household Member 5	0 - 14 years old	0	0	3	2	1	0	6	
	15 - 59 years old	1	1	3	2	1	0	8	
Household Member 6	0 - 14 years old	0	0	1	1	1	0	3	
	15 - 59 years old	0	0	2	0	1	0	3	
Household Member 7	0 - 14 years old	0	0	1	1	2	0	4	
	15 - 59 years old	0	0	1	0	1	0	2	
Household Member 8	0 - 14 years old	0	0	0	0	1	0	1	
Household Member 9	0 - 14 years old	0	0	0	0	1	0	1	
Age Distribution	0 - 14 years old	9	14	25	29	17	9	102	29.1%
	15 - 59 years old	24	39	76	58	25	19	242	69.1%
	60- 64 years old	1	0	0	2	0	1	4	1.1%
	65 to 87 years old	0	0	0	1	0	1	2	0.6%
TOTAL HH MEMBERS		34	53	101	90	42	30	350	100.0%

Source: EarthUs, 2022

(4) Marital Status of HH Heads

Almost 80% (129) of the HH heads are married while 5 HH heads (3%) are common-law partners, as shown in **Table 3.5.6**.

Table 3.5.6 Marital Status of HH Heads

Province	Municipality	Barnagays	MARITAL STATUS							Total
			Married		Single	Widow/er		Separated	CL Spouse*	
			Male	Female	Male	Male	Female	Female	Male	
Nueva Ecija	Carranglan	Bunga	19	0	1	0	1	0	0	21
		Burgos	20	0	1	1	3	0	0	25
		Salazar	33	0	1	0	2	0	0	36
Nueva Vizcaya	Aritao	Canabuan	12	1	2	2	2	0	1	20
		Canarem	14	1	1	1	2	0	1	20
	Santa Fe	Canabuan	27	2	1	2	5	1	3	41
TOTAL			125	4	7	6	15	1	5	163
COMBINED TOTAL			129		7		21	1	5	163
PERCENT TO TOTAL			79.14%		4.29%		12.88%	0.61%	3.07%	100%

* - Common Law spouse

Source: EarthUs, 2022.

It is important to note that a significant number (21 or 12.88%) of HH heads are widows/ers. One female HH head is a solo parent. Widows/ers and the female solo parent are considered as belonging to vulnerable group and may require special assistance, if displaced by the project. One form of assistance is by way of giving them priority in construction-related employment if they are qualified. They could also be helped by providing them with livelihood training in case they lose their only source of income and will need to engage in new economic activities.

3.5.2 Social Conditions

(1) Education

In terms of educational attainment among household heads (**Table 3.5.7**), there are 7 (4.29%) who finished college; 8 (4.91%) who are college undergrads; and 2 (1.23%) who went to vocational school. A good number finished high school (23 or 14.1%) or at least reached high school level (34 or 20.86%). While most household heads are either elementary undergraduates (40 or 24.54%) or elementary graduates (34 or 20.86%), only 3 (1.84%) had no formal schooling.

Among the spouses, there are more college graduates (15 or 10.27%); 6 (4.11%) who reached college; and 2 (1.37%) who had vocational training. Still, 28 (19.18%) are high school graduates and 26 (17.81%) reached secondary level; 24 (16.44%) finished elementary; and 26 (17.81%) are elementary undergraduates. Only 3 spouses had no formal schooling.

Table 3.5.7 Highest Educational Attainment of Household Heads and Spouses

Respondents	Educational Attainment	Nueva Ecija			Santa Fe	Nueva Vizcaya		Total	Percent of Total
		Carranglan				Canabuan	Aritao		
		Bunga	Burgos	Salazar	Canabuan		Canabuan		
Household Head	Coll Grad	2	1	0	2	0	2	7	4.29%
	Coll UG	0	1	4	0	1	2	8	4.91%
	HS Grad	5	3	7	2	6	0	23	14.11%
	HS UG	6	4	5	9	5	5	34	20.86%
	Elem Grad	3	9	10	8	2	2	34	20.86%
	Elem UG	3	4	8	14	5	6	40	24.54%
	Voc Grad	1	0	0	0	1	0	2	1.23%
	No schooling	0	1	1	0	0	1	3	1.84%
	Not indicated	1	2	1	5	1	2	12	7.36%
Sub-total	21	25	36	40	21	20	163	100%	
Household Spouse	Coll Grad	2	1	4	3	1	4	15	10.27%
	Coll UG	0	1	1	1	3	0	6	4.11%
	HS Grad	4	2	6	8	8	0	28	19.18%
	HS UG	3	6	8	4	2	3	26	17.81%
	Elem Grad	3	7	7	4	2	1	24	16.44%
	Elem UG	0	3	7	9	0	7	26	17.81%
	Voc Grad	0	0	0	2	0	0	2	1.37%
	No schooling	1	0	1	0	0	1	3	2.05%
	Not indicated	5	5	0	5	0	1	16	10.96%
Sub-total	18	25	34	36	16	17	146	100%	
TOTAL	39	50	70	76	37	37	309		

Source: EarthUs, 2022

Table 3.5.8 shows the educational attainment among HH members. Nearly 64 (18.28%) of HH members have reached tertiary level of education. Of these, 21 (6.0%) were able to finish college; 36 (10.3%) went to college and 7 (2.0%) went to vocational school.

About 107 (30.6%) finished or went to high school and 109 (over 31%) acquired elementary education. Only 7.14% are in the early childhood years.

Table 3.5.8 Highest Educational Attainment of Household Members

Educational Attainment	Nueva Ecija			Santa Fe	Nueva Vizcaya		Total	Percent of Total
	Carranglan				Canabuan	Aritao		
	Bunga	Burgos	Salazar	Canabuan		Canabuan		
Coll Grad	5	1	5	8	0	2	21	6.00%
Coll UG	4	8	13	3	4	4	36	10.29%
Voc Grad	0	0	2	2	0	0	4	1.14%
Voc UG	0	1	0	1	1	0	3	0.86%
HS Grad	2	12	4	6	1	2	27	7.71%
HS UG	11	7	26	23	7	6	80	22.86%
Elem Grad	4	4	9	5	0	0	22	6.29%
Elem UG	7	14	24	20	12	10	87	24.86%
Pre-school	1	2	9	10	3	0	25	7.14%
No schooling	0	5	0	4	8	5	22	6.29%
Not indicated	0	0	10	6	5	2	23	6.57%
TOTAL	34	54	102	88	41	31	350	100%

Source: EarthUs, 2022.

The school-age population consists of 209 HH members between the age of 3 and 21. These members are distributed by their schooling status as shown in **Table 3.5.9**. Almost 98% of this population are still in school; only 2% are out-of-school youths (OSYs).

Table 3.5.9 School-age Population

Schooling Status	Location of School	Nueva Ecija			Nueva Vizcaya			TOTAL	Percent to Total
		Carranglan			Aritao		Santa Fe		
		Bunga	Burgos	Salazar	Canabuan	Canarem	Canabuan		
In-School	Within the barangay	19	16	21	15	13	39	123	58.85%
	Outside barangay but within LGU	1	9	24	6	1	8	49	23.44%
	Outside LGU	2	8	14	3	1	4	32	15.31%
Out-of-school	Within the barangay	1	1	1	0	0	0	3	1.44%
	Outside barangay but within LGU	0	1	0	0	0	0	1	0.48%
	Outside LGU	0	0	1	0	0	0	1	0.48%
Sub-Total In-school		22	33	59	24	15	51	204	98%
Sub-Total Out-of-School		1	2	2	0	0	0	5	2%
Total School-age Population		23	35	61	24	15	51	209	100%

Source: EarthUs, 2022.

Of those currently enrolled, 58.85% go to schools located inside the barangay; 23.44% go to schools outside the barangay but within the LGU; and 15.31% go to schools outside the LGU. Transportation cost will likely be a problem if would-be displaced PAPs will be relocated far from their present residences.

(2) Ethnicity

Table 3.5.10 shows the ethnic origins of the respondents, both male and female. Out of 163 PAPs, 86 households (52.76%) belong to the two major IP groups in the project area: 55 PAPs or 33.74% belong to the Kalanguya-Ikalahan ICCs of Canabuan, Santa Fe, Canabuan Aritao, and Canarem, Aritao; while 31 PAPs or 19.02% belong to the Kalanguya ICCs of Salazar, Carranglan. There is a small population of PAPs (15 or about 9.20%) who apparently emigrated from other IP groups in the north such as the Bugkalot, Ibaloi, Kankanaey, and Ifugao, and married and/or settled in Bunga, Carranglan; Salazar, Carranglan; Canabuan, Santa Fe; Canabuan, Aritao; and Canarem Aritao.

The non-IPs constitute 38% of the total households. About 95.23% of the PAPs in Bunga and 100% of the PAPs in Burgos are non-IPs. Only ~9% of the PAPs in Salazar, Carranglan and Canabuan, Santa Fe; 28.6% of the PAPs in Canabuan, Aritao; and 15.8% of the PAPs in Canarem, Aritao are non-IPs.

Table 3.5.10 Ethnicity

Ethnicity	Bunga		Burgos		Salazar		Canabuan AR		Canarem AR		Canabuan SF		TOTAL	PERCENT TO TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F		
Bugkalot	1	0	0	0	0	0	0	0	0	0	0	0	1	0.61%
Ibaloi	0	0	0	0	1	0	1	0	1	2	4	0	9	5.52%
Kankanaey	0	0	0	0	0	0	1	0	0	0	0	0	1	0.61%
Ifugao	0	0	0	0	0	0	2	0	0	0	1	1	4	2.45%
Kalanguya	0	0	0	0	31	0	0	0	0	0	0	0	31	19.02%
Kalanguya-Ikalahan	0	0	0	0	0	0	10	1	13	1	23	7	55	33.74%
Non-IP	19	1	22	3	1	3	4	2	1	2	4	0	62	38.04%
SUB-TOTAL	20	1	22	3	33	3	18	3	15	5	32	8	163	100.00%
	21		25		36		21		20		40			
Sub-total Non-IPs	20		25		4		6		3		4		62	38.04%
Sub-total Other IPs	1		0		1		4		3		6		15	9.20%
Sub-total IPs (NE & NV)	0		0		31		11		14		30		86	52.76%
Percent IPs (NE & NV) To Total PAPs	0.00%		0.00%		19.02%		6.75%		8.59%		18.40%		52.76%	

Source: EarthUs, 2022

(3) Residency

Most of the PAPs have established their residence in the project area for a long term. As shown in **Table 3.5.11**, 101 PAPs (62%) have been living in their present residences for over 20 years. This is especially true among the indigenous communities of Salazar, Carranglan; Canabuan, Santa Fe, Canabuan, Aritao; and Canarem, Aritao in as much as many of them inherited their ancestral domains from generations of their ancestors.

About 25% of the PAPs have been living in their present places of residence within the last 11 to 20 years; 8.6% within the last 6-10 years; while only 4.3% within the last 5 years.

Table 3.5.11 Residency

Length of Residency, years	Carranglan, N. Ecija			Santa Fe	Aritao		TOTAL	% to TOTAL
	Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
<1	0	0	1	0	0	0	1	0.61%
1-5	1	1	0	2	2	0	6	3.68%
6-10	2	3	5	2	2	0	14	8.59%
11-15	3	5	3	3	0	0	14	8.59%
16-20	5	8	5	7	2	0	27	16.56%
>20	10	8	22	26	15	20	101	61.96%
TOTAL	21	25	36	40	21	20	163	100%

Source: EarthUs, 2022

(4) Access to Basic Necessities and Utilities

Table 3.5.12 shows the accessibility by and availability to PAPs of the basic household necessities and utilities.

Table 3.5.12 Access to Basic HH Necessities and Utilities

Facility/Utility	Access	Nueva Ecija			Santa Fe	Nueva Vizcaya		Total	Percent to Total
		Carranglan				Canabuan	Aritao		
		Bunga	Burgos	Salazar	Canabuan		Canabuan		
Sanitation	Water-sealed connected to septic tank	5	5	1	6	1	1	20	41.67%
	Water-sealed connected to pit	1	4	0	3	0	0	8	16.67%
	Water-sealed connected to drainage	0	0	0	0	0	1	1	2.08%
	Non-water sealed (open pit, overhang)	0	1	1	9	4	1	16	33.33%
	Shared toilet	2	1	0	0	0	0	3	6.25%
	Sub-total	8	11	2	18	5	3	48	100.00%
Water source for domestic use	Piped connection	1	0	0	0	0	0	1	2.08%
	Deep or shallow well	7	0	0	0	0	0	7	14.58%
	Spring/river/pond/stream	1	12	2	17	5	3	40	83.33%
	Sub-total	9	12	2	17	5	3	48	100.00%
Garbage disposal/management	Collection by LGU but no segregation	0	0	0	1	0	0	1	2.04%
	Collection by LGU segregated at the HH	0	0	0	1	1	0	2	4.08%
	Composting	9	12	1	16	4	3	45	91.84%
	Burning	0	0	1	0	0	0	1	2.04%
	Sub-total	9	12	2	18	5	3	49	100.00%
Electricity/Lighting	Connected to power provider	9	10	0	7	3	2	31	63.27%
	Use kerosene lamp	0	1	1	4	1	1	8	16.33%
	LPG lamp	0	1	0	0	0	0	1	2.04%
	Solar energy	0	0	1	6	1	0	8	16.33%
	Spot (Flash) Light	0	0	0	1	0	0	1	2.04%
	Sub-total	9	12	2	18	5	3	49	100.00%
Cooking	LPG	3	2	0	6	1	3	15	31.91%
	LPG & Wood	3	4	1	2	0	0	10	21.28%
	Fuel/wood	3	5	0	10	4	0	22	46.81%
	Sub-total	9	11	1	18	5	3	47	100.00%

Source: EarthUs, 2022

For sanitation, nearly 40% of households use toilets that are water-sealed and connected to septic tanks, while nearly one-third continue to rely on non-water sealed open pits. For garbage disposal, nearly 92% resort to composting.

In terms of water sources for domestic use, more than 83% draw their water from springs and or streams while nearly 15% sources their water from deep or shallow wells.

For cooking, wood as fuel is by more than 46% while only about 32% uses liquid petroleum gas (LPG). More than 63% of households are connected to electricity, which is provided by NEECO in Nueva Ecija and NUVELCO in Nueva Vizcaya. The rest uses either kerosene lamps or solar power for lighting.

(5) Access to Basic Social Services

In terms of access to basic social services (**Table 3.5.13**), nearly 53% have access to Barangay Health Centers (BHCs) while more than 24% avail of the medical services of government hospitals. Few (7.1%) avails of the services of both the barangay health centers and government hospital. Some households (8.7%) seek medical and health services from other facilities which could be the more traditional kind. Fewer still are those who can afford to go to private clinics and hospitals (6.8%).

Nearly a third of the households have access to education for elementary school and more than 17% for secondary education. About 15% have access to both elementary and high school education and 11.11% have access to pre-school.

When it comes to credit facilities, two-thirds of the households seek assistance from their relatives and friends. An almost equal number of households seek financial credit from personal money lenders and/or their cooperatives.

Table 3.5.13 Access to Basic Social Services

Basic Service Provider	Services Availed by Household	Carranglan			Aritao		Santa Fe	Total	Percent to Total
		Bunga	Burgos	Salazar	Canabuan	Canarem	Canabuan		
Health Facilities	Barangay Health Center (BHC)	2	5	12	16	18	32	85	52.80%
	Government Hospital (GH)	6	12	2	1	0	2	39	24.22%
	Private Clinic (PC)	1	3	0	2	1	1	8	4.97%
	Private Hospital (PH)	0	0	2	0	0	1	3	1.86%
	GH & Private Clinic (PC)	0	0	5	0	0	0	5	3.11%
	BHC, GH & Private Clinic (PC)	0	0	4	0	0	0	4	2.48%
	BHC & Private Clinic	0	0	1	0	1	1	3	1.86%
	Others	7	6	0	1	0	0	14	8.70%
	Sub-total	16	26	26	20	20	37	161	100.00%
Education	Pre-School (PS)	1	1	3	2	0	5	12	11.11%
	Elementary (E)	6	7	6	3	5	6	33	30.56%
	Secondary [High School] (HS)	0	5	2	4	4	4	19	17.59%
	Tertiary [College] (C)	2	1	2	1	0	2	8	7.41%
	PS, E, HS & C	0	0	0	1	0	0	1	0.93%
	PS & E	0	0	0	1	0	4	5	4.63%
	PS & HS	0	0	0	1	1	1	3	2.78%
	E, HS & C	0	0	2	0	1	1	4	3.70%
	E & HS	0	2	7	1	2	4	16	14.81%
	E & C	0	0	1	0	0	0	1	0.93%
	HS & C	0	0	3	0	1	1	5	4.63%
	HS & Vocational (V)	0	0	1	0	0	0	1	0.93%
	Sub-total	9	16	27	14	14	28	108	100.00%
Credit	Relatives/Friends	11	12	10	11	16	29	89	66.42%
	Relatives/Friends, Banks	0	0	0	1	0	0	1	0.75%
	Relatives/Friends, Cooperatives	0	0	0	1	0	5	6	4.48%
	Private Money Lenders	0	4	10	0	0	1	15	11.19%
	Banks	2	0	4	0	1	0	7	5.22%
	Cooperatives	0	4	0	5	1	5	15	11.19%
	Others	0	0	0	1	0	0	1	0.75%
	Sub-total	13	20	24	19	18	40	134	100.00%

Source: EarthUs, 2022

As **Table 3.5.14** shows, one of the major reasons cited for taking out credit is to buy food. This only confirms that poverty incidence is an alarming concern. The second most cited reason is health/medical emergencies, while securing capital for business is the third most frequently mentioned.

Table 3.5.14 Purpose for Taking Out Credit

Credit facility	Purpose	Carranglan			Santa Fe	Aritao		Total	Percent to Sub-total	Percent to Total
		Bunga	Burgos	Salazar	Canabua	Canabua	Canarern			
Relatives/Friends	Buy food (F)	2	2	0	10	2	8	24	30.00%	
	Buy medicine (M)	0	0	0	2	1	0	3	3.75%	
	Health emergency (HE)	2	0	1	5	3	6	17	21.25%	
	Tuition (T)	0	0	1	2	1	0	4	5.00%	
	Business capital (BC)	0	2	2	1	3	0	8	10.00%	
	Others	0	2	3	1	0	0	6	7.50%	
	Buy food/medicine	0	0	1	0	0	0	1	1.25%	
	Buy food, Pay debts	0	0	0	1	0	0	1	1.25%	
	Buy food/medicine, Pay debts	0	0	0	0	0	2	2	2.50%	
	Buy food/medicine	4	0	0	1	0	0	5	6.25%	
	Buy food, Health emergency	0	0	0	2	0	0	2	2.50%	
	Buy food, Business capital	0	1	0	0	1	0	2	2.50%	
	Buy medicine, Health emergency	0	0	0	1	0	0	1	1.25%	
	Health emergency, Tuition	0	0	0	1	0	0	1	1.25%	
	Health emergency, Others	0	0	1	0	0	0	1	1.25%	
	Health emergency, Tuition, Others	0	0	1	0	0	0	1	1.25%	
Health emergency, Business Capital	0	0	0	1	0	0	1	1.25%		
	<i>Sub-total</i>	8	7	10	28	11	16	80	100.00%	67.23%
Private Money Lenders	Buy food (F)	0	0	1	0	0	0	1	7.14%	
	Tuition (T)	0	0	1	0	0	0	1	7.14%	
	Business capital (BC)	0	0	3	0	0	0	3	21.43%	
	Others	0	4	0	0	0	0	4	28.57%	
	Health emergency, Tuition	0	0	1	0	0	0	1	7.14%	
	Health emergency, Others	0	0	2	0	0	0	2	14.29%	
	Tuition, Others	0	0	2	0	0	0	2	14.29%	
	<i>Sub-total</i>	0	4	10	0	0	0	14	100.00%	11.76%
Banks	Pay debts	0	0	0	0	0	1	1	20.00%	
	Others	0	0	2	0	0	0	2	40.00%	
	capital	0	0	1	0	0	0	1	20.00%	
	Health emergency, Others	0	0	1	0	0	0	1	20.00%	
	<i>Sub-total</i>	0	0	4	0	0	1	5	100.00%	4.20%
Cooperatives	Buy food (F)	0	0	0	1	0	1	2	16.67%	
	Buy medicine (M)	0	0	0	2	0	0	2	16.67%	
	Health emergency (HE)	0	1	0	0	0	0	1	8.33%	
	Business capital (BC)	0	1	0	1	3	0	5	41.67%	
	Others	0	0	0	0	2	0	2	16.67%	
	<i>Sub-total</i>	0	2	0	4	5	1	12	100.00%	10.08%
Others	Business capital	0	0	0	0	1	0	1	100.00%	0.84%
Relatives/Friends, Cooperatives	Buy food	0	0	0	3	0	0	3	50.00%	
	Buy food, Pay debts	0	0	0	1	0	0	1	16.67%	
	Buy food, Tuition, Others	0	0	0	0	1	0	1	16.67%	
	Buy food, Business capital	0	0	0	1	0	0	1	16.67%	
	<i>Sub-total</i>	0	0	0	5	1	0	6	100.00%	5.04%
Relative/Friends, Banks	Business capital	0	0	0	0	1	0	1	100.00%	0.84%
	T O T A L	8	13	24	32	19	18	119	100.00%	

Source: EarthUs, 2022.

3.5.3 Economic Conditions

(1) Employed/Employable¹⁰ Population

As shown in **Table 3.5.15**, among total of 659 persons to be affected by the Project ROW, there are 566 persons aged 15 to 64 who constitute the employed and employable population. This represents 85.89% of the total PAP population. Of these, 162 are HH heads, 158 are spouses and 246 are HH members composed of 150 males and 96 females.

Salazar, Carranglan has the greatest number (158 or nearly 28%) of employed and employable members. This is followed by Canabuan, Santa Fe and Burgos with 136 (24%) and 89 (~16%), respectively). The rest of the barangays have between 56 (9.89%) to 64 (11.31%) working and employable members.

Table 3.5.15 Employed and Employable PAP Population

Municipality	Barangay	HHH	Spouse	HH Members		TOTAL	% TO TOTAL	TOTAL HH POP'N	% TOTAL TO HH POP'N
				Male	Female				
Carranglan	Bunga	21	18	15	10	64	11.31%	74	86.49%
	Burgos	25	25	24	15	89	15.72%	103	86.41%
	Salazar	36	46	46	30	158	27.92%	178	88.76%
Santa Fe	Canabuan	40	36	37	23	136	24.03%	164	82.93%
Aritao	Canabuan	21	16	16	10	63	11.13%	75	84.00%
	Canarem	19	17	12	8	56	9.89%	65	86.15%
TOTAL		162	158	150	96	566	100.00%	659	85.89%

Source: EarthUs, 2022.

(2) Primary Occupation of HH Heads

Table 3.5.16 shows the primary occupation of the household heads. Most of the HH heads, i.e., 136 out of 151 or 90% are engaged in farming. The rest are employed in selling, construction work, vehicle mechanics, driving, pastoral work, government service, private companies, and own business. It was found from the interview result that most of HH heads and spouses worked in and around the project site.

¹⁰ Employable population are those aged 15 to 64 years old and are looking for work at the time of the C-SES.

Table 3.5.16 Primary Occupation of HH Heads

Municipality	Barangay	Farming	Sales/ Vending	Construc- tion	Mecha-nic	PUJ Driver	Pastor	Gov't Employee	Private Employee	Own Business	Total
Carranglan	Bunga	18	0	1	0	0	0	0	1	0	20
	Burgos	19	0	1	1	1	0	0	0	1	23
	Salazar	34	0	0	0	0	0	1	0	0	35
Santa Fe	Canabuan	34	0	0	0	0	0	1	0	0	35
Aritao	Canabuan	17	1	0	0	0	0	0	1	1	20
	Canarem	14	1	0	0	0	1	2	0	0	18
TOTAL		136	2	2	1	1	1	4	2	2	151
PERCENT TO TOTAL		90.07%	1.32%	1.32%	0.66%	0.66%	0.66%	2.65%	1.32%	1.32%	100.00%

Source: EarthUs, 2022.

(3) Primary Occupation of Spouses

Table 3.5.17 shows the primary occupation of the spouses. As it is with the HH heads, most of the spouses, i.e., 107 out of 132 or over 81% are engaged in farming. About 11% are involved in selling food items and local agricultural produce. The rest are working as Overseas Filipino Workers (OFWs) or do pastoral work, or in government service, private employ, and own business.

Table 3.5.17 Primary Occupation of Spouses

Municipality	Barangay	Farming	Sales/ Vending	OFW	Pastor	Govt Employee	Own Business	Total
Carranglan	Bunga	5	5	0	0	2	1	13
	Burgos	8	7	2	0	1	2	20
	Salazar	34	0	0	0	0	0	34
Santa Fe	Canabuan	30	0	0	0	0	1	31
Aritao	Canabuan	17	1	0	0	0	0	18
	Canarem	13	1	0	1	1	0	16
TOTAL		107	14	2	1	4	4	132
PER CENT TO TOTAL		81.06%	10.61%	1.52%	0.76%	3.03%	3.03%	100%

Source: EarthUs, 2022.

(4) Primary Occupation of Employed HH Members

Table 3.5.18 shows the primary occupation of employed household members both male and female. There are nearly twice as many male workers (53 out of 88 or 60.23%) as there are females (35 or 39.77%). As it is with the HH heads and spouses, most of the HH members are engaged in farming activities, i.e., 35 or 66% of males and 10 or 29% of females, respectively. The rest of the male workers are engaged in construction work (15%); employed in government (7.55%) or private

companies (7.55%); selling (1.89%); or own a business (1.89%). The rest of the female counterparts have their own business (20%); engage in selling (14.29%); work in private companies (17.14%) or in government (11.43%); or work overseas (8.57%).

Table 3.5.18 Primary Occupation of Employed HH Members

Municipality	Barangay	Farming		Selling/Vending		Construction	Government Employee		Private Employment		OFW	Own Business		Sub-total		TOTAL
		Male	Female	Male	Female		Male	Female	Male	Female		Male	Female	M	F	
Carranglan	Bunga	3	1	0	1	0	1	1	0	1	0	0	0	4	4	8
	Burgos	6	0	0	1	3	1	0	1	1	2	0	2	11	6	17
	Salazar	10	1	0	0	1	2	1	0	1	1	1	2	14	6	20
Santa Fe	Canabuan	10	6	0	2	3	0	1	0	2	0	0	3	13	14	27
Aritao	Canabuan	1	1	1	1	0	0	0	2	1	0	0	0	4	3	7
	Canarem	5	1	0	0	1	0	1	1	0	0	0	0	7	2	9
TOTAL		35	10	1	5	8	4	4	4	6	3	1	7	53	35	88
Percent to Total by Gender		66.04%	28.57%	1.89%	14.29%	15.09%	7.55%	11.43%	7.55%	17.14%	8.57%	1.89%	20.00%			
PERCENT TO TOTAL		39.77%	11.36%	1.14%	5.68%	9.09%	4.55%	4.55%	4.55%	6.82%	3.41%	1.14%	7.95%	60.23%	39.77%	100%

Source: EarthUs, 2022

(5) Secondary Occupation

Table 3.5.19 shows that 92 of the 151 HH heads and 70 of the 132 spouses have secondary sources of income through various occupations. Understandably, many of the HHH (35.87%) and spouses (15.71%) are still engaged in farming or work as farm laborers to augment the family's income. Among 48.57% of the spouses (48.57%), selling/vending food, gasoline and the like or owning a small business such as sari-sari store, peddling food, selling gasoline, and the like is a significant source of secondary income. Others are engaged in construction work/carpentry, manufacturing and government and private employment on the side.

Table 3.5.19 Secondary Occupation of HHH and Spouses

HH Role	Type of Occupation	Nueva Ecija			Santa Fe	Nueva Vizcaya		TOTAL	Percent to TOTAL
		Carranglan				Canabuan	Canabuan		
		Bunga	Burgos	Salazar	Canabuan			Canabuan	Canarem
HH Head	Farming/Farm Worker	3	1	9	11	5	4	33	35.87%
	Selling/Vending/Own Business	1	0	3	3	4	1	12	13.04%
	Construction/Carpentry	2	1	1	2	3	3	12	13.04%
	Manufacturing	0	0	0	0	0	4	4	4.35%
	Transport Driver/Operator	3	1	0	1	0	0	5	5.43%
	Gov't Employee	0	1	8	2	0	0	11	11.96%
	Private Employee	0	1	1	6	1	0	9	9.78%
	Partoral Work	0	1	0	0	0	0	1	1.09%
	Pensioner	0	0	0	3	0	2	5	5.43%
Sub-total		9	6	22	28	13	14	92	100%
Spouse	Farming/Farm Worker	2	0	4	3	0	2	11	15.71%
	Selling/Vending/Own Business	2	2	6	18	2	4	34	48.57%
	Construction	0	0	0	6	2	4	12	17.14%
	Manufacturing	0	0	1	0	0	0	1	1.43%
	Gov't Employee	0	0	3	0	0	0	3	4.29%
	Private Employee	0	0	1	5	3	0	9	12.86%
Sub-total		4	2	15	32	7	10	70	100%

Source: EarthUs, 2022

(6) Employment Security

As shown in **Table 3.5.20**, the largest number of the working PAP population are self-employed, namely: 135 out of 151 or 89.4% of HH heads; 118 out of 132 or 89.39% of spouses and 55 out of 88 or 62.5% of HH members. This means that as farmers, they do not hire laborers but instead work on the farm themselves.

Among the HH heads, only 9.27% are employed in government or private entities. Among the spouses, only 7.58% are employed. Among the HH members, however, a significant number (27 out of 88 or ~31%) are gainfully employed in government or private companies. The percentage of unemployed is higher (6.82%) among HH members than among the HH heads and spouses. This seems to confirm that there is relatively high old-age and young dependency rates amongst these families.

Table 3.5.20 Tenure of Employment

HH Role	Tenure of Employment	Carranglan			Santa Fe	Aritao		Total	% to Sub-total	% to TOTAL
		Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem			
HHH	Employed	2	5	3	1	1	2	14	9.27%	4.95%
	Self-Employed	17	17	32	34	19	16	135	89.40%	47.70%
	Unemployed	1	1	0	0	0	0	2	1.32%	0.71%
	Total HHH	20	23	35	35	20	18	151	100%	53.36%
Spouse	Employed	5	3	0	0	0	2	10	7.58%	3.53%
	Self-Employed	5	17	34	31	18	13	118	89.39%	41.70%
	Unemployed	3	0	0	0	0	1	4	3.03%	1.41%
	Total Spouse	13	20	34	31	18	16	132	100%	46.64%
HH Members	Employed	4	8	7	2	6	0	27	30.68%	9.54%
	Self-Employed	2	7	13	25	1	7	55	62.50%	19.43%
	Unemployed	2	2	0	0	0	2	6	6.82%	2.12%
	Total HH Members	8	17	20	27	7	9	88	100.00%	31.10%
GRAND TOTAL		33	43	69	66	38	34	283		100%

Source: EarthUs, 2022

(7) Employable Skills

Table 3.5.21 focuses on the employable skills of HH members, who will be the next generation of economic builders in the PAPs community. They are the young ones; therefore, they will be more trainable and have better chances of upgrading their skills and taking on new livelihood and income-earning opportunities.

Table 3.5.21 Employable Skills of HH Members

Sex	Skill Set	Carranglan			Canabuan	Aritao		Total	Percent to Total
		Bunga	Burgos	Salazar		Canabuan	Canarem		
Male	Broom Making	0	0	0	2	0	1	3	6.98%
	Carpentry	0	1	2	1	0	0	4	9.30%
	Welding	1	4	1	0	0	0	6	13.95%
	Driving	2	1	6	3	0	4	16	37.21%
	Farming	1	3	0	3	1	3	11	25.58%
	Teaching	1	0	0	0	0	0	1	2.33%
	Computer	0	0	0	0	0	1	1	2.33%
	Vending	0	0	0	0	1	0	1	2.33%
	Sub-total	5	9	9	9	2	9	43	100%
Female	Cooking/Baking	3	4	0	5	5	2	19	59.38%
	Driving	0	0	0	2	0	1	3	9.38%
	Farming	0	0	0	4	1	0	5	15.63%
	Printing	0	1	0	0	0	0	1	3.13%
	Business	0	0	0	1	1	0	2	6.25%
	Teaching	1	0	0	1	0	0	2	6.25%
	Sub-total	4	5	0	13	7	3	32	100%

Source: EarthUs, 2022

There are eight (8) skills identified amongst male 43 male HH members and six (6) among their 32 female counterparts. Among the males, vehicle driving (37.21%) is the most predominant skill, followed by farming (25.58%), welding (13.95%), carpentry (9.3%) and broom-making (7%). Among the females, cooking/baking (59.38%) is most predominant, followed by farming (15.63%), driving (9.38%).

(8) Business Preferences

As **Table 3.5.22** shows, there are 10 types of businesses preferred by 103 economically active male members and eight (8) business types preferred by 117 female members of the PAP population. Amongst the males, grocery store retailing/selling (31.0%); animal husbandry/livestock/piggery/poultry (26.21%); auto-motive/vulcanizing/welding shop (20.39%); and bakery/cooking/restaurant (10.68%) top the list of business preferences. Amongst their female counterparts, grocery store retailing/selling (64.10%); bakery/ cooking/coffee shop/restaurant (19.66%); and animal husbandry/ livestock/piggery/poultry (11.11%) top the menu of livelihood options.

Table 3.5.22 Alternative Livelihood/Business Preference of HH Members

Sex	Business Type	Nueva Ecija			Santa Fe	Nueva Vizcaya		Total	Percent to Sub-total
		Carranglan				Canabuan	Aritao		
		Bunga	Burgos	Salazar	Canabuan		Canabuan		
Male	Animal Husbandry/ Livestock/Piggery/Poultry	3	7	4	11	0	2	27	26.21%
	Automotive/Vulcanizing/ Welding Shop	1	6	8	0	4	2	21	20.39%
	Bakery/Cooking/Eatery/ Restaurant	4	1	0	2	2	2	11	10.68%
	Construction	0	1	0	0	0	0	1	0.97%
	Driving	0	0	0	1	0	0	1	0.97%
	Farming/Gardening	1	1	2	0	0	0	4	3.88%
	Grocery/Sari-sari/Retail Store/Selling/Vending	1	1	3	10	4	13	32	31.07%
	Hardware Store	0	1	1	0	0	0	2	1.94%
	Junkshop	0	0	0	0	2	1	3	2.91%
	Mango Orchard	0	1	0	0	0	0	1	0.97%
	Sub-total	10	19	18	24	12	20	103	100%
Female	Animal Husbandry/ Livestock/Piggery/Poultry	2	2	5	3	0	1	13	11.11%
	Bakery/Coffee Shop/ Cooking/Eatery/ Restaurant	3	8	2	5	3	2	23	19.66%
	Cosmetology	0	0	0	0	1	0	1	0.85%
	Grocery/Sari-sari/Retail Store/Selling/Vending	9	11	6	21	11	17	75	64.10%
	Hardware Store	0	1	1	0	0	0	2	1.71%
	Manufacturing	0	0	0	1	0	0	1	0.85%
	Online Business	0	1	0	0	0	0	1	0.85%
	Printing Shop	0	1	0	0	0	0	1	0.85%
Sub-total	14	24	14	30	15	20	117	100%	
TOTAL	24	43	32	54	27	40	220		

Source: EarthUs, 2022

(9) Training Needs/Interests

The training needs and preferences of PAPs are shown in **Table 3.5.23**. There are 11 training courses for males and six (6) for females. Amongst the males, training in welding (30%) is most preferred, followed by automotive-mechanic (17.5%), driving (12.5%), construction-related courses (10%) and swine raising (10%). For the females, culinary arts lessons (40.63%) are most in demand, followed by cosmetology (18.75%), swine raising (12.5%) and tailoring (12.5%).

Table 3.5.23 Training Needs and Interests of HH Members

Sex	Training Course	Carranglan			Santa Fe	Aritao		Total	Percent to Sub-total
		Bunga	Burgos	Salazar	Canabuan	Canarem	Canabuan		
Male	Automotive mechanic	0	0	2	2	3	0	7	17.50%
	Business Management	0	0	1	0	0	0	1	2.50%
	Computer/IT				1	1		2	5.00%
	Construction/Masonry/ Carpentry	1	2	1	0	0	0	4	10.00%
	Culinary/Cooking/ Food Processing	1	0	0	0	1	0	2	5.00%
	Driving	1	1	0	1	2	0	5	12.50%
	Electrician	0	1	0	0	0	0	1	2.50%
	Electronics	0	1	0	0	0	0	1	2.50%
	Swine Raising	0	0	0	3	1	0	4	10.00%
	Tailoring	0	0	0	1	0	0	1	2.50%
	Welding	2	3	1	1	3	2	12	30.00%
	Sub-total	5	8	5	9	11	2	40	100%
	Female	Business Management			2				2
Culinary/Cooking/ Baking/Food Processing		3	2	0	3	3	2	13	40.63%
Cosmetology		0	0	0	4	0	2	6	18.75%
Driving					2	1		3	9.38%
Swine Raising		1	0	0	2	0	1	4	12.50%
Tailoring		0	0	0	2	0	2	4	12.50%
Sub-total		4	2	2	13	4	7	32	100%

Source: EarthUs, 2022

(10) HH Income and Poverty Incidence

As will be gleaned from **Table 3.5.24**, the combined monthly household income of the working HH population range from a very high of Php112,500.00 to a low of Php500.00. The average monthly income is roughly Php15,564.00 per month. Nearly 25% of the PAPs have incomes of Php13,001-30,000 per month. About 8% earn Php30,001-50,000 per month; 5% earn Php50,001-80,000 per month; and 1.23% earn Php80,001-112,500 per month.

The incidence of poverty, however, is very apparent. There are 100 PAPs or roughly 61.35% of the households whose combined incomes are below Php13,000 per month. These PAPs may be considered as falling within or below the poverty threshold estimate of Php12,082/month for a family of five, as determined by the PSA in the first semester of 2021.¹¹

¹¹ Philippine Statistics Authority. <https://psa.gov.ph/content/proportion-poor-filipinos-registered-237-percent-first-semester-2021>

Moreover, there are 86 PAPs or nearly 47% of the households whose family incomes are below or just within the estimated monthly food threshold of Php8,393 for a family of five, as determined by PSA during the same period. This means that a greater number of PAPs in the lower income brackets have per capita incomes that are not even sufficient to meet their basic food and non-food needs.

Table 3.5.24 Combined Monthly Household Income

Monthly Income Range, Php	Carranglan			Santa Fe	Aritao		Total	Percent to Total
	Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
500-6000	5	7	3	16	7	9	47	28.83%
6001-8500	4	3	8	7	4	3	29	17.79%
8501-13000	3	3	5	5	4	4	24	14.72%
Sub-total	12	13	16	28	15	16	100	61.35%
13001-18000	3	3	5	8	0	3	22	13.50%
18001-23000	1	2	6	2	2	0	13	7.98%
23001-30000	1	2	1	1	0	0	5	3.07%
Sub-total	5	7	12	11	2	3	40	24.54%
30001-40000	2	1	4	1	0	0	8	4.91%
40001-50000	0	3	1	0	0	1	5	3.07%
Sub-total	2	4	5	1	0	1	13	7.98%
50001-60000	0	0	4	0	1	0	5	3.07%
60001-70000	1	0	1	0	0	0	2	1.23%
70001-80000	0	0	1	0	0	0	1	0.61%
Sub-total	1	0	6	0	1	0	8	4.91%
80001-90000	0	0	0	1	0	0	1	0.61%
90001-112500	0	0	0	0	1	0	1	0.61%
Sub-total	0	0	0	1	1	0	2	1.23%
TOTAL	20	24	39	41	19	20	163	100%

Source: EarthUs, 2022

(11) HH Expenditure

As may be seen from **Table 3.5.25**, over 44% of the PAPs have monthly expenditures of between Php1,000 and Php8,000. This indeed confirms what the income profile of the HH suggests: many of the households cannot even afford to spend for the estimated monthly food threshold of Php8,393 for a family of five, as determined by PSA. Again, this goes to show that a greater number of PAPs in the lower income brackets have per capita incomes that are not even sufficient to meet their basic food and non-food needs.

Table 3.5.25 Monthly HH Expenditures

Particulars	Range, Php	Carranglan			Santa Fe	Aritao		Total	Percent to Total
		Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Monthly Household Expenditures	1,000 to 8,000	13	12	12	21	7	8	73	44.79%
	8,001 to 15,000	4	7	11	7	3	3	35	21.47%
	15,001 to 20,000	2	4	6	3	2	3	20	12.27%
	20,001 to 30,000	0	1	1	5	5	3	15	9.20%
	30,001 to 50,000	0	0	5	4	2	1	12	7.36%
	50,001 to 70,000	2	1	1	1	0	1	6	3.68%
	70,001 to 100,000	0	0	0	0	1	0	1	0.61%
	100,001 to 112,000	0	0	0	0	0	1	1	0.61%
Sub-total		21	25	36	41	20	20	163	100%

Source: EarthUs, 2022

(12) Monthly HH Savings

Only 36 of the PAPs can afford to save, as shown in **Table 3.5.26**. Even so, 80% of these HH can only save up to Php2,000 per month. The rest can save between Php2,001/month up to Php5,000/month.

Table 3.5.26 Monthly HH Savings

Particulars	Range, Php	Nueva Ecija			Santa Fe	Nueva Vizcaya		Total	Percent to Total
		Carranglan				Aritao			
		Bunga	Burgos	Salazar		Canabuan	Canarem		
Monthly Household Savings	Less than 1,000	0	0	0	6	0	9	15	41.67%
	1,001 to 2,000	0	0	0	4	0	10	14	38.89%
	2,001 to 4,000	0	0	0	1	0	0	1	2.78%
	4,001 to 5,000	0	0	0	2	0	1	3	8.33%
	Not disclosed	0	1	2	0	0	0	3	8.33%
	Sub-total		0	1	2	13	0	20	36

Source: EarthUs, 2022.

(13) Ownership of Vehicles, Appliances and Other Conveniences

On the matter of ownership of valuable items, it is surprising that several HH own at least one type of motorized vehicle. As shown in **Table 3.5.27**, there are as many as 10 vans, 9 cars, 7 jeeps, 1 truck, 88 motorcycles and 15 tricycles cited as belonging to the PAPs. However, this is rather a call of necessity rather than convenience in as much as the affected barangays are quite remote and access to public mass transport is difficult. Also noticeable is the preponderance of cellular phone ownership (130 units owned by PAPs with one household having as many as eight phones, and nearly a third of those with phones owning at least two units each). Again, this could be borne of necessity to communicate because of the remoteness of the area and the inadequacy of public mass transport.

Table 3.5.27 Vehicles, Appliances and Gadgets Owned

Particulars	Number	Carranglan			Aritao		Santa Fe	Total	Percent to Sub-total
		Bunga	Burgos	Salazar	Canabuan	Canarem	Canabuan		
Van	One	0	2	0	2	2	4	10	100.00%
	Sub-total	0	2	0	2	2	4	10	100.00%
Car	One	1	2	2	0	1	1	7	77.78%
	Two	0	0	1	0	0	0	1	11.11%
	Three	0	0	1	0	0	0	1	11.11%
	Sub-total	1	2	4	0	1	1	9	100.00%
Jeep	One	3	2	1	0	0	0	6	85.71%
	Three	0	0	1	0	0	0	1	14.29%
	Sub-total	3	2	2	0	0	0	7	100.00%
Truck	One	1	0	0	0	0	0	1	100.00%
	Sub-total	1	0	0	0	0	0	1	100.00%
Motorcycle	One	6	13	19	11	8	17	74	84.09%
	Two	0	2	5	1	0	3	11	12.50%
	Three	0	2	0	0	0	0	2	2.27%
	Five	0	0	1	0	0	0	1	1.14%
	Sub-total	6	17	25	12	8	20	88	100.00%
Tricycle	One	7	3	1	1	1	1	14	93.33%
	Two	1	0	0	0	0	0	1	6.67%
	Sub-total	8	3	1	1	1	1	15	100.00%
Television	One	15	18	22	15	16	17	103	97.17%
	Two	2	0	1	0	0	0	3	2.83%
	Sub-total	17	18	23	15	16	17	106	100.00%
Refrigerator	One	9	11	12	12	10	12	66	95.65%
	Two	0	1	2	0	0	0	3	4.35%
	Sub-total	9	12	14	12	10	12	69	100.00%
Cellular Phone	One	5	5	7	6	7	16	46	35.38%
	Two	6	8	15	2	4	7	42	32.31%
	Three	6	1	2	2	3	6	20	15.38%
	Four	1	3	6	1	0	1	12	9.23%
	Five	0	2	0	0	1	1	4	3.08%
	Six	0	1	1	1	0	0	3	2.31%
	Seven	1	0	1	0	0	0	2	1.54%
	Sub-total	20	20	32	12	15	31	130	100.00%
Washing Machine	One	9	16	19	13	12	10	79	95.18%
	Two	2	1	1	0	0	0	4	4.82%
	Sub-total	11	17	20	13	12	10	83	100.00%
Electric Fan	One	11	12	14	12	12	9	70	78.65%
	Two	3	3	5	0	0	0	11	12.36%
	Three	2	1	1	0	0	0	4	4.49%
	Four	1	1	0	0	0	0	2	2.25%
	Five	1	0	0	0	0	0	1	1.12%
	Eight	0	1	0	0	0	0	1	1.12%
	Sub-total	18	18	20	12	12	9	89	100.00%
Electric Stove	One	1	1	0	0	0	1	3	100.00%
	Sub-total	1	1	0	0	0	1	3	100.00%
Gas Stove	One	12	20	18	15	18	20	103	99.04%
	Two	0	0	0	1	0	0	1	0.96%
	Sub-total	12	20	18	16	18	20	104	100.00%
Loud Speaker	One	0	0	0	0	0	1	1	100.00%
Oven	One	1	0	0	0	0	0	1	100.00%
Oven Toaster	One	0	0	1	0	0	0	1	100.00%
Radio	One	0	0	1	0	0	0	1	100.00%
Water Heater	One	0	0	1	0	0	0	1	100.00%
Grinder	One	0	0	1	0	0	0	1	100.00%
Planer	One	0	0	1	0	0	0	1	100.00%

Source: EarthUs, 2022

(14) Ownership of Farm Animals

Table 3.5.28 refers to the number of livestock, poultry and other farm animals raised by PAPs. It is possible that these are also a source of their food or economic livelihood. One household, for instance, is obviously engaged in poultry production, having raised 100 heads of chickens while 6 households having raised 50 heads each. Most of the poultry growers are from Brgy. Salazar and Canabuan, Santa Fe.

Table 3.5.28 Livestock and Other Economic Animals

Particulars	Number Owned	Carranglan			Santa Fe	Aritao		TOTAL	% TO TOTAL
		Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Horse	One	0	0	1	0	0	0	1	100.00%
	Sub-total 1	0	0	1	0	0	0	1	100.00%
Carabao	One	6	4	8	4	2	3	27	51.92%
	Two	1	3	10	3	1	0	18	34.62%
	Three	1	0	1	0	0	0	2	3.85%
	Four	2	1	1	0	0	0	4	7.69%
	Five	0	0	1	0	0	0	1	1.92%
	Sub-total 1	10	8	21	7	3	3	52	100.00%
Cow	One	2	1	2	0	0	0	5	45.45%
	Two	1	1	2	0	0	0	4	36.36%
	Three	1	0	0	0	0	0	1	9.09%
	Ten	1	0	0	0	0	0	1	9.09%
	Sub-total 2	5	2	4	0	0	0	11	100.00%
Pigs	One	0	2	9	2	0	0	13	34.21%
	Two	1	4	4	0	0	0	9	23.68%
	Three	0	0	7	0	0	0	7	18.42%
	Four	0	0	2	0	0	0	2	5.26%
	Five	0	1	0	0	0	0	1	2.63%
	Six	0	0	2	0	0	0	2	5.26%
	Seven	0	1	0	0	0	0	1	2.63%
	Eight	0	0	1	0	0	0	1	2.63%
	Ten	0	0	1	0	0	0	1	2.63%
	Twelve	0	0	1	0	0	0	1	2.63%
	Sub-total 3	1	8	27	2	0	0	38	100.00%
	Goat	None	15	23	0	28	20	20	106
One		4	0	0	1	0	0	5	4.35%
Two		0	1	1	0	0	0	2	1.74%
Five		1	0	0	0	0	0	1	0.87%
Thirty		1	0	0	0	0	0	1	0.87%
Sub-total 4		21	24	1	29	20	20	115	100.00%
Sheep	Two	0	0	1	0	0	0	1	100.00%
Sub-total 5	0	0	1	0	0	0	1	100.00%	
Chicken	One	0	0	2	0	0	0	2	1.44%
	Two	1	5	0	6	0	1	13	9.35%
	Three	1	4	1	2	1	1	10	7.19%
	Four	0	0	2	2	0	0	4	2.88%
	Five	3	2	8	2	2	3	20	14.39%
	Six	0	1	0	1	2	0	4	2.88%
	Seven	1	0	1	1	0	0	3	2.16%
	Eight	0	1	1	1	0	0	3	2.16%
	Ten	3	3	6	11	5	6	34	24.46%
	Eleven	0	0	0	1	0	0	1	0.72%
	Twelve	0	0	1	0	0	0	1	0.72%
	Thirteen	0	0	1	0	0	0	1	0.72%
	Fifteen	2	0	0	1	0	2	5	3.60%
	Twenty	4	0	3	5	5	2	19	13.67%
	Twenty-one	0	0	0	1	0	1	2	1.44%
	Twenty-three	0	0	0	0	1	0	1	0.72%
	Thirty	0	1	2	2	0	0	5	3.60%
	Thirty-five	0	0	0	0	0	1	1	0.72%
	Thirty-six	0	0	0	2	0	0	2	1.44%
	Forty	0	0	1	0	0	0	1	0.72%
	Fifty	1	0	3	2	0	0	6	4.32%
	One hundred	0	1	0	0	0	0	1	0.72%
Sub-total 6	16	18	32	40	16	17	139	100.00%	
Goose	Ten	0	0	0	0	1	1	1	100.00%
Sub-total 7	0	0	0	0	0	1	1	100.00%	
Ducks	One	0	2	1	1	0	0	4	7.27%
	Two	2	2	4	2	0	1	11	20.00%
	Three	2	3	1	4	0	0	10	18.18%
	Four	0	1	2	1	0	0	4	7.27%
	Five	1	0	1	2	1	0	5	9.09%
	Six	0	1	0	1	1	0	3	5.45%
	Eight	0	0	0	0	1	1	2	3.64%
	Ten	1	1	1	1	2	2	8	14.55%
	Twelve	0	0	0	0	1	0	1	1.82%
	Fifteen	2	0	0	0	0	1	3	5.45%
	Twenty	0	0	0	0	0	1	1	1.82%
	Twenty-five	2	1	0	0	0	0	3	5.45%
Sub-total 8	10	11	10	12	6	6	55	100.00%	

Source: EarthUs, 2022

3.5.4 Vulnerable Groups

The vulnerable groups include the following: (i) the poorest of the poor; (ii) the female-headed HH; (iii) the HH headed by solo parents (whether widower/widows/separated); (iv) HH with members who have disabilities; (v) HH with elderlies or old-age dependents; and (vi) the IPs. These households will need extreme attention so they will not be further impoverished or disenfranchised due to the project. **Table 3.5.29** identifies these groups and their barangay distribution.

Table 3.5.29 Vulnerable Groups

Category	Carranglan			Santa Fe	Aritao		Total	% of PAPs
	Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Poorest of the Poor	12	13	16	27	15	16	99	60.74%
Female-headed HH	1	3	2	8	3	3	20	12.27%
HH Headed by Solo Parents	2	5	3	9	6	4	29	17.79%
HH with Members with Disabilities	1	0	0	4	0	5	10	6.13%
HH headed by Elderlies	3	8	6	10	5	11	43	26.38%
IPs	0	0	31	30	11	14	86	52.76%

Source: EarthUs, 2022

As explained in Section 3.4.2, the poorest of the poor are those whose incomes fall below the poverty threshold estimate of Php12,082/month for a family of five, as determined by the PSA in the first semester of 2021.¹² There are 99 HH out of 163 total or 60.74% of the PAPs falling in this category of vulnerable HH. Moreover, 86 of these HH have incomes below the estimated monthly food threshold of Php8,393 for a family of five, as determined by PSA during the same period. It cannot be overemphasized that these PAPs in the lower income brackets have per capita incomes that are not even sufficient to meet their basic food and non-food needs.

The other vulnerable groups consist of the following: (1) 20 female-headed HH, representing 12.27% of the PAPs; (2) 29 HH (17.8%) headed by solo parents, who are either unmarried, widow/widower or separated from spouse; (3) 10 HH (6.13%) who have members suffering from physical and psycho-social disabilities such as stroke survivors, hearing impaired, and those with cognitive and speech dysfunctions; (4) 43 HH (26.38%) headed by elderlies who are over 60 years old; and (5) 86 HH belonging to ICCs, many of whom are also among the poorest-of-the-poor.

These latter groups are considered vulnerable regardless of their economic status, pursuant to the following legal issuances: (1) RA 9710, s. 2009, The Magna Carta of Women; (2) RA 8972, s. 2000, The Solo Parents' Welfare Act as amended by RA 11861, s. 2021, The Expanded Solo Parents' Welfare Act; (3) RA 7277, s. 1991, The Magna Carta for Disabled Persons as amended by RA 10754, s. 2015, The Expanded Magna Carta for Disabled Persons; (4) RA 7432, s. 1992, The Senior Citizens' Act as amended by RA 9994, s. 2010, The

¹² Philippine Statistics Authority. <https://psa.gov.ph/content/proportion-p-filipinos-registered-237-percent-first-semester-2021>

Expanded Senior Citizens’ Act; and (5) RA 8371, s. 1997, The Indigenous Peoples’ Rights Act. The compendium of these pertinent issuances is compiled at the end of this report as **Annex 2**.

The degree of vulnerability of these groups will be studied in-depth when the Master List of PAPs becomes final during the DED stage.

3.5.5 Land Tenure/Ownership

Table 3.5.30 shows the land tenure/ownership based on the responses obtained in the C-SES as well as Key Informant Interview (KIIs) with PAPs who are officers of the people’s organizations (POs). There are roughly 107 PAPs who claimed that they own the land and 56 who said they are tenants or caretakers at the C-SES survey and KIIs. Proof of actual land ownership will be validated and confirmed during the DED stage¹³.

Table 3.5.30 Land Tenure

Type of Land	Land Tenure	Carranglan			Santa Fe	Aritao		Total	Percent to Total
		Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Private Agricultural	Owner/Claimant	9	8	16	18	12	14	77	47.24%
	Tenant/Lease Contract	10	16	0	19	7	3	55	33.74%
	Caretaker	1	0	0	0	0	0	1	0.61%
	Free Patent	0	0	0	3	2	3	8	4.91%
	Sub-total	20	24	16	40	21	20	141	86.50%
Public Forestlands	DENR – PACBRMA	1	1	2	0	0	0	4	2.45%
	DENR – PACBRMA – CADT	0	0	18	0	0	0	18	11.04%
	Sub-total	1	1	20	0	0	0	22	13.50%
Total, All		21	25	36	40	21	20	163	100%
Total, Owners/Claimants		10	9	36	21	14	17	107	65.64%
Total, Tenants/Caretakers		11	16	0	19	7	3	56	34.36%

Source: EarthUs, 2022

Of those PAPs occupying or doing economic activities on agricultural lands, 77 or 47.24% say they own the land. The same is true of 8 PAPs (4.91%) who claim that they hold free patents to the lands they occupy or till. There are 55 PAPs (33.74%) identified as tenants or those who have lease contracts with the landowners. One (1) PAP in Bunga is a caretaker.

It was gathered during the KII that there are four (4) POs in Carranglan whose lands will be affected by the project. These lands are covered by a Protected Area Community-Based Resource Management Agreement (PACBRMA), a forestland management stewardship contract with the DENR-Forest Management Bureau (FMB). The contract, which took effect in November 2019, is valid for 25 years and renewable for another 25 years.

¹³ Subsequent sections and chapters also show that 107 PAPs claimed landowners. This is based on C-SES survey and KIIs but absence of the land ownership evidence. This will be validated and confirmed in the DED stage.

Twenty-two (22) PAPs-- one in Bunga, one in Burgos and 20 in Salazar-- are members of these POs. Interview with PO leaders also revealed that 18 of the 20 PO members in Salazar are also holders of CADT titles on the same lands.

On the other hand, information obtained through KII with barangay officials revealed that while Santa Fe and Aritao are considered part of the Kalanguya-Ikalahan ICC, the lands affected by the project are historically privately owned. In the 1980s, these lands were awarded as free patents or free homesteads covered with OCTs under the Public Land Act (CA 141). This was even before the lands were recognized and consolidated by the NCIP as ancestral domain in the late 1990's or early 2000.

When asked for proof of ownership (**Table 3.5.31**), 32% of respondents claimed that they have OCT/TCTs, 14.11% claimed they have Tax Declarations (TDs), 8% have Deeds of Sale/Mortgage and 5.5% claimed that they have homestead patents (CA 141), albeit no physical proof of such ownership was shown. Over 22% did not specify any proof of ownership, while nearly 5% said they will still need to have the titles transferred in their name.

All four (4) PO leaders in N. Ecija affirmed that they and their members hold a PACBRMA stewardship contract with the DENR. PO leaders further confirmed that 17 of the 19 PO members in Salazar also hold CADT titles over the same land.

Table 3.5.31 Proof of Ownership

Proof of Ownership	Carranglan			Santa Fe	Aritao		Total	Percent to Total
	Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
OCT/TCT	8	8	8	12	7	9	52	31.90%
Tax Dec	0	1	8	6	2	6	23	14.11%
Deed of Sale/Mortgage	1	6	1	3	2	0	13	7.98%
DENR Stewardship Contract (PACBRMA)	1	1	2	0	0	0	4	2.45%
PACBRMA/CADT	0	0	17	0	0	0	17	10.43%
Free Patent (CA 141)	1	0	0	3	2	3	9	5.52%
Others, not specified	9	6	0	15	6	1	37	22.70%
To be transferred	1	3	0	1	2	1	8	4.91%
TOTAL	21	25	36	40	21	20	163	100%

Source: EarthUs, 2022

3.5.6 Housing Condition

(1) Ownership of Residential Structures

There are 55 residential structures occupied by PAPs, but only 54 of these will be severely affected and may need to be demolished. In one residential structure, only the kitchen will be affected, but only marginally, hence it is no longer included among potentially relocating

PAPs, as will be discussed in **Section 3.5.8**. Ownership of the 54 residential structures is shown in **Table 3.5.32**. The most number (18) are in Canabuan, Santa Fe. This is followed by Burgos, with 12 structures. Most of the occupants (43 PAPs or 78.2%) say they own the dwelling units. Six (6) PAPs or 10.91% say they are rent-free occupants.

Table 3.5.32 Ownership of Residential Structures

Ownership of Structure	Carranglan			Santa Fe	Aritao		Total	Percent to Total
	Bunga	Burgos	Salazar	Canabu	Canabuan	Canarem		
Owner	6	9	2	18	5	3	43	79.63%
Free Occupant	2	4	0	0	0	0	6	11.11%
No response	0	1	0	3	1	0	5	9.26%
TOTAL	8	14	2	21	6	3	54	100%

Source: EarthUs, 2022.

(2) Type of Residential Structure and Materials Used

In terms of construction materials used, most of the house structures (38.9%) are of Type II (light materials); 16.7% are of Type III (semi-concrete); 22.22% are of Type IV (concrete); and 22.22% are of Type V, as shown in **Table 3.5.33**. The construction materials for the walls are mostly concrete (40.74%) and semi-concrete (22%) or sometimes a mix of concrete and wood or galvanized iron (22%). The materials commonly used for roofing are GI Sheets (78%) while the floorings are mostly concrete (50%) or compacted soil materials (22%) and sometimes wood (13%) or a mix of these (15%).

Table 3.5.33 Structure Type and Construction Materials Used

Feature	Material Used	Type II (Light Materials)	Type III (Semi-concrete)	Type IV (Concrete)	Type V (Mixed Materials)	Total	Percent to Total
Wall	Light Materials	13	0	0	0	13	24.07%
	Concrete	4	5	6	7	22	40.74%
	Semi-concrete	4	3	2	4	13	24.07%
	Mixed	0	1	4	1	6	11.11%
	Sub-total		21	9	12	12	54
Roof	Light Materials	12	0	0	0	12	22.22%
	GI Sheet	9	9	12	12	42	77.78%
	Sub-total	21	9	12	12	54	100%
Floor	Soil	12	0	0	0	12	22.22%
	Wood	3	2	2	0	7	12.96%
	Concrete	4	6	8	9	27	50.00%
	Mixed materials	2	1	2	3	8	14.81%
	Sub-total	21	9	12	12	54	100%
	% Total	38.89%	16.67%	22.22%	22.22%	100%	

Source: EarthUs, 2022

(3) Age of Structure

Table 3.5.34 indicates that the average age of affected residential structures is 19 years. While 64% of the houses are relatively new, nearly 36% are between 21 to 55 years old.

Table 3.5.34 Age of Residential Structures

Structure Age	Nueva Ecija			Nueva Vizcaya			Total	Percent to Total
	Carranglan			Santa Fe	Aritao			
	Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
1- 5 years	1	4	0	1	0	1	7	12.96%
6- 10 yrs	1	1	1	4	1	0	8	14.81%
11- 15 years	2	1	0	3	0	1	7	12.96%
16- 20 years	2	2	0	2	2	0	8	14.81%
21- 25 years	1	1	0	2	0	0	4	7.41%
26-30 years	0	3	0	1	2	1	7	12.96%
31- 35 years	0	0	0	1	0	0	1	1.85%
41- 45 years	0	0	0	3	0	0	3	5.56%
46- 50 years	0	0	1	0	0	0	1	1.85%
51- 55 years	1	0	0	1	0	0	2	3.70%
No response	0	2	0	3	0	1	6	11.11%
Sub-total	8	14	2	21	5	4	54	100.00%

Source: EarthUs, 2022.

3.5.7 Potentially Relocating PAPs

As previously discussed, there are 54 potentially relocating PAPs because they will likely lose the houses in which they now live. This translates to a total relocating population of 218 household members, distributed by barangay as shown in **Table 3.5.35**.

Table 3.5.35 Potentially Relocating PAPs

Municipality	Barangay	Total No. of PAPs	No. of Potential Relocating PAPs	% of Total Relocating PAPs	HH Members	% to Total HH Members
Carranglan	Bunga	21	8 (0)	14.8%	30 (0)	13.8%
	Burgos	25	14 (0)	25.9%	57 (0)	26.1%
	Salazar	36	2 (2)	3.7%	7 (7)	3.2%
Santa Fe	Canabuan	40	21 (18)	38.9%	69 (48)	31.7%
Aritao	Canabuan	21	6 (3)	9.3%	40 (5)	18.3%
	Canarem	20	3 (3)	7.4%	15 (15)	6.9%
Total		163	54 (26)	100.0%	218 (75)	100.0%

Note: Figures in the bracket mean numbers of IP families and IP population.

Source: EarthUs, 2022.

3.5.8 Willingness to Resettle

Of the PAPs who will lose their dwellings (**Table 3.5.36**), considerably, 42.6% would rather move their residence on the same plot outside of the ROW; and 46.3% would agree to be relocated to a different plot but nearby.

Table 3.5.36 Preferred Resettlement Options

Agreeable to relocate	Option for Relocation	Carranglan			Santa Fe	Aritao		Total	Percent to Total
		Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Yes	On-site, same plot	2	1	1	12	4	3	23	42.59%
	On-site, another	6	11	1	6	1	0	25	46.30%
No	-	0	0	0	1	0	0	1	1.85%
No response	-	0	2	0	2	0	1	5	9.26%
Total		8	14	2	21	5	4	54	100%

Source: EarthUs, 2022.

3.5.9 Project Awareness and Perception

PAPs are highly aware of the project (**Table 3.5.37**), with nearly 87.12% saying yes, they were informed about it. Of those who are aware, 64% got their information about the project from government officials while over 20% of the PAPs, the source of information are neighbors, friends, and relatives.

As to the perceived benefits of the road project **Table 3.5.38**, the respondents were quick to point out easy transport of local products and increase in economic opportunities.

There are 248 responses recorded on the issues and concerns about the project (**Table 3.5.39**). Nearly 50% of the responses relate to potential environmental/watershed/forest degradation and loss of prime agricultural land, while 16% expressed their fear that the construction of the proposed road may pose serious risk to them in terms of increased crime rate in their area, incidence of accidents (vehicular), and safety or security issues for the local people. About 25% feel threatened about their livelihoods due to reduction in agricultural lands and damage to their environs.

The number of “No Response” (10.48%) may indicate reservations of the “silent minority” about the project. There were issues raised during the barangay public consultations that some affected families remain uncompensated to date for properties affected by the recently completed Dalton Pass project. If this proves to be so, measures must be done to address this matter pursuant to RA 10752 and international social safeguards standards.

Table 3.5.37 Project Awareness

Informed?	By whom?	Opinion about the Project	Carranglan			Santa Fe	Aritao		Total	Percent to Total
			Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Yes	Govt Official	Yes	4	20	17	28	16	7	92	
		No	0	0	0	6	0	1	7	
		Not sure	0	0	1	3	1	0	5	
		Sub-total	4	20	18	37	17	8	104	63.80%
	Neighbor/Friend	Yes	1	2	4	2	2	3	14	
		No	0	0	0	0	0	1	1	
		Not sure	0	0	0	0	1	0	1	
		Sub-total	1	2	4	2	3	4	16	9.82%
	Relatives	Yes	4	1	11	0	0	0	16	
		Not sure	0	0	1	0	0	0	1	
		Sub-total	4	1	12	0	0	0	17	10.43%
	NGOs	Yes	0	0	0	1	1	2	4	
		Not sure	0	0	0	0	0	2	2	
		Sub-total	0	0	0	1	1	4	6	3.68%
Govt/Neighbor	Yes	6	0	2	0	0	0	8		
	Sub-total	6	0	2	0	0	0	8	4.91%	
No	Did not disclose source	Yes	6	2	0	0	0	0	8	
		No	0	0	0	0	0	4	4	
		Sub-total	6	2	0	0	0	4	12	7.36%
TOTAL	Yes	21	25	34	31	19	12	142	87.12%	
	No	0	0	0	6	0	6	12	7.36%	
	Not sure	0	0	2	3	2	2	9	5.52%	
COMBINED TOTAL			21	25	36	40	21	20	163	100.00%

Source: EarthUs, 2022.

Table 3.5.38 Perceived Project Benefits

Project Benefits	Carranglan			Santa Fe	Aritao		Total	Percent to Total
	Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Accessibility	1	1	0	0	0	0	2	1.20%
Business Opportunity	0	10	0	0	6	0	16	9.64%
Business/Transportation	1	0	0	0	0	0	1	0.60%
Community Development	0	0	0	0	2	0	2	1.20%
Community Welfare	0	0	0	0	1	0	1	0.60%
Easy transport for local products	2	0	1	40	8	19	70	42.77%
Job Opportunity	17	10	34	0	1	0	62	38.55%
Did not respond	0	3	1	0	3	1	8	4.82%
Spiritual Life	0	1	0	0	0	0	1	0.60%
TOTAL	21	25	36	40	21	20	163	100%

Source: EarthUs, 2022.

Table 3.5.39 Issues and Concerns About the Project

Issues and Concerns (as expressed)	Carranglan			Santa Fe	Aritao		Total	% to Total
	Bunga	Burgos	Salazar	Canabuan	Canabuan	Canarem		
Accidents/Danger to Life	1	0	0	4	5	2	12	4.84%
Air/Noise/Water Pollution	0	0	0	17	6	3	26	10.48%
Increased Crime Rate/Security concerns for locals	0	0	0	18	7	2	27	10.89%
Water Shortage	0	0	0	0	1	2	3	1.21%
Increased population	1	1	0	2	0	0	4	1.61%
Damage to property	14	7	20	0	0	0	41	16.53%
Environmental/Watershed Degradation	21	27	18	4	2	3	75	30.24%
Loss of Agricultural Land	0	8	2	8	1	1	20	8.06%
Not much area to build house	1	0	0	0	0	1	2	0.81%
None	0	0	12	0	0	0	12	4.84%
No response	6	10	5	3	1	1	26	10.48%
TOTAL	44	53	57	56	23	15	248	100.00%

Source: EarthUs, 2022.

3.6 ASSETS INVENTORY SURVEY

3.6.1 Land Use

(1) Municipality of Carranglan

The municipality of Carranglan consists of 17 barangays. It has a total area of 78,100 hectares. The proposed DPEAR alignment will traverse the barangays of Bunga, Burgos and Salazar. All three barangays are classified as rural barangays.

In terms of land use, 86% of the total area of Carranglan are forest lands, 6.4% are agricultural, 4.29% are open spaces and 0.43% residential.¹⁴ The areas traversed by the project in Bunga, Burgos and Salazar consist of forest lands, agricultural areas, residential areas, and open spaces.

Bunga is the biggest barangay of Carranglan. It has an area of 12,845.70 hectares, or 16.45% of the total area of the municipality. Burgos is next to Bunga in terms of land area. It shares 9,745.47 hectares or 12.48% of the total area of the municipality. Salazar is the fifth largest barangay of Carranglan, with 7,106.74 hectares or 9.10% of Carranglan's total area.

¹⁴ CLUP, Municipality of Carranglan, 2019-2028.

(2) Municipality of Santa Fe

The municipality of Santa Fe is composed of 16 rural barangays. It has a total land area of 39,981.16 hectares. In terms of land use, forestlands comprise 36.53%, agricultural areas 25.82% and built-up areas 1.38%.¹⁵ The DPEAR project will traverse only one barangay, namely Canabuan. It is the second biggest barangay, with a total land area of 6,425.20 hectares or 16.07% of the aggregate area of the municipality.

(3) Municipality of Aritao

The municipality of Aritao is composed of 22 barangays with an aggregate land area of 34,902.46 hectares. In terms of land use, 53% of Aritao are protection forests, 19.35% are production forests, 21.5% are for agriculture.¹⁶

The project will pass through two rural barangays, namely Canabuan and Canarem. Canabuan is the second largest barangay comprising of 5,292.84 hectares or 15.16% of the total municipal area. Canarem has an area of 1,373 hectares or 3.93% of the municipal area.

(4) Actual Land Uses Within the ROW

The various land uses in the areas traversed by the project are shown in **Table 3.6.1**. These data are preliminary land use calculations based on analysis of satellite imagery obtained in June 2019; hence, discrepancies with actual current land uses may occur. A detailed ground inventory of the actual land uses by barangay is proposed to be done during the DED stage when the parcellary survey is completed.

Table 3.6.1 Area of Affected Lands by Land Use¹⁷

Municipality	Barangay	Area (sqm)				Total
		Built-up Areas	Forest	Grassland	Paddy Fields	
Carranglan	Bunga	43,194.37	73,608.59	16,515.22	69,399.65	202,717.82
	Burgos	97,543.15	66,919.11	53,069.37	49,888.94	267,420.57
	Salazar	4,186.43	205,130.26	24,765.31	217,233.68	451,315.68
Santa Fe	Canabuan	36,016.59	46,320.63	7,477.86	41,124.94	130,940.02
Aritao	Canabuan	55,373.60	111,739.85	2,057.77	21,911.90	191,083.12
	Canarem	2,562.43	29,018.06	3,112.11	16,109.67	50,802.27
TOTAL		238,876.57	532,736.49	106,997.64	415,668.78	1,294,279.48
PERCENT TO TOTAL		18.46%	41.16%	8.27%	32.12%	100.00%

Source: EarthUs, 2022.

¹⁵ CLUP, Municipality of Santa Fe, 2018-2027.

¹⁶ CLUP, Municipality of Aritao, 2019-2028.

¹⁷ Preliminary remotely sensed data based on analysis of satellite imagery obtained in June 2019. (See **Appendix E**).

The biggest area (49.43%) in terms of land use consists of 639,734.13m² of forest lands that are planted to 532,736.49m² (41.16%) of agroforestry (hardwood/timber species mixed with fruit bearing trees) and 106,997.64m² (8.27%) of grasslands. The latter includes barren/unproductive lands and areas that were razed by recent forest fires.

Through KIIs, it was gathered that forestlands in Bunga, Burgos and Salazar that will be traversed by the ROW are part of three sub-watersheds of Pantabangan-Carranglan Watershed Forest Reserve (PCWFR). The affected forest areas are being managed by four (4) POs, as identified in **Table 3.6.2**, through a stewardship contract with the DENR-FMB, otherwise known as Protected Area Community-Based Resource Management Agreement (PACBRMA). The stewardship contracts took effect in 2019. These contracts are effective for 25 years and renewable for another 25 years.

Table 3.6.2. PAPs in the Protected Areas

Barangay	Name of Sub-Watershed	Total SW Area, ha	Area Affected by ROW, ha	Name of PO	Chairman	No. of Members
Bunga	Seguim	185	< 10	Laat Greenview Association, Inc.	Ernesto Sercenia	33
Burgos	Barat	376	< 10	La Gracia Planters Association, Inc.	Melchor de la Cruz	19
Salazar		800	> 10	Salazar Pines View Assoc., Inc.	Eduardo Tucal	40
		1400	> 10	Salazar Tribal Planters Assoc., Inc.	Olmes Barol	50

Source: EarthUs, 2022.

It was also learned from the KIIs that in 2018, these POs were the beneficiaries of a financial assistance through a Site Development contract with the DENR-PENRO of Nueva Ecija. The initiative is part of the Forestland Management Project (FMP) in the Upper Pampanga River Basin with financial assistance from JICA. The FMP complements the National Greening Program (NGP) of the government and aims to rehabilitate critical watersheds in Cordillera Administrative Region (CAR), Region II, Region III, and Region VI. In Region II, FMP involves the rehabilitation of the Pantabangan-Carranglan protected area through reforestation, agroforestry, plantation establishment and agricultural land conservation.

The agricultural areas comprise 415,668.78m² or 32.12% of the total land cover. These crop areas consist mostly of prime agricultural lands that are planted to rice.

The built-up areas comprise a total of 238,876.57m² or 18.46% of the total land cover. These are the residential lands occupied by the affected

communities and are mostly located by or near the existing barangay roads.

3.6.2 Lands Affected by the Project

As shown in **Table 3.6.3** the potential total land area to be cleared to secure the project's ROW is approximately 1,294,279.48 m². These lands are either owned or under stewardship by 107 PAPs. Their distribution by barangay, in the order of area affected from biggest to smallest, is as follows: (1) Salazar, 451,315.68 m², which represents 34.87% of the total affected area and 0.64% of the total barangay land area; (2) Burgos, 267,420.57 m², which represents 20.66% of the total affected area and 0.27% of the total barangay land area; (3) Bunga, 202,717.82 m², which represents 15.66% of the total affected area and 0.27% of the total barangay land area; (4) Canabuan, Aritao, 191,083.12 m², which represents 14.76% of the total affected area and 0.36% of the total barangay land area; (5) Canabuan, Santa Fe, 130,940.02 m², which represents 10.12% of the total affected area and 0.20% of the total barangay land area; and (6) Canarem, 50,802.27 m², which represents 3.93% of the total affected area and 0.37% of the total barangay land area.

Table 3.6.3 Area of Affected Lands

Municipality	Barangay	Barangay Land Area, sqm	No. of Affected Land Owners*	Affected Area, sqm	% to Total Affected Area	% to Barangay Land Area
Carranglan	Bunga	128,457,000	10	202,717.82	15.66%	0.16%
	Burgos	97,454,700	9	267,420.57	20.66%	0.27%
	Salazar	71,067,400	36	451,315.68	34.87%	0.64%
Total for Carranglan			55	921,454.07	71.19%	
Santa Fe	Canabuan	64,252,000	21	130,940.02	10.12%	0.20%
Total for Santa Fe			21	130,940.02	10.12%	
Aritao	Canabuan	52,918,400	14	191,083.12	14.76%	0.36%
	Canarem	13,730,300	17	50,802.27	3.93%	0.37%
Total for Aritao			31	241,885.39	18.69%	
TOTAL			107	1,294,279.48	100%	

*Legend: *Does not include the 56 tenants and one (1) caretaker but includes the 22 holders of PACBRMA.*

Source: EarthUs, 2022.

The land area to be acquired for the south and north tunnels at depths ≤ 50 m are 29,308 m² and 22,780 m², respectively. These lands may be acquired by DPWH by negotiating the outright sale (for lands outside the ancestral domain) or by easement of ROW (for those within the ancestral domain).

Lands that will be traversed by the tunnel at depths > 50 meters need not be acquired by DPWH pursuant to Section 11 of the IRR of RA 10752. These lands were not included in the scope of this RAP study.

3.6.3 Structures and Improvements Affected by the Project

As shown in **Table 3.6.4**, a total of 102 structures were inventoried in the six barangays. These are erected on the lands belonging to 58 PAPs that are subject to possible ROW acquisition. In all, the major structures include 55 residential structures; two (2) institutional structures (one church in Burgos and another one in Canarem); and one warehouse (“bodega”). There are 44 other structural improvements such as solar dryers, a windmill, farmhouses, dirty kitchens, animal pens, small stores, roofed graves, a deep well and a shed. Except for the kitchen of one house structure located in Burgos, all 54 residential structures, churches, warehouse, and the other improvements will be severely affected. These structures will be compensated at replacement cost.

The maps of land and structures are found in **Appendix F**.

Table 3.6.4 Number PAPs and Affected Structures

Municipality	Barangay	Kind of Structure	No. of Structures/ Improvements	No. of PAPs	
Carranglan	Bunga	Residential	8	8	
		Bodega	1		
		Other Improvements	14		
	Sub-Total			23	
	Burgos	Residential	14	18	
		Residential	1		
		Institutional (Chapel)	1		
		Other Improvements	17		
	Sub-Total			33	
	Salazar	Residential	2	2	
Other Improvements		1			
Sub-Total			3		
Santa Fe	Canabuan	Residential	21	21	
		Other Improvements	10		
	Sub-Total			31	
Aritao	Canabuan	Residential	6	6	
		Other Improvements	1		
	Sub-Total			7	
	Canarem	Residential	3	3	
		Institutional (Chapel)	1		
		Other Improvements	1		
	Sub-Total			5	
Total Residential Structures			55	58	
Total, Institutional Structure and Warehouse			3		
Total, Other Minor Improvements			44		
ALL			102		

Source: EarthUs, 2022.

3.6.4 Public Structures and Utilities Affected by the Project

Aside from private homes and improvements, there are 23 public structures erected within the ROW in Bunga and Burgos. These include a basketball court and a waiting shed; both are owned by the barangay LGU of Bunga. There are also 21 electric posts affected in Bunga and Burgos, which are owned by the Nueva Ecija Electric Cooperative (NEECO). These structures will be removed from the ROW alignment.

An inventory of these public structures and utilities is found in **Appendix G** and summarized in **Table 3.6.5** below. No such structures were found within the ROW alignment in Salazar, Carraanglan, Canabuan, Santa Fe, Canabuan Aritao and Canarem Aritao.

Table 3.6.5 Affected Public Structures

Barangay	Owner	Type of Structure	Number
Bunga	Barangay LGU	Basketball court	1
		Waiting shed	1
Burgos	NEECO	Electric Posts	4
		Electric Posts	17
Total			23

Source: EarthUs, 2022.

3.6.5 Trees and Perennials Affected

The inventory of trees as well as vegetation/land cover analysis were undertaken using remote sensing technology in lieu of manual counting of trees, as already explained. There were several assumptions made as regards the estimation/inventory of trees. A detailed description of the methodology, analysis and interpretation of the results can be found in **Appendix E**.

According to the results, there are 29 species of hardwood or timber identified throughout the ROW stretch (**Table 3.6.6**). Based on percentage relative abundance derived by random field sampling, the estimated total area planted to these timber species is 51,937 m². This translates to a total of 870 standing timber trees.

Besides timber species, there are 14 species of fruit-bearing trees and perennials identified throughout the length of the road ROW (**Table 3.6.7**). Based on percentage relative abundance derived by random field sampling, the total area planted to these fruit-trees and perennials is 608,711.5 m². This translates to a total of 10,347 standing fruit trees.

It can be gleaned from these results that forest lands are devoted more to agro-forestry than timber plantation. Planting fruit-bearing trees appears to be more acceptable and economically rewarding to PAPs.

Table 3.6.6 Inventory of Hardwood/Timber Tree Species¹⁸

Species	Estimated Count of Hardwood/Timber Species						Total
	Bunga, Carranglan	Burgos, Carrangalan	Salazar, Carranglan	Canabuan, Sta. Fe	Canabuan, Aritao	Canarem, Aritao	
Alibangbang	14	12	159				185
Ansotan Dilaw				7	5	1	13
Anubing				9	7	2	18
Aresop				2	1	1	4
Balante				5	3	1	9
Balitbitan				2	1	1	4
Balite				2	1	1	4
Bamboo				5	3	1	9
Barako				2	1	1	4
Binunga				14	10	3	27
Careles				2	1	1	4
Fern				7	5	1	13
Gmelina	14			30	21	7	72
Halili				2	1	1	4
Hbiscus				2	1	1	4
Honili				9	7	2	18
Ipil		12	159	5	3	1	180
Lapting				7	5	1	13
Leak				2	1	1	4
Lucban				5	3	1	9
Mahogany				19	13	4	36
Mullberry				2	1	1	4
Mangium				2	1	1	4
Narra		12	159	5	3	1	180
Prickly Narra				2	1	1	4
Rubber				2	1	1	4
Tibig				14	10	3	27
Tual				5	3	1	9
Tucii				2	1	1	4
TOTAL							870

Source: EarthUs, 2022.

¹⁸ Preliminary remotely sensed data based on analysis of satellite imagery obtained in June 2019. Detailed computation of values can be found in **Appendix E**, Sections VI-D and VI-E. The tree inventory needs to be updated based on actual field-verified tree count done by barangay after the parcellary survey during the D/D stage.

Table 3.6.7 Inventory of Fruit Trees and Perennials¹⁹

Species	Estimated Count of Fruit Trees and Perennials						Total
	Bunga, Carranglan	Burgos, Carrangalan	Salazar, Carranglan	Canabuan, Sta. Fe	Canabuan, Aritao	Canarem, Aritao	
Avocado				17	27	7	51
Banana	548			172	269	68	1,057
Betel Nut				34	54	14	102
Calamansi				34	54	14	102
Citrus				172	269	69	510
Coconut				34	54	14	102
Guava				34	54	14	102
Guyabano				69	108	28	205
Kasoy	1,644	448	510	52	81	20	2,755
Mango		1,791	2,040	241	377	96	4,545
Nangka				103	161	42	306
Papaya				86	135	34	255
Rambutan				17	27	7	51
Santol				69	108	27	204
TOTAL							10,347

Source: EarthUs, 2022.

3.6.6 Croplands Affected by the Project

Based on the remotely sensed data, the agricultural areas comprising 32.12% of the total land cover consist of 415,668.78m² of mostly prime agricultural lands that are planted to rice.

As revealed during interviews (KIIs) with farmer-leaders, there are no irrigation facilities in these areas; rice fields are basically rain-fed. Most of the farmers are only able to plant once a year during rainy season; rarely can farmers have two croppings per year. As an alternate, farmers plant vegetables on dried-up rice paddies during dry season, but the harvest is often only enough for family consumption.

¹⁹ Preliminary remotely sensed data based on analysis of satellite imagery obtained in June 2019. Detailed computation of values can be found in **Appendix E**, Sections VI-D and VI-E. The tree inventory needs to be updated based on actual field-verified tree count done by barangay after the parcellary survey during the D/D stage.

4.0 IMPACTS AND MITIGATION MEASURES

4.1 CATEGORY OF PAPs

PAPs are categorized based on their tenurial status, as follows:

- Landowners - PAPs who are land title holders or who have formal legal rights to land including customary and traditional land rights recognized under law, such as the IPs
- Structure Owners on Private Lots – PAPs who own the structure built on own lot or on another person’s private lot with or without the consent of the owner
- Business Owners – PAPs who operate businesses in the project area, regardless of scale of business and ownership of land and/or structure on which they operate said businesses. There are no businesses operating within the proposed ROW.
- Tenants or Lessees – PAPs who are occupying the land and/or structures for a fee
- Rent-free occupants (RFO) – includes co-owners, sharers, or caretakers of land and/or structure

4.2 SEVERITY OF IMPACTS

The severity of project impact on the assets of PAPs is categorized as:

- **Severely Affected** when the PAPs stand to lose 20% or more of their assets, or even less than 20%, if the remaining land or structure is rendered unviable for continued use as originally intended; or
- **Marginally Affected** when the PAPs stand to lose less than 20% of their assets and the remaining land or structure is still viable for continued use as originally intended

4.3 EXPECTED IMPACTS

The potential adverse impacts of the Project to PAPs will include the following: (i) loss of possession of land (for those within affected AD) and loss of ownership of land (for those outside AD); (ii) loss of residential houses and other structural improvements; (iii) removal of public structures and utilities; (iv) loss of trees and perennials; (v) displacement of people; (vi) loss or diminution of livelihood and income sources; (vii) loss of access to basic social services; and (ix) loss or disintegration of social network.

4.3.1 Loss of Land

The total area that will be required to secure the project’s right-of-way is 1,294,279.50 m². In terms of barangay distribution, Salazar stands to lose the

biggest land area (34.9% of the land subject to ROW acquisition) followed by Burgos (20.7%), Bunga (15.7%), Canabuan, Aritao (14.8%), Canabuan SF (10.12%), and lastly Canarem (3.9%).

Based on the results of the C-SES and FIIs, these lands are either owned or under the stewardship of 107 landowners. The private agricultural lands belong to 77 claimant-owners and eight (8) free patent holders. Some of these lands are also occupied and/or used for economic undertakings in agriculture by 56 PAPs who are either tenants or caretakers of the land. The taking of these lands would mean loss or diminution of the most important resource on which the PAPs live, grow their food, undertake economic activities, and derive their incomes.

Aside from agricultural lands, there are forestlands that are occupied and/or used for agro-forestry by 22 PAPs who are holders of PACBRMA, a 25-year stewardship contract with the DENR. Loss of these lands will mean not just the loss of forest cover but also the loss of food and income derived by PAPs from agro-forestry and use of forest resources for small-scale industries. The latter includes the bamboo and rattan basket weavers, furniture makers, tiger grass growers and broom makers.

The indigenous communities in Salazar Carranglan, Santa Fe and Aritao will lose possession of portions of their ancestral domains. The lands in Salazar covered by PACBRMA are at the same time covered by CADT. In the indigenous culture, the land and everything on and under it is in unity. Land is considered a sacred trust endowed through generations of ancestors as a communal ownership. The land is tied to an IP's way of life, knowledge, culture, and belief system. As such it cannot be alienated or disposed. The loss of parts of the ancestral domains due to the project is a loss of social, ecological, economic, and spiritual heritage of these people.

4.3.2 Removal of Structures

As discussed in Sec.3.5.3, 102 structures belonging to 58 PAPs will likely be demolished. The major ones include 54 residential structures, one (1) warehouse and two (2) institutional (church) structures. There are 44 other structural improvements, which include storage rooms, solar dryers, a windmill, farmhouses, dirty kitchens, animal coops/pens, small stores, graveyards, a deep well, a fence and a shed.

Except for the kitchen in one house, all the residential structures will be severely affected and will likely be demolished.

4.3.3 Relocation of Public Social Structures and Utilities

Twenty-three (23) public social structures and utilities in Bunga and Burgos will be affected. In particular, removal and relocation of the electric posts will hamper access to power supply by the communities of Bunga and Burgos and must therefore be relocated and re-installed immediately during the implementation stage. Otherwise, this could lead to interruption of vital social and economic activities.

4.3.4 Loss of Trees and Perennial

As discussed in Section 3.5.4, there are 29 species of timber and 14 species of fruit-bearing trees identified within the ROW. In terms of land area, there are 51,397 m² of land planted to timber species and 608,712 m² of land planted to fruit trees and perennials. These translate to 870 standing count of timber species and 10,347 standing count of fruit trees and perennials that will be uprooted and removed from ROW prior to construction.

The numbers may not be significant in terms of forest cover. Indeed, extensive areas of the uplands in the Carranglan side of the project are heavily denuded. In spite of this, or perhaps because of this, the removal of trees in the Carranglan forests is a particularly sensitive ecological issue, particularly in the Seguin Sub-watershed and Barat Sub-watersheds. These sub-watersheds form part of the Pantabangan-Carranglan Watershed Forest Reserve, a protected area and an initial component of the NIPAS system in the country. Protection and management of this forest reserve is the main reason that PACBRMAs were issued to the POs operating in the area. Moreover, other government and private initiatives were introduced in the PCWFR to rehabilitate and expand its forest cover. One such initiative is the JICA-funded FMP. Removal of the dwindling forest cover is anathema to the sustainable management of these protection zones. It will also deprive the POs of the subsistence and livelihoods that they derive from agro-forestry.

4.3.5 Loss of Croplands

Based on Remote Sensing data, the estimated agricultural areas comprise 415,668.78m² or 32.12% of the total land cover inside the ROW. These crop areas consist mostly of prime agricultural lands that are planted to rice.

The KII with rice farmer PAPs indicate that the average yield of one (1) hectare (10,000m²) of rice land over the last five (5) years ranges between 107 and 167 cavans²⁰. The current price of palay is Php17.00/kg. Thus, the average gross yearly income from rice lands ranges between Php90,950.00 and Php141,950.00 per hectare. This translates to an average potential loss of gross yearly income of Php116,166.67.

The livelihood and income of rice farmers and farm workers will be impacted significantly by the acquisition of these rice production areas to secure the project's right of way.

4.3.6 Physical Displacement of People

As already discussed, 54 of the 163 PAPs will likely lose their residential dwellings, as these will be severely affected. This translates to 218 persons (see **Table 3.5.35**) who will likely be physically displaced and would need to re-establish their homes elsewhere.

²⁰ One cavan = 50 kilograms

Twenty-two (22) or 40.7% of these PAPs, are from Bunga and Burgos in Carranglan. They are non-IPs. On the other hand, 32 PAPs (59.3%) are from Salazar, Carranglan; Canabuan, Santa Fe; Canabuan, Aritao; and Canarem, Aritao. They belong to the two identified IP groups.

If relocated away from their ancestral lands the displacement of IPs will be a critical social concern and will have serious cultural implications in terms of community ownership. It will not only result in the disintegration of the IP community. It will also deprive relocating IPs access to traditional support systems and communal resources. Hence, it would be judicious to relocate the IPs nearby within their ancestral communities.

4.3.7 Loss or Diminution of Livelihoods and Income Sources

For many of the PAPs, their livelihoods are tied to the lands that they till for subsistence and livelihood. The loss of their lands means loss of the crops and trees that provide their basic food and income sources.

To reiterate, nearly 90% of economically active HH heads, 81% of spouses and 88% of male and female HH members are engaged in farming. Agriculture-related production is also the secondary occupation of 35.87% of the HH heads and 15.71% of the spouses who are still engaged in extra farming activities or work as farm laborers to augment the family's income.

The appalling incidence of poverty among the PAPs cannot be overemphasized. As already mentioned, 60.74% of the households have combined incomes of below Php12,082 per month, which is the poverty threshold estimate for a family of five, as determined by the PSA in the first semester of 2021. Nearly 47% of the same households have family incomes that are below or just slightly over the estimated monthly food threshold of Php8,393 for a family of five, as determined by PSA for the same period. Indeed, a great number of PAPs in the lower income brackets have per capita incomes that are not even sufficient to meet their basic food and non-food needs.

The taking of lands, which are the poor farmer's main source of income and livelihood will likely cause further impoverishment of this marginalized segment of the population. Add to this already huge number of the poorest of the poor the statistics of people who belong to other vulnerable groups such as the female-headed HH (12.27%), the HH headed by solo parents (19.63%), those with members who suffer physical disabilities (6.13%), the HH headed by elderlies (26.38%), the HH with OSYs (3.07%) and very young children (24.28%), the indigenous peoples (53.37%) and the unemployed (7.36%).

4.3.8 Loss of Access to Basic Social Services

Physical relocation of PAPs, if not done on-site (on their own nearby plots or within immediate proximity), may cause disenfranchisement of PAPs due to loss of access to basic social services. As discussed in Section 3.4, 52.8% of PAPs rely on their barangay health centers for their medical needs; 59% send

their children to elementary and secondary schools that are available in their barangays; and 82.84% seek financial remediation from family, friends, relatives, and cooperatives in their neighborhood during emergencies and dire situations.

Resettling these PAPs away from their present residences will deprive them of these social amenities, conveniences, and social support systems.

4.3.9 Loss or Disintegration of Social Network

Social disintegration and loss of social support system is an adverse impact that will affect the vulnerable groups, particularly the indigenous communities. These PAPs have been living on their ancestral lands/homes since time immemorial. Their life and work are tied to their cultural heritage, common resource ownership and communal relationships.

Should physical relocation prove unavoidable, IPs must be provided resettlements on-site, within their own neighborhood and ancestral domains.

4.3.10 Impoverishment or Disenfranchisement of Vulnerable Groups

The vulnerable groups include the following: (i) the poorest of the poor whose incomes are below poverty threshold; (ii) female-headed HHs; (iii) HHs headed by solo parents (whether widower/widows/ separated); (iv) HHs with members who are persons with disabilities (PWD); and (v) HHs headed by senior citizens or with elderly or old-age dependents.

To reiterate, 60.74% of the PAPs belong to the poorest of the poor who have incomes falling below the poverty threshold estimate or below the monthly food threshold. These PAPs in the lower income brackets have per capita incomes that are not even sufficient to meet their basic food and non-food needs. The vulnerable groups also include these PAPs: the 53.37% who are IPs; the 26.38% who are headed by elderlies; the 18% of HH who are headed by solo parents; and the 12.2% who are headed by females. These groups are also among the poorest of the poor.

These PAPs will likely suffer further impoverishment and disenfranchisement due to the project if deprived of their sources of livelihood and if access to social services and social support systems becomes restricted.

4.4 MITIGATION MEASURES

The following social safeguards are proposed to mitigate the identified impacts on PAPs: (i) compensation for land as follows: at current BIR zonal value to secure easement of ROW for IP PAPs who are holders of CADT in ancestral domains; and compensation at current market value for non-IP PAPs outside the ADs and for those IP PAPs holding private titles to lands inside the ADs; (ii) compensation at replacement cost for structures and other improvements; (iii) compensation for trees and crops at current market value; (iv) on-site resettlement of families whose dwellings will be severely affected; and (v) provision of alternative livelihood and employment opportunities, including skills trainings, for those whose sources of income will be adversely affected, especially the economically productive PAPs who may lose their present livelihoods and economic opportunities; (vi) ensuring access to basic education, health, credit support and other social services in the new place of residence; and (vii) special consideration for indigenous peoples as stipulated in the DPWH-NCIP-ICC MOAs.

4.4.1 Compensation for Lost Assets

The payment of compensation for affected lands shall be as follows:

- (i) For lands outside the ADs or those inside the ADs that are covered by private titles, compensation shall be at current market value.
- (ii) For lands inside the ADs that are not covered by private titles, payment of just compensation shall be for easement-of-ROW at current BIR zonal value.
- (iii) For sub-surface ROW (tunnel sections), compensation shall be for perpetual easement-of-ROW at 20% of current market value of the land (within 50m from the surface) pursuant to the IRR of RA 10752.
- (iv) For structures, compensation shall be at replacement cost for affected structures and other improvements.
- (v) For trees and crops, compensation shall be at current market value using the applicable established market value of the following:
 - DA (for crops and fruit bearing trees)
 - PCA (for coconut trees)
 - NEDR (for perennials and timber trees)
- (vi) For croplands (i.e., ricelands, the compensation for crops is already incorporated in the compensation for land.
- (vii) For provision of other entitlements and assistance to PAPs, applicable guidelines prescribed by the DRAM, the LARRIPP and the MOAs governing ICCs/IPs shall apply.

This will be elaborated in Section 5.

4.4.2 Provision of Relocation Site for Families

The provision of resettlement sites for their homeless constituents is the mandate of LGUs. However, KIIs with LGU officials revealed that all three (3)

municipalities do not have resettlement sites in any of these six barangays affected by the project. There is not even an off-site resettlement option available nearby in neighboring barangays. The LGUs do not see any immediate need or plan to construct resettlement sites soon either.

International best practice recommends that these PAPs be provided with on-site resettlement to minimize disruption of their socio-economic lives, if it were feasible and reasonable. But to provide a resettlement site in each barangay would be impractical. First, the number of potential relocatees in each barangay are too few. The greatest number of would-be displaced PAPs are those from Canabuan Santa Fe (21 PAPs or 38.9%) followed by Burgos with 14 PAPs or 25.9%. The rest of the barangays have only two (2) to eight (8) relocating PAPs. These numbers are too few to warrant constructing new settlements, which would be unjustifiably costly.

There are two groups of relocating PAPs. One, the 22 PAPs (40.7%) from Bunga and Burgos in Carranglan who are non-IPs. Another group is IPs. Among 32 PAPs from Salazar in Carranglan, Canabuan in Santa Fe, Canabuan and Canarem in Aritao, majority of them, counting 26 PAPs, are IPs according to the interview result. The second group poses a more serious challenge than the first group. Amongst the indigenous communities, relocation outside of their ancestral domain is certainly not an option. Physical displacement from their ancestral communities is a rather delicate matter that should be discussed between DPWH, the concerned LGUs, the NCIP officials and the IP local leaders. The key is to arrive at a consensus that is acceptable to all and most beneficial to the IP communities.

Most (~61%) of the structures owned by the PAPs are made of light construction materials (Type II) or a mix of light and semi-concrete (Type V). Only 39% of the dwellings are made of concrete (Type III) and semi-concrete (Type IV). It would be easy for PAPs to reconstruct their homes in the unaffected land next to their present plots or in another plot nearby. This will be the subject of discussion and negotiation among the DPWH, the NCIP and the ICCs. In any case, assistance must be provided in the physical transport of the relocatees and their belongings. At no instance must civil work begin without first ensuring that the relocatees are properly resettled with provision for access to potable water and electricity.

It is good to note though that nearly 89% of the potentially displaced PAPs indicated their willingness to be relocated- but only in nearby lots, where they can rebuild their homes and continue their economic livelihoods and production activities with the least difficulty and economic repercussions.

The DPWH can help ease the transition for these relocating PAPs by providing sufficient inconvenience allowance, donating excess but suitable construction materials to respective LGUs, and providing transportation to resettling families.

4.4.3 Provision of Alternative Livelihood

A well-designed livelihood program will mitigate the adverse economic impacts on those PAPs who stand to lose their economic assets and sources of income. It will prevent economic impoverishment and disenfranchisement for the extremely vulnerable groups.

Pursuant to the MOAs governing ICCs/IPs and the LARRIP, PAPs will have priority in project-related employment opportunities. Specifically, 30% of skilled and 50% of unskilled labor requirements during construction will come from the PAPs community.

Moreover, a Menu of Livelihood Options for is proposed in **Section 6** to help PAPs improve their livelihood and income-earning opportunities.

4.4.4 Provision/Improvement of Basic Social Service

As discussed in Section 3.4, 52.8% of PAPs rely on their barangay health centers for their medical needs; 59% send their children to elementary and secondary schools within walking or short riding distances from their residences; and 82.84% seek social support and financial remediation from family, friends, relatives, and cooperatives in their neighborhood during emergencies and dire situations.

The PAPs prefer to be relocated on-site, whether these are IPs or not. Hence, the DPWH, the NCIP and the LGUs must make sure that on-site relocation, is prioritized. This way, basic health, education, social support systems and credit facilities will continue to be within the reach of the PAPs.

4.4.5 Special Considerations for Indigenous Peoples

RA 8371 or the Indigenous Peoples Rights Act (IPRA Law) protects and upholds the indigenous concept of ownership founded on the traditional belief that ancestral domains are private but community property that belongs to all generations of IPs and therefore cannot be sold, disposed, or destroyed. As part of the process of securing the requisite free and prior informed consent (FPIC), two landmark documents were secured for the DPEAR project. These contain the special considerations for the two groups of indigenous peoples that will be affected by the project, namely: (i) the Kalanguya-Ikalahan ICCs/IPs of Santa Fe and Aritao, Nueva Vizcaya; and (ii) the Kalanguya ICCs/IPs of Carranglan, Nueva Ecija.

On December 19, 2018, through NCIP en banc Resolution No. 07-162.2018, s. 2018, the NCIP approved the issuance of Certification Precondition (CP) in favor of the proposed DPEAR project after satisfying the process of FPIC and subject to the terms and conditions embodied in the Memorandum of Agreement executed on May 21, 2018 between duly authorized representatives of the DPWH Regional Office 2, the Kalanguya-Ikalahan Indigenous Cultural Communities/Indigenous Peoples (ICCs/IPs) of Santa Fe and Aritao, Nueva Vizcaya and the NCIP. For the benefit of the Kalanguya-Ikalahan ICCs, the

salient conditions of the MOA include the following: (i) funds: to rehabilitate disturbed/damaged forests and restore peace, at the discretion of CADT federation officers and elders; (ii) development priorities: paramount consideration of the ancestral domain and its environment; (iii) MOA compliance monitoring: by composite Monitoring and Evaluation Team (MET) with 18 member-representatives from NCIP, DPWH, Contractor, LGU, Barangay Councils, Cluster PO and CADT Holders Federation; (iv) mitigation and resettlement plans: structural measures and social safeguards to mitigate potential risks due to the project; (v) redress mechanism; (vi) DPWH-ICC shared responsibility: rehabilitation of Marang Watershed; valuation and compensation for damaged properties based on DRAM; contractor's equipment availability during calamities; etc.; MET monitoring; (vii) benefit-sharing: priority recruitment of IPs in the labor force: timely payment of labor wages; and, (viii) respect and protection of customary rights, laws, traditions and beliefs.

In a parallel development, a MOA was executed on November 12, 2019 between duly authorized representatives of the DPWH and the Kalanguya Indigenous Cultural Communities/Indigenous Peoples (ICCs/IPs) of Barangays Capintalan, Minuli, Putlan and Salazar, Carranglan, Nueva Ecija and NCIP. A Certification Precondition was subsequently issued in favor of the proposed DPEAR project.

The MOA contains the following salient provisions that will benefit the Kalanguya ICCs²¹: (i) DPWH financial obligations: expenses for rituals attendant to groundbreaking, project completion, exhumation of human remains/burial rites; (ii) social and economic development: priority employment to qualified, competent and bona fide members of the ICC (i.e., 30% of skilled and 50% of unskilled labor requirement of contractors); (iii) preferred mode of ROW acquisition of AD lands: easement of ROW, subject to compensation based on BIR zonal valuation; (iv) compensation for structures, other improvements, crops and trees to be paid directly to affected IP; (v) environmental safeguards: non-disturbance/avoidance of protected forest/watershed areas and sanctuaries identified by the DENR; (vi) proper disposal at ICC-designated site and/or donation to ICC of unsuitable excavated earth materials; (vii) reasonable assistance to the ICCS in times of emergencies; (viii) adherence to technical designs and standards in implementing the project; (ix) provision of access road to the main highway, farm-to-market road and evacuation center; (x) provision of one (1) set of cultural instruments; and (xi) Joint Monitoring and Grievance Team (JGMT) as a monitoring/evaluation and grievance redress mechanism.

²¹ Contents of compensation were discussed in the process of Philippine FPIC among DPWH, NCIP and ICC/IP, and agreements were stipulated in MOA. In case that supplemental compensation or assistance are considered as needed, DPWH will request NCIP for facilitation of a consultation with ICCs/IPs after finalizing ROW and scale of impact.

5.0 PRELIMINARY COST ESTIMATES OF COMPENSATION AND OTHER ENTITLEMENT

5.1 PRINCIPLES OF COMPENSATION

5.1.1 Compensation Policy

Compensation under the Project will be a combination of: (i) compensation for loss of assets (land, structures/other improvements and crops/ trees/perennials); (ii) loss of income/livelihood; and (iii) assistance to vulnerable groups.

- i. Compensation for loss of assets:
 - For lands outside of the AD, loss of land shall be compensated at current market value;
 - For lands within the AD, ROW acquisition is through easement of ROW where the owner retain ownership of the land but is compensated based on current BIR Zonal Value for the affected land;
 - loss of structures and other improvements shall be compensated at full replacement cost
 - loss of trees/crops/perennials shall be compensated at current market prices
 - The IP PAPs retain ownership of the land. This is pursuant to IRR of RA 10752 and the MOA between DPWH, NCIP and Kalanguya-Ikalahan ICCs/IPs of Region III. This condition is not specified in the MOA between DPWH, NCIP and Kalanguya ICCs/IPs of Region II; hence, DPWH proposes to apply the same compensation for Kalanguya ICCs/IPs of Region II.
- ii. Entitlement for loss of income/livelihood

The loss of income/ livelihood shall be addressed by providing each PAP with any or all of the following entitlement/assistance: Disturbance Compensation; Income Loss/Rehabilitation Assistance; and, Rehabilitation Assistance (in the form of skills training and other development activities). Income restoration Program will be prepared and provided to the economically displaced PAPs.

A Menu of Livelihood Options will be proposed that matches the social context, employable skill sets, and preferences of the PAPs against the opportunities and resources available in their locality. This is discussed in detail in **Section 6.2**.

These entitlements shall be only for PAPs with severely affected business/income loss, and the preliminary cost estimates of compensation and entitlement are discussed in the succeeding sections.

- iii. Assistance to vulnerable groups

The vulnerable groups include the following: (i) poorest of the poor whose income is below poverty threshold; (ii) women-headed households; (iii) households headed by solo parents; (iv) households with members who suffer from physical and psycho-social disabilities; (v) households headed by elderlies; and (vi) households belonging to the indigenous cultural communities.

Vulnerable groups suffer the impacts of resettlement and the loss of social and economic base more severely than the rest of the PAPs. They are more likely to experience disenfranchisement and further impoverishment due to the project. For this reason, priority and special financial, material, and other commensurate assistance should be accorded to these vulnerable groups including monetary assistance to cover moving and other administrative costs. However, the degree of vulnerability of these groups will be studied in-depth, when the Master List of PAPs becomes final during the DED stage to determine whether they are qualified for these assistance.

The proposed package of assistance to vulnerable groups forms part of the other entitlements and livelihood/income restoration options. These are discussed subsequently.

5.1.2 Entitlement Matrix

The Entitlement Matrix in **Table 5.1.1** was developed based on the impacts identified through the field survey results and the outcome of gap analysis between JICA Guidelines and laws and regulations in Philippines.

Table 5.1.1 Entitlement Matrix

Type of Loss	Application	Entitled Persons	Entitlement
1. Loss of Land			
Classified as Agricultural ¹	Severely Affected	PAFs with Transfer Certificate of the Title (TCT) or Tax Declaration (TD) (Tax Declaration may be legalized to full title)	<ul style="list-style-type: none"> • Cash compensation for the entire land at current market value of the land including cost for land preparation • Rehabilitation assistance in the form of Skills Training equivalent to PhP15,000 per family, if the present means of livelihood is no longer viable and the affected family will have to engage in a new income activity.
		Holders of Free or Homestead Patents under CA 141	<ul style="list-style-type: none"> • Follow other Modes of Acquisition enumerated in IRR of RA10752, if the landowner is not the original Patent Holder and any previous acquisition of said land is not through a gratuitous title (i.e. the landowners who are not the original patent holders will be applicable for the entitlement of TCT or TD above) • Follow the provisions under CA 141 re: acquisition of ROW on Patent Land, if the landowner is the original Patent Holder or the acquisition of land from the original Patent Holder is through a gratuitous title (i.e. compensation is provided only for structures and other improvements, crops, trees and perennials)
		PAPs without TCT or Tax Declaration	<ul style="list-style-type: none"> • Cash compensation for land improvements only • Cash compensation for damaged trees and perennials at current market value
		Holders of Free or Homesteads Patents under Public Land Act (CA 141)	<ul style="list-style-type: none"> • Cash compensation for land improvements only • Cash compensation for damaged trees and perennials at the current market value. • Disturbance compensation equivalent to five times the average of the gross harvest for the past 5 years but not less than PhP15,000
		Lessees/Tenants of Agricultural Land	<ul style="list-style-type: none"> • Disturbance compensation equivalent to five times the average gross harvest during the last 5 years but not less than PhP15,000

Type of Loss	Application	Entitled Persons	Entitlement
		Agricultural Caretakers/Settlers/Rent-free Occupants	<ul style="list-style-type: none"> Financial Assistance equivalent to the average gross harvest for the last 3 years but not less than PhP15,000 per hectare
	Marginally Affected	PAF with TCT or TD (Tax declaration may be legalized to full title)	<ul style="list-style-type: none"> Cash compensation for affected portion of the land at current market value of land Cash compensation for damaged crops (rice) is included in the compensation for rice lands at current market value Cash compensation for damaged trees and perennials at the current market value
		Holders of Free or Homesteads Patents under CA 141 Public Lands Act	<ul style="list-style-type: none"> Cash compensation for land improvements only Cash compensation for damaged crops at the current market value
Ancestral Domains	Severely and Marginally Affected	ICCs	<ul style="list-style-type: none"> Cash compensation for Easement of ROW at current BIR Zonal value, IRR of RA 10752 and the MOAs between DPWH, NCIP and the ICCs To be paid to the ICC Rights Holders Federation
Subsurface ROW	Within a depth of 50m from the surface	PAFs with Transfer Certificate of the Title (TCT) or Tax Declaration (TD)	<ul style="list-style-type: none"> Perpetual easement of ROW with 20% of the current market price of the land
		ICCs	<ul style="list-style-type: none"> Perpetual easement of ROW with 20% of the current market price of the land
2. Loss of Structure²			
Residential	Severely Affected	Owners with or without TCT or TD	<ul style="list-style-type: none"> Cash compensation for the entire structure at 100% Replacement Cost (RA 10752). Inconvenience Allowance in the amount of Php10,000 for relocation and new construction Transportation Assistance to relocating PAPs
		IPs	<ul style="list-style-type: none"> Cash compensation for entire structure at 100% replacement cost To be paid to the individual owner of structure To be paid to the ICCs/IPs Organization if the structure is communal in ownership
	Marginally	Owners with or without TCT or TD	<ul style="list-style-type: none"> Cash compensation for affected portion of the structure at 100% replacement cost

Type of Loss	Application	Entitled Persons	Entitlement
	Affected	IPs	<ul style="list-style-type: none"> • Cash compensation for marginally affected portion of structure at 100% replacement cost • To be paid to the individual owner of structure • To be paid to the ICCs/IPs Organization if the structure is communal in ownership
3. Loss of Other Improvements			
(1) Non-Dwelling Structures	Severely or Marginally Affected	PAPs with or without TCT or TD	<ul style="list-style-type: none"> • Cash compensation for the affected improvements at 100% Replacement Cost
		IPs	<ul style="list-style-type: none"> • Cash compensation for the affected improvements at 100% Replacement Cost • To be paid to the individual owner of structure • To be paid to the ICCs/IPs Organization if the structure is communal in ownership
(2) Graves		IPs	<ul style="list-style-type: none"> • Compensation for the exhumation/transfer/relocation cost of graves in coordination with LGUs and IP representatives @Php 50,000/grave • Ensure observance of indigenous practices/beliefs.
4. Loss of Crops, Trees, Perennials			
Crops, Trees/Perennials	Severely or Marginally Affected	Owners of crops, trees, perennials	<ul style="list-style-type: none"> • Compensation shall be at current market value using the applicable established market values of the following: <ul style="list-style-type: none"> ➢ DA (for crops and fruit bearing trees) ➢ PCA (for coconut trees) ➢ DENR (perennials and timber trees) • PAPs are allowed sufficient time to harvest their trees/crops
		IPs	<ul style="list-style-type: none"> • Same compensation as above • To be paid to individual owners of trees/perennials • To be paid to the ICCs/IPs Organization if the structure is communal in ownership
5. Loss/Diminution of Income and Livelihood Sources			
Additional Support to Nos. 1 to 5 above	Vulnerable Groups	Poorest of the poor; households headed by females, solo parents, persons with disabilities, and elderly (60 years old and older)	<ul style="list-style-type: none"> • Administrative support for applying respective governmental/private livelihood and social welfare program based on household conditions in cooperation with concerned LGUs and other intermediaries

Type of Loss	Application	Entitled Persons	Entitlement
	PAPs whose incomes and livelihoods will be severely affected	Skilled and non-skilled workers	• Employment opportunity for PAPs during project construction both for skilled and unskilled
	IPs	Skilled and non-skilled	• Same as above
6. Loss of Community or Public Structures			
Community Public Structures	Severely or marginally affected	Community or public structure owners/ administrators	• Replacement/re-establishment of public structures through a Memorandum of Agreement with the barangay LGU or government agency concerned; DPWH to defray the attendant cost

Notes:

1. Taxes and transaction costs are included in land compensation.
2. Taxes and cost for hauling materials and are included in structure/other improvement compensation.

Source: EarthUs, 2022

5.2 COMPENSATION FOR LAND

5.2.1 Land Valuation

The valuation was performed in accordance with the Philippine Valuation Standards (PVS, 2nd Edition) incorporating the International Valuation Standards (IVS) 2017; and the International Valuation Standards (IVS) 2022. The market value of the land was estimated by using the Market Approach. The Market Approach provides an indication of value by comparing the asset with identical or comparable (that is similar) assets for which price information is available.²²

The value of lands based on recent BIR Zonal Valuation were also estimated for comparison. This will serve as the basis of compensation for easement of ROW for lands to be acquired within the ancestral domains, subject to validation during the DED stage. This will also serve as basis of payment of deposit in court in the event of expropriation proceedings.

5.2.2 Pricing of Land Based on BIR Zonal Values

The current BIR Zonal Values of related real properties in the Municipality of Carranglan, Province of Nueva Ecija, effective August 13, 2017, are enumerated in **Table 5.2.1**. A copy of the same is attached in **Annex C**.

Table 5.2.1 BIR Zonal Value, Nueva Ecija

Barangay	Street/ Subdivision	BIR Zonal Classification	2nd Revision Zonal Value (Php/m ² .)
Bunga	Barangay Road	RR ²³ - Residential Regular	300.00
	All other lots	RR – Residential Regular	150.00
		A1-Riceland Irrigated	48.62
		A2-Riceland-Unirrigated	34.63
		A3-Upland	22.87
		A4-Cocoland	19.76
		A6-Fishpond	43.07
		A16-Corn Land	21.31
Burgos	Barangay Road	RR	300.00
	All other lots	RR	150.00
		A1-Riceland Irrigated	48.62
		A2-Riceland-Unirrigated	34.63
		A3-Upland	22.87
		A16-Corn Land	21.31
		Salazar	Barangay Road
All other lots	RR		150.00
	A1-Riceland Irrigated		48.62
	A2-Riceland-Unirrigated		34.63
	A3-Upland		22.87

²² International Valuation Standards 2022, IVS 104, Bases of Value, Paragraph 30.1

²³ RR means Residential Regular. This is the BIR zonal classification code used for standard residential buildings as opposed to RC or Residential Condominiums. For the complete list of the code, see: <https://www.foreclosurephilippines.com/wp-content/uploads/2010/05/Annex-B-Classification-Codes.pdf>

Barangay	Street/ Subdivision	BIR Zonal Classification	2nd Revision Zonal Value (Php/m ² .)
		A4-Cocoland	19.76
		A15-Pasture Land	11.10
		A16-Corn Land	21.31

Source: BIR-RDO 23A, Carranglan, N.E., 2017.

The current BIR Zonal Values of related real properties in the Municipalities of Santa Fe and Aritao, Province of Vizcaya, effective June 24, 2022, are enumerated in **Table 5.2.2**. A copy of the same is found in **Annex C**.

Table 5.2.2 BIR Zonal Value, Nueva Vizcaya

Municipality	Barangay	Street/ Subdivision	Classification	3rd Revision Zonal Value (Php/m ²)
Santa Fe	Canabuan	Barangay Road	RR	900.00
		Interior	RR	750.00
			A1-Riceland Irrigated	37.50
			A2-Riceland Unirrigated	20.00
			A23-Mango Land	53.00
			A47-Vegetable Land	15.50
			A48-Coffee Land	22.50
		A50-Other Agricultural Lands	11.00	
Aritao	Canabuan,	Barangay Road	RR	650.00
		Interior	RR	400.00
			A1-Riceland Irrigated	55.00
			A2-Riceland Unirrigated	40.00
			A16-Corn Land	20.00
			A23-Mango Land	90.00
			A47-Vegetable Land	19.00
		A48-Coffee Land	26.25	
			A50-Other Agricultural Lands	15.00
	Canarem	Barangay Road	RR	650.00
		Interior	RR	400.00
			A1-Riceland Irrigated	55.00
			A2-Riceland Unirrigated	35.00
			A16-Corn Land	19.00
		A23-Mango Land	87.00	
		A47-Vegetable Land	18.75	
	A48-Coffee Land	25.00		
		A50-Other Agricultural Lands	14.00	

Source: BIR-RDO 14, Santa Fe and Aritao, Nueva Vizcaya, 2022.

5.2.3 Recent Prices of Comparable Properties in the Area

Under the market approach, the prices for transactions of identical or similar assets that have occurred recently in the market is examined. If few recent transactions have occurred, it is also appropriate to consider the prices of identical or similar assets that are listed or offered for sale provided the relevance of this information is clearly established and critically analyzed.

For purposes of comparison, **Table 5.2.3** below lists down the market data of recently listed real estate properties near or around the project area. These were considered sufficient to provide a reasonable indication of current market value.

Table 5.2.3 Prices of Recently and Currently Listed Properties in the Project Area

Item No.	Municipality/ Province	Barangay	Owner/Seller	Land Classification	Lot Area, sqm	Asking Price, Php/sqm
1	Carranglan, N. Ecija	San Agustin	Aligra Michelle Associates	Agricultural	48,271	79.00
2	Carranglan, N. Ecija	San Agustin	Miami Amor Tavares	Agricultural (Riceland)	141,342	60.00
3	Carranglan, N. Ecija	Gen. Luna	Mria Lourdes Santos	Agricultural	131,118	50.00
4	Santa Fe, N. Vizcaya	Tactac	Rural Bank of Bayombong, Inc.	Agricultural	4,161	26.00
5	Santa Fe, N. Vizcaya	Bantinan	Rural Bank of Bayombong, Inc.	Agricultural	14,853	19.00
6	Santa Fe, N. Vizcaya	Simpaoan	Rural Bank of Bayombong, Inc.	Agricultural	14,363	12.00
7	Aritao, N. Vizcaya	Canabuan	Rural Bank of Bayombong, Inc.	Residential-Agricultural	5,550	145.00
8	Aritao, N. Vizcaya	Canabuan	Rural Bank of Bayombong, Inc.	Agricultural	7,949	45.00
9	Aritao, N. Vizcaya	Canabuan	Rural Bank of Bayombong, Inc.	Agricultural	68,225	11.00
10	Aritao, N. Vizcaya	Canabuan	Rural Bank of Bayombong, Inc.	Agricultural	33,667	8.00
11	Aritao, N. Vizcaya	Bone North	Rural Bank of Bayombong, Inc.	Agricultural	14,273	27.00
12	Aritao, N. Vizcaya	Darapidap	Rural Bank of Bayombong, Inc.	Agricultural	3,008	24.00
13	Aritao, N. Vizcaya	Tabueng	Rural Bank of Bayombong, Inc.	Agricultural	24,257	16.00

Source: EarthUs, 2022.

5.2.4 Preliminary Estimates of Compensation for Lands

As discussed in Section 4.1.1, a total of **1,294,279.48m²** of land will be needed to secure the project's ROW.

For purposes of preliminary valuation, the affected lands were classified based on actual land use, i.e., residential or agricultural, although KIIs with PO leaders indicate that some lands are public lands that are covered by PACBRMA, a forest management stewardship contract between the DENR-Forest Management Bureau and the POs. Thus, it is assumed that the affected lands belong to **107 PAPs** who claim to have titles, free patents, or PACBRMA stewardship contracts over the land. This is subject to further verification by the parcellary survey during the DED stage.

Moreover, for purposes of this study, it is assumed that all lands subject to compensation are private alienable and disposable (A&D) lands. Hence, estimates of compensation for AD lands based on easement of ROW was not

yet considered, in the absence of parcellary survey that would delineate the AD lands from private A&D lands. This will be undertaken during the DED stage.

As shown in **Table 5.2.4**, the preliminary estimates of compensation for lands (surface) based on Current Market Value is **Php129,970,108.40**. The total compensation for lands in Carranglan is **Php47,472,402.30**; in Santa Fe, **Php31,128,881.10**; and in Aritao, is **Php51,368,825.00**.

The Master List of Compensation for Lands is found in **Appendix H**.

Should negotiations with landowners fail, the DPWH may exercise the government's power of eminent domain and initiate expropriation proceedings at appropriate courts. In such case, the DPWH will be required by the court to deposit in favor of the landowner-claimant the full amount of land valuation based on current BIR zonal value. For preliminary estimates, the total compensation for lands based on BIR zonal value is **Php103,793,602.79**.

The compensation for perpetual easement of ROW in ancestral domains shall be at current BIR zonal value, pursuant to the MOA with the ICCs/IPs. The actual extent of ROW acquisition within AD and non-AD lands shall be ascertained by parcellary survey during the DED stage.

Table 5.2.4 Preliminary Estimates of Compensation for Land (Surface)

Municipality	Barangay	No. of Affected Owners*	Road Frontage	Actual Land Use	Affected Area, sqm	Compensation Based on BIR Zonal Value (Php)	Compensation Based on Current Market Value (Php)		
Carranglan	Bunga	2	Interior	Residential	43,194.37	6,479,155.50	6,479,155.50		
		8		Agricultural	151,208.06	1,678,409.47	6,048,322.40		
	<i>Sub-total for Bunga</i>					<i>194,402.43</i>	<i>8,157,564.97</i>	<i>12,527,477.90</i>	
	Burgos	1	Barangay Road	Residential	11,424.39	1,713,658.50	2,284,878.00		
				Agricultural	33,318.44	574,457.21	1,999,106.40		
		4	Interior	Residential	86,118.76	12,917,814.00	12,917,814.00		
				Agricultural	122,094.36	2,798,173.12	4,883,774.40		
	<i>Sub-total for Burgos</i>					<i>252,955.95</i>	<i>18,004,102.83</i>	<i>22,085,572.80</i>	
	Salazar	2	Interior	Residential	4,186.43	627,964.50	627,964.50		
				Agricultural	436,544.85	4,845,647.84	12,231,387.10		
		34	<i>Sub-total for Salazar</i>					<i>440,731.28</i>	<i>5,473,612.34</i>
	Total for Carranglan		55			888,089.66	31,635,280.13	47,472,402.30	
Santa Fe	Canabuan	2	Barangay Road	Residential	5,863.05	5,276,745.00	5,863,050.00		
		1		Agricultural	30,909.44	370,913.28	463,641.60		
	4	Interior	Residential	30,153.54	22,615,155.00	24,122,832.00			
			Agricultural	45,290.50	510,727.49	679,357.50			
<i>Sub-total for Canabuan, Santa Fe</i>					<i>112,216.53</i>	<i>28,773,540.77</i>	<i>31,128,881.10</i>		
Total for Santa Fe		21			112,216.53	28,773,540.77	31,128,881.10		
Aritao	Canabuan	2	Barangay Road	Residential	20,512.68	13,333,242.00	14,358,876.00		
		5	Interior	Residential	39,631.27	15,852,508.00	19,815,635.00		
		7		Agricultural	130,939.17	10,709,378.05	13,227,571.85		
	<i>Sub-total for Canabuan, Aritao</i>					<i>191,083.12</i>	<i>39,895,128.05</i>	<i>47,402,082.85</i>	
	Canarem	2	Barangay Road	Residential	2,560.07	1,664,045.50	1,792,049.00		
				3	Interior	Residential	1,115.32	446,128.00	557,660.00
12		Agricultural	47,126.88	1,379,480.34		1,617,033.15			
<i>Sub-total for Canarem</i>					<i>50,802.27</i>	<i>3,489,653.84</i>	<i>3,966,742.15</i>		
Total for Aritao		31			241,885.39	43,384,781.89	51,368,825.00		
TOTAL		107			1,242,191.58	103,793,602.79	129,970,108.40		

Source: EarthUs, 2022.

Sub-terranean ROW acquisition for the proposed north and south tunnels will involve negotiation of perpetual easement over interior agricultural lands where the tunnels will traverse at depths of 50 meters and below. As provided for in Section 11a of the IRR of RA 10752, the easement price shall be 20% of the current market price of the land.

Table 5.2.5 summarizes the preliminary estimates of the cost of the compensation for sub-surface lands. The total compensation at 20% of current market price amounts to **Php 301,916.95**. Of this mount, the compensation for sub-surface lands in Carranglan is Php245,756.48; that for Santa Fe, Canabuan is Php56,170.47. To reiterate, these estimates do not include the lands that will be traversed by the tunnels at depths > 50 meters, as these lands are not subject for compensation.

Table 5.2.5 Preliminary Estimates of Compensation for Land (Sub-terranean)

Municipality	Barangay	No. of Affected Owners*	Road Frontage	Actual Land Use	Affected Area, sqm	Compensation Based on BIR Zonal Value (PhP)	Compensation Based on Current Market Value (PhP)	Compensation Based on 20% of Current Market Price
Carranglan	Bunga	1	Interior	Agricultural	8,315.39	92,300.83	332,615.60	66,523.12
	Burgos	2	Interior	Agricultural	14,464.62	500,909.79	578,584.80	115,716.96
	Salazar	2	Interior	Agricultural	10,584.40	117,486.84	317,532.00	63,506.40
Total for Carranglan	5	33,364.41			710,697.46	1,228,732.40	245,746.48	
Sana Fe	Canabuan	4	Interior	Agricultural	18,723.49	224,681.88	280,852.35	56,170.47
Total for Santa Fe		4			18,723.49	224,681.88	280,852.35	56,170.47
TOTAL		9			52,087.90	935,379.34	1,509,584.75	301,916.95
<i>Legend: *Does not include the tenants and caretakers but includes holders of PACBRMA.</i>								

Source: EarthUs, 2022.

5.3 COMPENSATION FOR STRUCTURES

5.3.1 Principle of Replacement Cost

As stated in Section 6.1b of the IRR of RA 10752, the Replacement Cost of a structure or improvement affected by the ROW shall be based on the current market prices of materials, equipment, labor, contractors profit and overhead, and all other attendant costs associated with the acquisition and installation of a similar asset in place of the affected asset.

If the affected structure has been damaged, then the Replacement Cost should be based on the pre-damaged condition of that structure. The Replacement Cost of the structure may vary from the market value of the existing structure since the structure that would replace it may have a different cost at current market prices. The replacement structure must perform the same functions and meet the performance specifications as the original structure.

The Replacement Cost shall be composed of the Estimated Direct Cost and the Estimated Indirect Cost of the replacement structure. These components shall be calculated in accordance with the succeeding items.

5.3.2 Estimated Direct Cost

The Estimated Direct Cost (EDC) consists of the following:

- (1) Current market cost of materials to be used in doing the work item called for, which shall include the following:
 - Cost at source including processing, crushing, stockpiling, loading, royalties, local taxes, construction and /or maintenance of haul roads, etc.

- Expenses for transport/hauling to project site
- Handling and storage expenses
- Allowance for waste and/or losses, at five percent (5%) of materials requirement.

(2) Current market cost of labor to be used for:

- Salaries and wages, within the limits authorized by the Department of Labor and Employment; and
- Fringe benefits, such as vacation and sick leaves, benefits under the Workmen's Compensation Act, Social Security System (SSS) contributions, allowance, 13th month pay, bonuses, etc.

(3) Equipment Expenses

- Rental of equipment - usually based on the current Associated Construction Equipment rental rates are preferred to the bare rental rates as the former includes operator's wages, fringe benefits, fuel, oil, lubricants, and equipment maintenance
- Mobilization and demobilization - at one percent (1%) of the EDC of the civil work items

5.3.3 Estimated Indirect Cost

The Estimated Indirect Cost (EIC) shall consist of the following items based on accepted construction industry practices:

(1) Overhead Expenses not exceeding eight percent (8%)²⁴ of the EDC, which include the following:

- Engineering and Administrative Supervision, including expenses for the office equipment's and supplies, power and water consumption, communication, and maintenance
- Transportation allowance
- Premium on Contractor's ALL RISK insurance, where necessary, and
- Financing cost, e.g., premium on bonds

²⁴ There is inconsistency between the applicable percentage for overhead expenses stated in the IRR of RA 10752 which is at 8% (as shown above) and that stated in the DPWH Right-of-way Acquisition Manual (DRAM) which is at 11%.

- (2) Contingencies and Miscellaneous not exceeding four percent (4.0%) of the EDC. These include expenses for unforeseen events and other activities.
- (3) Contractor's Profit Margin not exceeding eight percent (8%) of the EDC for projects with an EDC of more than PhP5 million and ten percent (10%) for projects with an EDC of PhP5 million and below.
- (4) Value Added Tax (VAT) Component in accordance with law, five percent (5%) in the case of a property owned by a government agency, or twelve percent (12%) in the case of a property owned by a private party, of the sum of the EDC, Overhead, Contingencies, Miscellaneous, and Profit.

5.3.4 Preliminary Estimate of Compensation for Structures

On the foregoing considerations, the compensation based on replacement cost for the affected structures was estimated as summarized in **Table 5.3.1**. This covers **102 structures** that are now erected within the proposed project ROW alignment. These structures belong to **58 PAPs**. All the structures, except for one kitchen, will be severely affected, and will likely be demolished totally. Fifty-four (54) houses, one warehouse, and two (2) churches are among the major structures affected. The rest are minor improvements.

The preliminary estimate of compensation equivalent to the replacement cost for these improvements is **Php10,652,623.07**.

The Master List of Compensation for Structures is found in **Appendix G**.

Table 5.3.1 Cost of Compensation for Affected Structures

Municipality	Barangay	Kind of Structure	Impact Severity	No. of Structures/ Improvements	No. of PAPs	Replacement Cost
Carranglan	Bunga	Residential	Severe	8	8	Php1,298,100.72
		Bodega	Severe	1		189,212.80
		Other Improvements	Severe	14		502,570.88
		Total, Bunga				23
Carranglan	Burgos	Residential	Severe	14	18	2,862,535.31
		Residential	Marginal	1		16,008.16
		Institutional (Chapel)	Severe	1		33,427.52
		Other Improvements	Severe	17		170,311.68
		Total, Burgos				33
Carranglan	Salazar	Residential	Severe	2	2	510,493.76
		Other Improvements	Severe	1		20,563.76
		Total, Salazar				3

Santa Fe	Canabuan	Residential	Severe	21	21	3,209,260.88
		Other Improvements	Severe	10		94,177.44
Total, Canabuan, Santa Fe				31		3,303,438.32
Aritao	Canabuan	Residential	Severe	6	6	421,593.20
		Other Improvements	Severe	1		9,172.80
Total, Canabuan, Aritao				7		430,766.00
Aritao	Canarem	Residential	Severe	3	3	831,014.24
		Institutional (Chapel)	Severe	1		466,472.72
		Other Improvements	Severe	1		17,707.20
Total, Canarem				5		1,315,194.16
TOTAL, ALL				102	58	Php10,652,623.07

Source: EarthUs, 2022

5.4 COMPENSATION FOR AFFECTED TREES, PERENNIALS AND CROPS

5.4.1 Compensation at Current Market Value

As provided in RA 10752, for negotiated sale, the current market value of crops and trees affected by the proposed ROW may be estimated using latest applicable established market values from the following government entities:

- Department of Agriculture (DA) for crops
- Philippine Coconut Authority (PCA) for coconut trees
- Department of Environment and Natural Resources (DENR) for perennials and timber trees
- Department of Finance (DOF)
- Local Government Unit (LGU) Assessor's Offices, for individual trees

5.4.2 Income Approach in Valuation of Timber

For timber, the market value was estimated by using the Income Approach. This is done by subtracting from the estimated value of the timber products that can be recovered from it the cost necessary to realize those values. The value is thus in the nature of a residual value – the unearned increment or surplus of value over the necessary cost of exploiting the natural resource which in this case are timber trees.

A sample computation in **Table 5.4.1** is as follows:

Table 5.4.1 Sample computation for timber

Market Price of Lumber Product	
1 Mahogany Tree - Approx. 457.68 bd.ft. of lumber/tree @ Php50.33 per bd.ft. (based on the Philippine Forestry Statistics of 2020)	- Php23,035
Less:	- 11,518

- Production Cost (including logging cost, transportation cost, milling cost, overhead cost and forestry costs) at 50% of Market Price		
- Profit Margin @ 20% of Market Price	-	4,607
Market Value of one (1) mahogany tree	-	Php6,910.00
	Say,	Php6,900.00

Source: EarthUs, 2022.

5.4.3 Schedule of Fair Market Value (FMV) of Fruit Trees and Perennials

For fruit trees and perennials, the market value was estimated using the schedule of fair market value per unit improvement of fruit trees established by the Municipal or the Provincial Assessor's Office (**Table 5.4.2**).

Table 5.4.2 Schedule of Fair Market Value, Fruit Trees/Perennials

Tree	Fruit Trees and Perennials		
	1st Class	2nd Class	3rd Class
Achuete	900	450	225
Anonas	900	450	225
Atis	1,125	563	281
Avocado	2,250	1,125	563
Balimbing	900	450	225
Banana	1,125	563	281
Bettle Nut	1,350	675	338
Bugnay	1,125	563	281
Cacao	1,350	675	338
Calamansi	2,250	1,125	563
Camias	900	450	225
Caramay	1,125	563	281
Cashew	3,150	1,575	788
Carabao Mango	6,750	3,375	1,688
Chesa	450	225	113
Chico	1,800	900	450
Citrus	2,475	1,238	619
Coconut	2,700	1,350	675
Coffee	2,250	1,125	563
Duhat	1,350	675	338
Durian	3,375	1,688	844
Guapple	2,250	1,125	563
Guava	1,260	630	315
Guyabano	1,350	675	338
Indian Mango	1,350	675	338
Jack Fuit	3,375	1,688	844
Lansones	3,600	1,800	900
Lychee	3,600	1,800	900
Orange	3,600	1,800	900
Papaya	1,350	675	338
Pomelo	3,600	1,800	900
Rambutan	3,600	1,800	900
Santol	2,250	1,125	563
Sineguelas	1,350	675	338

Starapple	1,800	900	450
Tamarind	1,800	900	450

Source: Provincial Assessor's Office, N. Vizcaya.

5.4.4 Preliminary Cost of Compensation for Trees and Perennials

Among the PAPs, there are: (i) 78 private agricultural landowners; (ii) 55 tenants/lessees of agricultural lands; (iii) one caretaker; (iv) eight free patent holders; and (v) 22 holders of PACBRMA stewardship contracts. They are all entitled to direct compensation for trees and crops on their lands at current market value, regardless of tenurial status.

Based on remotely sensed data, there are 870 standing count of economically/ecologically important timber species and 10,347 standing count of fruit trees and perennials (such as banana). This translates to a total of 11,218 trees throughout the project area.

The current market value of the affected timber species and fruit trees/perennials are shown in **Table 5.4.3**. The estimated total market value of all affected trees and perennials is **Php25,597,559.00**.

Table 5.4.3 Current Market Value, Fruit Trees/Perennials

Municipality	Barangay	Trees	Quantity (No. of Trees)	Compensation Cost (Based on Market Value), Php
Aritao	Canarem	Timber species	43	131,100.00
		Fruit trees and Perennials	455	696,847.00
	Canabuan	Timber species	114	331,200.00
		Fruit trees and Perennials	1,778	2,724,807.00
Santa Fe	Canabuan	Timber species	172	508,600.00
		Fruit trees and Perennials	1,134	1,739,406.00
Sub-Total for Nueva Vizcaya		Timber species	329	970,900.00
		Fruit trees and Perennials	3,367	5,161,060.00
Carranglan	Salazar	Timber species	477	1,923,900.00
		Fruit trees and Perennials	2,550	7,688,250.00
	Burgos	Timber species	36	145,200.00
		Fruit trees and Perennials	2,239	6,750,225.00
	Bunga	Timber species	28	60,200.00
		Fruit trees and Perennials	2,192	2,897,824.00
Sub-Total for Nueva Ecija		Timber species	541	2,129,300.00
		Fruit trees and Perennials	6,981	17,336,299.00
Total Compensation for Trees		Timber species	870	3,100,200.00
		Fruit trees and Perennials	10,348	22,497,359.00
		All	11,218	25,597,559.00

Source: EarthUs, 2022.

5.4.5 Preliminary Cost of Compensation for Crops

For rice landowners, the compensation for crops is already incorporated in the compensation for rice land.

In case of tenants/caretakers, they will be paid disturbance compensation based the average yield over the past five years. During the KII with some rice farming PAPs, it was gathered that the average yield of one (1) hectare (10,000m²) of rice land over the last five (5) years ranges between 107 and 167 cavans²⁵. The current price of palay ranges between Php14.00/kg and Php18.00/kg. This translates to an average potential loss of yearly gross income of between Php95,666.67 and Php116,166.67 per hectare.

²⁵ One cavan = 50 kilograms

5.5 PRELIMINARY COST OF OTHER ENTITLEMENTS

Pursuant to LARRIPP, the PAPs who are non-owners of agricultural land are also entitled to other compensation in the form of cash and in the following manner (**Table 5.5.1**): (i) disturbance compensation at Php15,000/HH for 18 holders of free/homestead patent under CA 141; (ii) disturbance compensation or financial assistance at Php15,000/HH for 38 agricultural tenants/lessees; (iii) financial assistance of Php15,000/HH for 22 holders of PACBRMA; (iv) inconvenience allowance of Php10,000/HH for owners of residential structures that will be demolished; (v) cost of exhumation and re-burial/relocation of exhumed remains at Php50,000/exhumed remains; (vi) funds for conduct of ritual during ground-breaking and after project completion; and (vii) compensation for livelihood skills training a Php15,000/HH for 163 PAPs who will lose their incomes and sources of livelihood.

Table 5.5.1 Other Entitlements

PAPs	Entitlement
Holders of Free or Homesteads Patents under Public Land Act (CA 141)	<ul style="list-style-type: none"> • Compensation for Land improvements only • Cash compensation for damaged crops at the market value. • Disturbance Compensation equivalent to five times the average of the gross harvest in the past 5 years but not less than PhP15,000
Lessees/Tenants of Agricultural Land	<ul style="list-style-type: none"> • Disturbance Compensation equivalent to 5 times the average gross harvest during the last 5 years but not less than PhP15,000
Agricultural Settlers/Rent-free Occupants/PACBRMA Holders	<ul style="list-style-type: none"> • Disturbance Compensation equivalent to the average gross harvest in the last 3 years but not less than PhP15,000 per hectare
Severely Affected Residential Structure Owners	<ul style="list-style-type: none"> • Inconvenience allowance of PhP 10,000 per family
Graves	<ul style="list-style-type: none"> • Cost of exhumation and relocation/re-burial @ PhP 50,000/exhumed remains
ICCs	<ul style="list-style-type: none"> • Funds for conduct of rituals during ground-breaking and project completion @ PhP15,000 per ritual
Severely affected PAPs who will lose their only source of livelihood and may need to shift to new economic undertakings; Vulnerable groups	<ul style="list-style-type: none"> • Livelihood and skills training @PhP15,000/PAP in coordination with other government agencies

Source: EarthUs, 2022.

Table 5.5.2 shows the preliminary estimate of other entitlements due to PAPs. The minimum entitlement is Php15,000/PAP for disturbance compensation, financial assistance and livelihood training, and Php10,000 for inconvenience allowance. Other types of entitlements are those defined in the MOA with ICCs, such as funds for relocation of graves and performance of tribal rituals. The total estimate of other entitlements is **PhP 4,535,000.00**.

Table 5.5.2 Compensation for Other Entitlements

Category of PAPs	No. of PAPs	Type of Entitlement	Cost of Entitlement, Php	TOTAL, Php
Holders of free or homestead patents	8	Disturbance compensation	15,000.00	120,000.00
Agricultural Tenants/Lessees	56	Assistance	15,000.00	840,000.00
Holders of PACBRMA	22	Financial Assistance	15,000.00	330,000.00
Owners of Residential Structures	54	Inconvenience Allowance	10,000.00	540,000.00
IPs, owners of other improvements (Graves) in A.D.s	4	Exhumation and relocation of graves	50,000.00	200,000.00
ICCs	2 IP groups	Funds for Ritual during Groundbreaking and Completion of Project	15,000.00	60,000.00
All PAPs	163	Livelihood Skills Training	15,000.00	2,445,000.00
			TOTAL	4,535,000.00

Source: EarthUs, 2022.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 RECOMMENDED PRELIMINARY COMPENSATION AND ENTITLEMENT PACKAGE

The preliminary estimate of total cost of compensation and other entitlement to mitigate the impacts on PAPs is shown in **Table 6.1.1**. This will include:

- (1) Compensation to 107 landowners for land at the total cost of **Php130,272,025.35**, broken down as follows: (i) surface land at current market value amounting to **Php129,970,108.40** and (ii) subterranean land at **Php301,916.95**
- (2) Compensation to 58 structure owners at replacement cost amounting **Php10,652,623.07**
- (3) Compensation to undetermined number of owners of trees and perennials at current market value amounting to **Php25,597,559.00**
- (4) Compensation for other entitlements to 163 PAPs in the form of disturbance compensation, financial assistance, inconvenience allowance and livelihood skills training amounting to **Php4,535,000.00**.

Overall, the preliminary cost estimates for compensation and entitlement amounts to **PHILIPPINES PESOS ONE HUNDRED SEVENTY-ONE MILLION FIFTY-SEVEN THOUSAND TWO HUNDRED SEVEN AND 42/100 (Php171,057,207.42)**.

Table 6.1.1 Total Compensation and Entitlement

Category of PAPs	No. of PAPs	Affected Assets	Type of Entitlement	Cost of Entitlement, Php
Land Owners	107	1,242,191.58 sqm of surface land	Compensation at current market value	129,970,108.40
		52087.90 sqm of subterranean land	Compensation at 20% of current market value	301,916.95
		Sub-Total		130,272,025.35
Owners of Structures	58	102 structures	Compensation at replacement cost	10,652,623.07
Owner of Trees and Perennials	**	11,218 trees/perennials	Compensation at current market value	25,597,559.00
Other Entitlements	163 (Particularly Vulnerable Groups)	Income and Livelihood Sources	Disturbance compensation, Financial Assistance, Inconvenience Allowance, Livelihood Skills Training	4,535,000.00
TOTAL				171,057,207.42
<i>Legend:</i> * - For preliminary market valuation, lands are assumed to be residential or agricultural according to the actual land use at the time of survey ** - As yet undetermined but potentially the 22 holders of PACBRMA and other owners of trees				

Note: Taxes for land compensation is included.

Source: EarthUs, 2022.

6.2 RECOMMENDED TOTAL PRELIMINARY COST OF RAP IMPLEMENTATION

The total preliminary cost for RAP implementation is **PHILIPPINE PESO TWO HUNDRED FIFTEEN MILLION SIX HUNDRED SIXTY TWO THOUSAND NINE HUNDRED TWENTY EIGHT AND 16/100 (Php215,662,928.16)**. As shown in **Table 6.2.1**, this includes the entire budget for: (i) compensation and other entitlements; (ii) external monitoring and evaluation; (iii) monitoring and grievance procedures involving the two ICCs; and (iv) miscellaneous costs.

Table 6.2.1 Total Preliminary Cost of RAP Implementation

Particulars	Entity	Quantity	Unit Cost, Php	TOTAL, Php
Preliminary Cost of Compensation and Other Entitlements	163 PAPs	(Per category of PAPs)	-	171,057,207.42
Cost of External Monitoring and Evaluation	EMA	L. S.	5,000,000.00	5,000,000.00
Cost of MET/JGMT Monitoring and Grievance Resolution	IP Representatives (2 ICCs)	L. S.	10,000,000.00	20,000,000.00
Sub-total				196,057,207.42
Miscellaneous Costs	As necessary	L. S.	10% of Sub-total	19,605,720.74
TOTAL				215,662,928.16

Source: *EarthUs, 2022.*

6.3 RECOMMENDED MENU OF LIVELIHOOD OPTIONS

As a policy, the Project will provide related employment opportunities for both the skilled and unskilled PAPs. Aside from this, a Livelihood and Income Restoration Program (LIRP) is a mitigation measure to rehabilitate and restore the livelihood and income base of PAPs to at least pre-project level. It is particularly aimed at preventing further impoverishment of those PAPs belonging to the vulnerable groups. This preliminary Menu of Livelihood Options were identified by barangay, according to the employment, employable skills, livelihood/business preferences and trainings needs of PAPs. These are matched with the local conditions, the indigenous resources available, the current opportunities and the development trends in the locality or in the region.

The six barangays are traditionally agricultural economies. However, the old generation of farmers will soon be leaving their lands to a generation that only witnessed stark poverty where food is supposed to grow in abundance. It is not surprising then that among the young employed and employable HH members, farming is ranked low among the livelihood/business preferences, even if it is among the predominant skills listed. It is important to focus livelihood training

and development more on the young HH members, who will be the next generation of economic builders in the PAPs' communities. Being young and having more diverse interests, they are trainable, have better chances of upgrading their skills, and will risk taking on new livelihood and income-earning opportunities that were not available to the outgoing generation.

To review the employable skill sets of PAPs in Section 3.4, among the male HH members, vehicle driving (37.21%), farming (25.58%), welding (13.95%), and carpentry (9.3%) are the predominant skills. Among the females, the top skill sets include cooking/baking (59.38%), farming (15.63%), and driving (9.38%).

In terms of alternative livelihood or business preferences by the economically active members of the PAP population, it has been shown that amongst the males, grocery store retailing/selling (33.01%); animal husbandry/livestock/piggery/poultry (26.21%); auto-motive/vulcanizing/ welding shop/junkshop (23.3%); and bakery/ cooking/restaurant (10.68%) top the list of business preferences. Amongst the females, grocery store retailing/selling (65.81%); bakery/cooking/coffee shop/ restaurant (19.66%); and animal husbandry/livestock/piggery/poultry (11.11%) top the menu of livelihood options.

In terms of training needs, courses in welding (30%), automotive-mechanic (17.5%), driving (12.5%), construction (10%) and swine raising (10%) are most preferred by males. For the females, culinary arts lessons (40.63%), cosmetology (18.75%), swine raising (12.5%) and tailoring (12.5%) are most in demand.

Livelihood opportunities must be provided to severely affected PAPs that can be tailored to these skill sets, livelihood preferences and training needs, against the changing economic landscapes.

Economically, both Nueva Ecija and Nueva Vizcaya are forward-looking due to better transport linkages, increased connectivity, urbanization, industrialization, and eco-zone development both to the north (Cagayan Economic Zone) and to the south (New Clark Green City) of these regions. These future growth drivers support the government and private sectors' thrusts in eco-tourism and agro-ecotourism; agri-based food production and processing; forest-based industries (wood/rattan furniture and furnishings); refrigerated trucking services; livestock and dairy production; cut-flowers production; cafes and restaurants; and hospitality service; and construction, to name some. As these trends will continue to drive even rural economies, it may be time to veer away from traditional farming and farm-work-driven livelihoods and instead encourage local entrepreneurial activities, especially amongst the young generation.

To this end, the following potential business ventures are proposed by location.

(1) Barangay Bunga

The top priority businesses preferred in Bunga are grocery/retail store operation; culinary (food processing, restaurant, coffee shop, bakery, or canteen operation); and livestock raising (piggery, poultry, swine).

Barangay Bunga's topography is relatively flat with few undulating areas typical of rural community setting, such that household distribution is grid-type with small distances between houses. Retail stores/groceries/hardware, bakeries, eateries, automotive shops, and backyard food processing thrive in this area and has a huge potential for upscaling once the roads and transport hubs are improved.

Rice production can be improved with irrigation facilities and mechanization. Agricultural production aside from rice farming should be promoted, such as high-value vegetable and orchard (mango, papaya, dragon fruit, cashew) along with forest (timber and bamboo) plantations to support furniture and garments manufacturing industry, agri-tourism, and agri-ecotourism.

Bunga is conducive to large-scale backyard livestock production focusing on small ruminants (goats and sheep), which should also include dairy production. Indeed, integrated natural farming systems with a mix of livestock, freshwater fishponds, agro-forestry and high value crops are worth looking into.

Potential livelihood enterprises supporting these industries can include the following, which are already operational/being practiced in other areas of the municipality, according to interview with LGU officials and NGOs.

- Improvement of agricultural productivity
- Improvement of livestock productivity
- Fresh water fisheries
- Product manufacturing and processing
- Eco-tourism by protecting natural resources
- Hospitality service

(2) Barangay Burgos

Burgos is one of the most improved barangays in Carranglan and has similar characteristics as its neighbor, Bunga. The business preferences of PAPs are much the same, including retail, culinary, livestock and agri- or agro-forestry production. The only edge that Burgos probably has over Bunga is its already vibrant tourism and hospitality industry. Burgos boasts of picnic groves, private swimming resorts, river parks, and the like.

The potential livelihood enterprises listed above in Bunga can also provide new economic opportunities in Burgos.

(3) Barangays Salazar

Salazar is one of the remote and hard-to-reach barangays in Carranglan, but that will soon change after DPEAR construction. Rice production is sufficient in the area, given the rich water resources. The Wahig River meanders around the foothills over still well-preserved forest cover. And there is a thriving indigenous cultural community.

Livestock production, retail/grocery stores, welding/automotive shops, and café/restaurants are the preferred businesses.

Since this area is far from the town proper, the following business activities may be considered, which are already operational/being practiced in other areas of the municipality, according to interview with LGU officials and NGOs.

- Improvement of agricultural productivity - mechanization
- Improvement of livestock productivity: medium-scale poultry and piggery
- Free-range chicken production
- Mechanized rice reaper and thresher services
- Plantation: Flowers, coffee, cacao and high value vegetables
- Fresh water fisheries
- Agro-ecotourism by protecting natural resources and Hospitality service: waterfalls, river picnic groves, rubber tubing; agro-eco-cultural tourism with flower gardens, coffee shops, and IP-hosted Kalanguya cultural festivals and showcase of indigenous handicrafts; mountain biking; trail hiking
- Product manufacturing and processing – fruit/turmeric candies, cassava flour
- Operation of business – water station, gasoline station

(4) Barangays Canabuan, Santa Fe; Canabuan and Canarem, Aritao

Given the vast forests, mountainous terrain, riverine and riparian ecosystems, and the unique indigenous cultural heritage of the Kalanguya-Ikalahan communities, these three barangays share common resources, natural endowments, and aspirations as a people that should be fully harnessed for sustainable economic livelihood.

While most PAPs prefer businesses such as grocery store/retail shops, livestock production, auto-mechanics, construction/masonry/carpentry and culinary (restaurant, bakery, coffee shops), these barangays together show the highest potential for agri-eco-cultural tourism development.

Just like Salazar, the list of workable business/social enterprise ventures listed above have the potential to support agri-eco-ethno tourism in Santa Fe and Aritao.

From the menu of livelihood options presented above, the preferences and priorities by PAPs were further validated through barangay FGDs conducted amongst the women. The minutes of these FGDs are found **Appendix B**.

Nevertheless, a thorough validation of these livelihood options and PAP preferences should be done once the final list of PAPs is identified during the D/D stage.

The PAPs will need intensive trainings to improve their capacity to undertake and meet the challenges of these new economic undertakings. The financial assistance from the DPWH to support training and establishment of these livelihoods will not be sufficient. The LGUs with the help of the DPWH and NCIP should seek the help of government (DTI, TESDA, NCIP, DENR, DSWD and DA, to name a few) and corporate entities (Ayala, Aboitiz, BPI, and other

private foundations) to help start-ups. Moreover, tax incentives could be given to lure private investments to establish and operate big businesses in these areas once good roads are already in place.

A list of other potential partners/enablers is provided below:

1) Municipal Enterprise Development and Investment Promotion Office (MEDIPO)

Previously called the Local Investment and Economic Promotion Office (LEIPO), now the Municipal Enterprise Development and Investment Promotion Office (MEDIPO) oversees the planning, implementation, and promotion of livelihood projects, including the provision of cash assistance/additional capital to existing businesses.

2) Department of Trade and Industry (DTI) Negosyo Centers

This program institutionalized innovation assistance to LGUs by fostering innovations among small and medium enterprises (SMEs) through capacity building by counsellors, who manage the Negosyo Centers. The project complements the existing DTI programs, namely: Shared Service Facilities (SSF), SME Roving Academy (SMERA), National Industry Cluster Capacity Enhancement Project (NICCEP), and Promotion of Green Economic Development (ProGED).

3) Pondo sa Pagbabago at Pag-Asenso (P3)

This facility was set up by DTI to help SMEs by providing loans with very minimal interest of 2.5% per month as a reprieve from “loan sharks” who prey on small businesses. This program is under the helm of the Small Business Corporation (SBC), which accredits micro-finance institutions (MFIs) so they, too, can extend the program in the countryside.

4) DOLE Integrated Livelihood and Emergency Employment Program (DILEEP)

Under this program, the Department of Labor and employment launched the DOLE Kabuhayan Starter Kits to enable those in the informal economy to engage in sustainable self-employment and easy-to-learn livelihood undertakings. The target beneficiaries are the OSYs, women, IPs, urban poor, physically disabled, elderlies, landless farmers/fisherfolks, displaced workers, and returning overseas Filipino workers (OFWs). Capacity building includes:

- Short training on production skills, entrepreneurship, and business management
- Self-instructional learning reference materials
- Provision of livelihood tools, equipment, material, and inputs
- Provision of continuing business advisory and consultancy service at the Community Micro-Business Incubation Center (CMBIC)

5) Sustainable Livelihood Program (SLP)

The SLP of the Department of Social Welfare and Development (DSWD) is linked to the country's conditional cash transfer scheme, known locally as the Pantawid Pamilyang Pilipino Program, or 4Ps. The SLP focuses on creating employment among poor households. Families are assisted until they graduate from the program, become established and empowered to lead self-reliant and productive lives.

The program provides two tracks of support:

- Employment Facilitation (EF): Connects participants to employment opportunities and appropriate training through public-private partnerships. Skills training are provided by the Technical Education and Skills Development Authority (TESDA)
- Micro-enterprise Development (MD): Gives funding support for setting up sustainable businesses

6) Self-Employment Assistance-Kaunlaran (SEA-K) Program

The SEA-K Program of the DSWD is a capability building program to enhance the socio-economic skills of poor families through the organization of community-based associations for entrepreneurial development. It involves:

- training on values formation, volunteerism, leadership, stewardship aiming to bring confidence and self-reliance among members
- non-collateral and non-interest capital assistance to jumpstart their micro enterprises.
- savings mobilization to strengthen their financial management capabilities and capital formation
- technical assistance to develop organizational and entrepreneurial skills

7) MFIs and MPCs

Micro-finance institutions (MFIs) and multi-purpose cooperatives (MPCs) are a response to the challenge faced by small businesses in accessing credit facilities from banks and formal lending institutions. MFIs provides soft loans to bona fide members who are willing to put in their personal monies as savings. As bona fide members operate their businesses, the MFIs become part of the management of their investments.

There are international and national NGOs that provide microfinance to support community-based social enterprises throughout the country. Best known among these are the Foundation for Sustainable Society, Inc. (FSSI), Alliance of Philippine Partners for Enterprise Development (APPEND), Microfinance Council of the Philippines, Inc. (MCPI), Kabalikat para sa Maunlad na Buhay. Inc. (KBMI), among others.

The list of locally active MFIs and MPCs in N. Ecija and N. Vizcaya includes the following:

- Tam-an Banaue Multipurpose Cooperative
- Greener's Multipurpose Cooperative
- Mangkati Multi-purpose Cooperative
- Saint Patrick Multipurpose Cooperative
- Aza Philippines Foundation, Inc.
- Baracbac Santa Fe Multipurpose Cooperative
- Bantinan Multipurpose Cooperative
- Agribusiness Rural Bank, Inc.
- Card MRI Rizal Bank, Inc.
- Santa Fe Lending Corporation
- Malico Rural Finance Multipurpose Cooperative
- Lifebank Microfinance Foundation, Inc.

6.4 RECOMMENDED INSTITUTIONAL ARRANGEMENTS FOR RAP IMPLEMENTATION

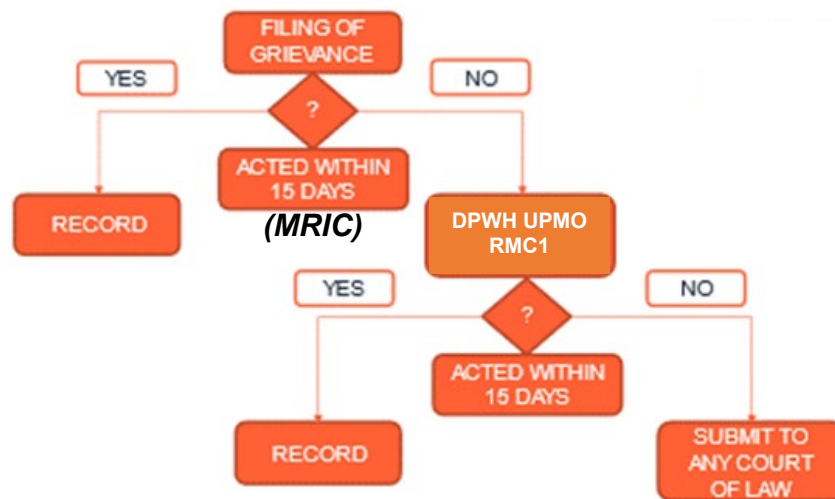
6.4.1 RAP Implementation Committee

The DPWH will initiate the organization of the Municipal RAP Implementation Committee (MRIC) in each LGU or group of LGUs, whichever is practicable, through a Memorandum of Agreement. The MRIC will be established during the D/D, prior to project execution.

The MRIC shall be an inter-agency body composed of representatives of these offices: DPWH-UPMO-RMC1, the DPWH Regional Office and District Engineering Office (DEO), the concerned LGUs, the NCIP provincial and/or regional office, affected barangays, and the representatives of PAPs. The latter will have separate representation for ICC/IP communities affected by the project. Selection of these ICC/IP representatives shall follow the procedures of the NCIP, as specified in the two (2) Memorandum of Agreement with the ICCs, as discussed in **Sec. 4.3.5**.

6.4.2 Grievance Redress Mechanism

The LARRIPP and the DRAM prescribe the mechanism for grievance redress by the non-IP PAPs in the following manner, as illustrated in **Figure 6.4.1**.



Source: DPWH-ESSD, 2022.

Figure 6.4.1 DPWH grievance redress procedure for Non-IPs

The PAPs may file their complaints to Municipality Resettlement Implementation Committee (MRIC) directly or through barangay captains. MRIC must act on the complaint within 15 days. If it fails to do so, the complainant may appeal the case to the DPWH UPMO RMC1, which should act on the complaint within 15 days. If it fails to solution, the complaint may be elevated the case to any court of law.

By virtue of the MOAs, a special mechanism for grievance redress involving the IPs through the Monitoring and Evaluation Team (MET), in case of the Kalanguya-Ikalahan ICCs, and the Joint Monitoring and Grievance Team (JGMT), in case of the Kalanguya ICCs. The composite MET has 18 members comprising of representatives from the NCIP, DPWH, LGU of Santa Fe, LGU of Aritao, concerned barangay councils, cluster Pos and CADT Holder Federation. The Secretariat will be appointed by the NCIP. On the other hand, the JGMT has four member-representatives from the DPWH, NCIP-Nueva Ecija Project Office, NCIP-Regional Office and the Kalanguya ICCs.

The major duties of MET and JGMT are summarized below.

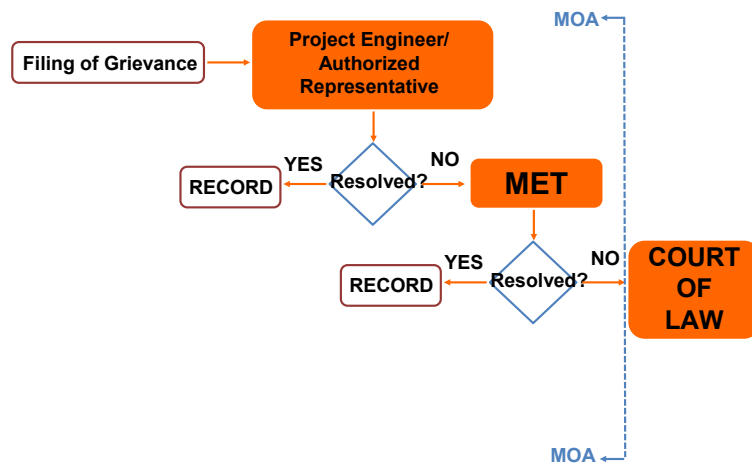
MET:

- Monitor and evaluate compliance with the provision of MOA
- Receive complaints and assist appropriate actions
- Inspect/validate reported issues and concerns
- Determine/evaluate/recommend payment for claims of affected properties
- Monitor and recommend proper action any treasure hunting activity
- Monitor replacement of cut trees
- Conduct a regular monthly monitoring and evaluation

JGMT:

- Monitoring body to ensure the compliance with MOA
- Grievance and conciliation body to undertake joint review of issues related to performance of obligations under MOA
- Conduct a monitoring of compliance with MOA semi-annually

The procedure of grievance redress for Kalanguya-Ikalahan ICCs/IPs is illustrated in **Figure 6.4.2** while **Figure 6.4.3** shows the procedure for Kalanguya ICCs/IPs. The DPWH shall defray the cost of these grievance redress activities.

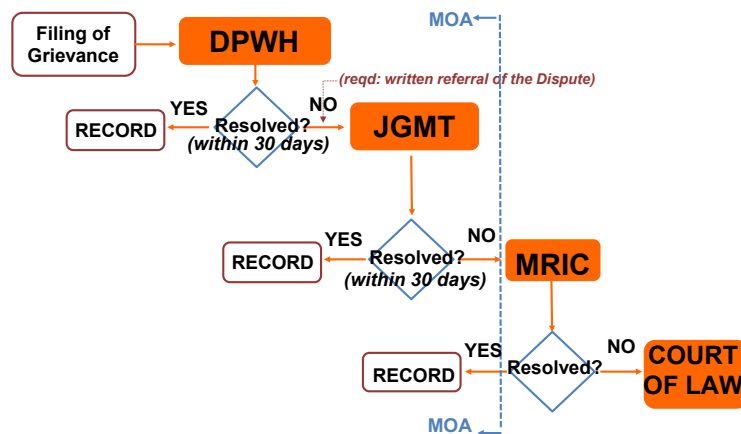


Notes:

- “Project Engineer/Authorized Representative” is used referring to MOA for Kalanguya-Ikalahan ICCs/IPs, and it implies DPWH.
- 30 days for each step will be applied referring to the grievance redress mechanism for Kalanguya ICCs/IPs.

Source: DPWH-ESSD, 2022.

Figure 6.4.2 DPWH grievance redress procedure for Kalanguya-Ikalahan ICCs/IPs



Source: DPWH-ESSD, 2022.

Figure 6.4.3 DPWH grievance redress procedure for Kalanguya ICCs/IPs

6.5 MONITORING AND EVALUATION

6.5.1 Principles

The objectives of monitoring are: (i) to verify the achievement of activities RAP implementation in quality, quantity, and time frame, to assess efficiency and effectiveness of RAP and (ii) to examine necessity of further actions for identified challenges. Monitoring will provide day-to-day feedback for RAP implementation in a short term and will provide lessons learnt for future activities in a long term.

Monitoring is a two-tier process consisting of: (i) internal monitoring, which is to be conducted by the project proponent; and (ii) external monitoring, which is to be conducted by the third party independently. By adhering to this two-tier process, transparency can be secured, and comprehensive examinations may be possible.

Table 6.5.1 shows the summary of monitoring and evaluation activities.

Table 6.5.1 Summary of Monitoring and Evaluation Activities

Stage	Monitoring	Monitoring Purpose	Major Monitoring Items	Monitoring Frequency
Land Acquisition and Relocation	Internal	<ul style="list-style-type: none"> To confirm progress and issues of land acquisition and relocation 	<ul style="list-style-type: none"> Progress of compensation payment Progress of land acquisition and relocation Grievance raised by PAPs and others 	<ul style="list-style-type: none"> Document review: Monthly Field check: Quarterly
	External	<ul style="list-style-type: none"> To examine procedure, progress, achievement, effectiveness of RAP 	<ul style="list-style-type: none"> Procedure of preparing RAP Progress of RAP (incl. compensation payment) Effectiveness of RAP Effectiveness of land acquisition and resettlement Effectiveness of grievance redress mechanism 	<ul style="list-style-type: none"> Field check: Monthly Checking Internal Monitoring reports: Quarterly
Livelihood Restoration Program (LRP)	Internal	<ul style="list-style-type: none"> To confirm progress of LRP 	<ul style="list-style-type: none"> Effectiveness of grievance mechanism and raised issues Status of implementing LRP Issues for implementing LRP (i.e., implementation schedule, budget or personnel, personnel capacity, facilitation among relevant parties) and proposed remedial measures 	<ul style="list-style-type: none"> Document review: Monthly Field check: Quarterly
	External	<ul style="list-style-type: none"> To examine procedure, achievement and effectiveness of LRP 	<ul style="list-style-type: none"> Restoration of livelihood of PAPs Effectiveness of LRP Effectiveness of grievance redress mechanism Necessity of further measures 	<ul style="list-style-type: none"> Field check: Monthly Checking Internal Report: Quarterly
Evaluation	External	<ul style="list-style-type: none"> To examine procedure and effectiveness of 	<ul style="list-style-type: none"> Effectiveness of RAP and LRP including restoration of socioeconomic conditions of 	1 year after completion of construction

Stage	Monitoring	Monitoring Purpose	Major Monitoring Items	Monitoring Frequency
		overall RAP and LRP	PAPs <ul style="list-style-type: none"> • Identified issues and challenges • Lessons learnt 	

Note: Monitoring frequency is also explained in Table 6.5.2.

Source: JICA Study Team, 2022

6.5.2 Internal Monitoring

Department Order No. 58 of the DPWH delegates the function of Internal Monitoring Agent (IMA) to the Environment and Social Safeguards Department (ESSD). This office is charged with the supervision and in-house monitoring of RAP preparation and implementation. The objectives of Internal Monitoring are: (i) to check whether land acquisition and resettlement is implemented as planned in the RAP, and (ii) to review unforeseeable issues during the RAP preparation.

Alternatively, the implementing office will also deploy its RAP Implementation Team (RMC1 Field) and (RMC1 Core) as IMA.

The principal items to be monitored by Internal Monitoring Agent are the following:

- Verify that the re-inventory baseline information of all PAFs has been carried out and that the valuation of assets lost or damaged, the provision of compensation and other entitlements and relocation, if any, has been carried out in accordance with the LARRIPP and the respective RAP Reports.
- Ensure that land acquisition, resettlement and livelihood restoration program are implemented as designed and planned.
- Verify that funds for implementing the RAP are provided by the UPMO-RMC1 in a timely manner and in amounts sufficient for the purpose.
- Timely and complete disbursement of compensation amount to each PAFs in accordance with agreed condition during negotiation.
- Record all grievances and their resolution and ensure that complaints are properly dealt with.

6.5.3 External Monitoring

The main objective of External Monitoring is to provide an independent periodic review and assessment of: (i) achievement of resettlement objectives; (ii) restoration of the economic and social base of PAFs; (iii) effectiveness and sustainability of entitlements; and (iv) the needs for further mitigation measures. External Monitoring is undertaken by an External Monitoring Agency (EMA)

commissioned by UPMO-RMC1. These objectives will be achieved through the following activities:

- Verify results of Internal Monitoring
- Verify and assess the results of the information campaign for PAFs rights and entitlements
- Verify that the compensation process has been carried out with procedures communicated with the PAFs during the consultations
- Assess whether resettlement objectives have been met; specifically, whether livelihood and living standards have been restored or enhanced
- Assess efficiency, effectiveness, impacts, and sustainability of resettlement implementation, drawing lessons as a guide to future resettlement and policy making and planning
- Ascertain whether the resettlement entitlement is appropriate to meet the objectives and whether the objectives were suited to PAFs conditions
- Suggest modification in the implementation procedures of the RAP, if necessary, to achieve the principles of the Resettlement Policy Framework
- Review on how compensation rates were evaluated, and
- Review on handling of complaints and grievance cases

6.5.4 Stages and Frequency of Monitoring

The stages and frequency of monitoring by the IMA and EMA are as follows:

1) Compliance Monitoring

This is the first activity that both IMA and EMA shall undertake to determine whether the RAP including livelihood restoration program was carried out as planned and according to JICA Guidelines and LARRIPP policy.

The EMA will submit an Inception Report and Compliance Monitoring Report one (1) month after receipt of Notice to Proceed with the engagement. The engagement of the EMA shall be scheduled to meet the Policy's requirement of conducting RAP implementation activities at least one (1) month prior to start of civil works.

2) Frequency of Internal and External Monitoring

Internal Monitoring will be implemented monthly from commencement of compensation payment until completion of livelihood restoration program. External Monitoring will be implemented quarterly from commencement of compensation payment up to completion of construction works.

3) Final Evaluation

Final evaluation of the implementation of the RAP will be conducted by IMA and EMA three (3) months after the completion of payments of compensation to PAFs.

4) Post Evaluation

This activity will be conducted by DPWH a year after the completion of the construction works to determine whether the social and economic conditions of the PAFs after the implementation of the project have improved.

The stages and frequency of monitoring by the IMA and EMA based on LAPRIIP are summarized in **Table 6.5.2**.

Table 6.5.2 Frequency of Monitoring Activities referring to LAPRIIP

Responsibility	Frequency of RAP Monitoring Activities	Frequency of Submission of Report to DPWH	Frequency of Submission of Report to JICA
RAP Implementation Team (RMC1 Field)	Monthly	Monthly	N/A
IMA (RMC1 Core)	Monthly (thru the monthly reports of the RAP Implementation Team) and Quarterly (ground)	Quarterly	Quarterly
EMA (Third Party Consultant)	Monthly monitors RMC1 Field and verify/validate Quarterly reports of RMC1 Core	Quarterly	Semi-annual

Source: DPWH-UPMO-RMC1, 2022.

6.5.5 Monitoring Indicators

Table 6.5.3 lists down the basic monitoring indicators for the IMA.

Table 6.5.3 Monitoring Indicators for IMA

Monitoring Indicators	Basis for Indicators
1. Budget and Timeframe	<ul style="list-style-type: none"> All land acquisition and resettlement staff have been appointed and mobilized for the field and office work on schedule. Capacity Building and Training activities have been completed on schedule. Resettlement implementation activities were achieved according to the agreed Implementation Plan. Funds for resettlement are allocated to resettlement agencies on time Resettlement Offices have received the scheduled funds Funds has been disbursed according to the RAP Social preparation phase took place as scheduled All lands have been acquired and occupied in time for project implementation
2. Delivery of Compensation	<ul style="list-style-type: none"> All PAFs has received entitlements according to numbers and categories of loss set out in the Entitlement Matrix

Monitoring Indicators	Basis for Indicators
and Entitlements	<ul style="list-style-type: none"> • PAFs have received payments for affected structures and lands on time • PAFs have been compensated from temporary land borrow • All agreed Transport Costs, Relocation Costs, Income Rehabilitation Support, and any Resettlement Allowance have been received according to schedule • All replacement land plots or contracts have been provided; Land was developed as specified; Measures are in to provide land titles to PAFs. • Number of PAFs who opted to donate their land to the government • Number of PAFs who did not receive payment because their land title is covered by the provisions of Section 112 of Commonwealth Act 141. • Number of landholdings that were subjected to Quit Claim or easement • Number of PAFs that rejected the first offer and accepted the second offer • Number of PAFs who resorted to expropriation • Number of PAFs who have received land titles • Number of PAFs who have received housing as per Relocation Options in the RAP • House quality meets the standards agreed • Resettlement Sites have been selected and developed as per agreed standards • Occupation of PAFs in the new houses • Assistance measures were implemented as planned for host communities • Restoration procedures were made for social infrastructure and services • PAFs were able to access schools, health services, cultural sites, and activities at the level of accessibility prior to resettlement • Income and Livelihood Restoration Activities were being implemented as set out in Income Restoration Plan. For example, utilizing replacement land, commencement of production, number of PAFs trained and provided with jobs, and number of income-generating activities assisted? • Affected businesses have received entitlements including transfer and payments for net losses resulting from lost businesses and stoppage of production
3. Public Participation and Consultation	<ul style="list-style-type: none"> • Consultations have taken place as scheduled including meetings, groups and community activities. Appropriate resettlement leaflets have been prepared and distributed. • Number of PAFs that know their entitlements and number of PAFs that were able to receive • Number of PAFs that were able to use Grievance Redress Procedures and their outcomes • Conflicts have been resolved • Social preparation phase has been implemented
4. Benefit Monitoring	<ul style="list-style-type: none"> • Changes in the patterns of occupation, production and resources use as compared to the pre-project situation have occurred • Changes in the income and expenditure patterns compared to pre-project situation have occurred. Changes in cost of living compared to pre-project situation have occurred. PAFs incomes were able to keep pace with these changes • Changes have taken place in key social and cultural parameters relating to living standards. • Changes have occurred for vulnerable groups

Source: DPWH

Table 6.5.4 enumerates the indicators for the EMA.

Table 6.5.4 Monitoring Indicators for EMA

Monitoring Indicators	Basis for Indicators
1. Basic Information on	<ul style="list-style-type: none"> • Location • Composition and structures, ages, education, and skills levels • Gender of household head

PAF Households	<ul style="list-style-type: none"> • Ethnic group • Access to health, education, utilities, and other social services • Housing types • Land use and other resource ownership patterns • Occupation and employment patterns • Income sources and levels • Agricultural production data (for rural households) • Participation in neighborhood or community groups • Access to cultural sites and events • Value of all assets forming entitlements and resettlement entitlements
2. Restoration of Living Standards	<ul style="list-style-type: none"> • House compensation payments were made free of depreciation, fees or transfer cost to the PAFs. • PAFs have adopted the housing options developed • Perceptions of community have been restored • PAFs have achieved replacement of key social/cultural elements
3. Restoration of Livelihoods	<ul style="list-style-type: none"> • Compensation payment were free of deduction for depreciation, fees, or transfer cost to the PAFs • Compensation payments were sufficient to replace lost assets • Sufficient replacement land available is of suitable standard • Transfer and relocation payment covered these costs • Income substitution allowed for re-establishment of enterprises and production • Enterprises affected have received sufficient assistance to re-establish themselves • Vulnerable groups have been provided with effective and sustainable income earning opportunities • Jobs provided able to restore pre –project income levels and living standards
4. Levels of PAFs Satisfaction	<ul style="list-style-type: none"> • Knowledge of PAFs in resettlement procedures and their entitlements • Knowledge if these have been met • Knowledge of PAFs in the extent of restoration of their own living standards and livelihood • Knowledge of PAFs about grievance procedures and conflict resolution procedures and satisfaction to those who have used in the said mechanisms
5. Effectiveness of Resettlement Planning	<ul style="list-style-type: none"> • PAFs and their assets were correctly enumerated • Land speculators were assisted • Time frame and budget were sufficient to meet objectives • Entitlements were too generous • Vulnerable groups were identified and assisted • Ways on how the resettlement implementers dealt with unforeseen problems
6. Other Impacts	<ul style="list-style-type: none"> • There were no unintended environmental impacts • There were no unintended impacts on employment or incomes

Source: DPWH

6.5.6 Reporting

a) Internal Monitoring Report

The DPWH-ESSD prepares the Internal Monitoring Report (IMR) at each monitoring period including: (i) progress of compensation payment and relocation and (ii) grievances raised and solutions given.

b) External Monitoring Report

The External Monitoring Report (EMR) to be prepared at each monitoring period summarizes the findings including: (i) progress of implementing the RAP including any deviations from the provisions of the plan, (ii) observation of livelihood restoration; (iii) identification of issues and grievances and recommended solutions; and (iv) report on progress of follow-up of issues and grievances identified in previous monitoring reports.

Referring to frequency of monitoring and report submission in LARRIPP and general practices of projects supported by JICA, DPWH will basically submit the monitoring reports covering the results of internal and external monitoring as well as monitoring for IPs (refer to **Section 6.5.7**) quarterly.

6.5.7 Special Monitoring for IPs

The MOAs with NCIP and ICCs both prescribe a special monitoring system that will govern the implementation of the project as well as the RAP in the ancestral domains. As explained earlier in **Section 6.4.2**, MET and JGMT will be functioned as the respective grievance-cum-monitoring bodies laid out in the MOAs.

6.6 IMPLEMENTATION SCHEDULE

This Preliminary RAP prepared at the Feasibility Study will be updated during the Detailed Design (D/D) stage in 2024. The Final RAP will be disclosed to the public by holding consultation meetings with PAPs after validation by DPWH during the D/D stage. Following disclosure, land acquisition will be implemented starting 2025.

The provisional implementation schedule of land acquisition and the RAP is shown in **Figure 6.6.1**.

Activities	2024				2025				2026				2027			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
1. Project Schedule																
(1) Procurement of EED Consultant																
(2) Detailed Engineering Design																
(3) RAP Update																
(4) Land Acquisition and Resettlement																
(5) Construction of Civil Works																
2. RAP Update																
(1) Orientation of RAP Team																
(2) LGJ Coordination Meetings																
(3) Barangay Consultation Meetings																
(4) Census																
(5) Socio-Economic Survey																
(6) Asset Inventory																
(7) RAP update																
(8) Approval of RAP by ESSD and JICA																
(9) Disclosure of RAP																
3. Parcellary Survey																
4. Land Acquisition and Relocation																
(1) Validation of RAP by TWG																
(2) Appraisal of assets by GFI or IPA																
(3) Issuing notification of land acquisition																
(4) Negotiation and Payment																
(5) Land Acquisition and Relocation																
5. Livelihood Restoration Program (LRP)																
(1) Preparation of LRP																
(2) Institutional arrangement of implementing LRP																
(3) Implementing LRP																
6. Monitoring																
(1) Internal Monitoring																
(2) External Monitoring																

Source: JICA Study Team, 2023

Figure 6.6.1 Provisional implementation schedule

6.7 NEXT STEPS

The proposed Next Steps shall be implemented during the D/D stage, when the final design of the ROW alignment shall have been determined. The next steps will basically entail updating this Preliminary RAP. The process will include as follows:

6.7.1 Parcellary Survey

Based on the final design of the ROW alignment, the DPWH will commission a private surveyor to conduct a parcellary survey. The purpose is to delineate the lands that will be affected by the project and identify the owners of these land parcels.

6.7.2 RAP Updating

(1) CT/SES

A new census will be needed based on the parcellary survey. This is the proper time to set the cut-off date for eligibility of PAPs, which is

usually the first day of the census. Tagging of affected structures will be done at this point to serve as proof of PAP eligibility. If there are new PAPs not identified during the Preliminary RAP study, a new round of SES should be undertaken to obtain their socio-economic profile and update the Master List of PAPs.

(2) New Assets Inventory

A final and detailed assets inventory may now be done based on the results of the parcellary survey. This will go hand-in-hand with the CT/SES. An updated inventory of losses (IOL) will be prepared, along with an updated Market Valuation and Replacement Cost Survey by a licensed independent private appraiser to determine final compensation for affected lands, structures, crops, trees/perennials and other improvements.

(3) Due Diligence

Due Diligence will involve verification of documentary evidence of ownership of affected properties subject to compensation prior to the start of construction works.

6.7.3 Public Consultations

All the RAP updating activities, progress and results shall be the subject of reiterative public consultations with the PAPs, the LGUs, other concerned agencies, particularly the NCIP and other stakeholders.

6.7.4 Institutional Arrangements

Following these stakeholder consultations, the DPWH will finalize the institutional arrangements for RAP implementation, including the organization of the Municipal RIC and mobilization of the Monitoring and Evaluation Team (MET)/Joint Monitoring and Grievance Team (JGMT) identified in the MOA with the representatives of the ICCs.