

d. Social Analysis

i. Project Beneficiaries

The target beneficiaries of the proposed farm-to-market road are the populace of Barangays Manggagawa, Himbubulo Este, Dancalan Central, Dancalan Caimawan, Arbismen, Capuluan Tulong, Capuluan Central, Cabong Norte, Cabong Sur, Sintones, Ligpit Bantayan and San Isidro comprised mainly of agricultural farmers. In 2014, the combined projected population in these barangays is estimated at 14,784 with a total of 2,877 households. Projected male population is 7,571 while the female population is projected at 7,207 in 2014.

All twelve barangays in the project influence area are classified as agricultural area wherein Coconut, Banana and Rice are three of its major crops. Majority of its residents derive income from agricultural and marine products produced in the area. An estimated volume of about 10,495.20 MT of coconut, 4,414.65 MT of banana, 2,054 MT of rice is produced from the project influence barangays while marine/aqua-marine production is about 202.9 MT of fish, 2 MT of Mud Crabs and 5.635 MT of blue crabs.

During the conduct of barangay consultation meeting, the community in attendance identified the Concreting of Manggagawa - Capuluan Central Farm-to-Market Road as their priority project. The public consultation in the seven barangays which will be directly traversed by the proposed sub project was well-attended by both barangay residents and officials who are fully supportive of the implementation of the proposed project. The barangay chairmen and some officials of the five other barangays who will also benefit with the proposed sub-project were also met by the LGU project implementers to inform and get their support for the proposed sub-project.

The beneficiaries unanimously confirmed that the proposed road network are their top priority infrastructure project and guarantee full support for the realization of the said project. The proposed road will serve as the main access of the barangays to connect with the municipal, provincial, national highway and to the Metro-Poblacion area, where the market, social and medical services are available.

ii. Indigenous Cultural Community/Indigenous Peoples (ICC/IP)

The proposed road project is located outside of and will not traverse an ancestral domain, neither will it affect any Indigenous People. There is no IPs that exist in the municipality of Guinayangan and there was no identified/registered IPs that will be affected within the proposed project site. (Please see copy of Certification from the NCIP).

iii. Site and Right-of-Way Acquisition

The proposed site is within an existing farm-to-market road network with a total length of 29.57 kilometers. Concreting a total physical target of 18.805 km of this existing FMR is proposed as PRDP sub-project. The existing road width of 10 meters within the road alignment is within the required width of the PRDProject.

For the smooth implementation of the project, respective barangay officials and the local communities assured the right of way for the sub-project. Fully acknowledging the importance and the benefits that will be derived from an access road project traversing their properties, the 93 landowners had voluntarily donated the portion of their property within the right of way as required by the Project. The Municipal Government had shouldered the expenses for notarization of the Deeds of Donation for the affected lands as part of the agreement between the donor and donee.

The area is generally agricultural per municipal land use classification and category. Below is a table showing the name of landowners with the corresponding area affected or traversed by the proposed sub-project.

Table 9. List of Project Affected Persons (PAPs) with the Corresponding Area Traversed by the Sub-Project

Name of Landowner (Occupants/Tenants)	Total Landholdings (sq.m.)	Total Area Acquired for RROW (sq.m.)	Remarks
Barangay Himbubulo Este			
Melquisedec Escobar	14,639.00	1,152.00	Donated
Cesar Isaac, Jr (Conrad)	93,212.00	1,180.00	Donated
Isaac Rosales	19,994.00	1,180.00	Donated
Sixto Collado	51,408.00	1,838.40	Donated
Zenaida Argosino (Adam Obar)	5,876.80	168.00	Donated
Ponciano Rodelas	30,000.00	776.20	Donated
Julieta P. Narte	32,843.00	2,145.30	Donated
Zenaida Argosino (Eleonor Narte)	77,482.00	1,995.40	Donated
Victoria Genato (Dennis)	44,187.00	4,303.00	Donated
Alfredo Genato (Dennis)	29,777.00	3,462.80	Donated
Adela Escobar (Leonardo Escobar)	4,238.00	20.00	Donated
Nayda F. Genato	19,547.00	1,983.00	Donated
Wilma Burog	15,041.00	2,246.40	Donated
Victoria Genato (Jocelyn)	19,947.00	1,457.20	Donated
Natalia Burog	15,041.00	2,226.60	Donated
Antonio Pujalte	26,964.00	795.80	Donated
Mariano Tayag (Nestor)	54,435.00	1,634.60	Donated
Benedict Lom Marquez	26,469.00	4,624.20	Donated
Leovigildo Gonzales	26,251.00	2,062.40	Donated
Pastor de Castro	26,250.00	3,746.20	Donated

Name of Landowner (Occupants/Tenants)	Total Landholdings (sq.m.)	Total Area Acquired for RROW (sq.m.)	Remarks
Barangay Dancalan Central			
Hans Francis Luna	30,000.00	3,302.40	Donated
Faustina Garcia (Nelson	35,000.00	3,543.80	Donated
Alvin M. Rodelas (Erwin)	35,000.00	3,628.40	Donated
Melchora Garcia (Erwin)	30,000.00	3,029.80	Donated
Trinidad Garcia (Erwin)	44,273.00	3,805.00	Donated
Serapio Hernandez	13,297.00	2,190.40	Donated
Gualberto Juarez (Conrad)	21,573.00	2,426.40	Donated
Gualberto Juarez (Conrad)	100,294.00	2,908.20	Donated
Concordia Arellano (Amor Cadarit)	31,190.00	3,046.20	Donated
Barangay Dancalan Caimawan			
Roberto Arellano	26,019.00	1,791.80	Donated
Sherilyn Arellano	21,110.00	507.00	Donated
Guillermo Arellano	26,500.00	1,050.60	Donated
Evelyn Arellano	17,166.00	1,207.00	Donated
Regina Pasta (Roderick)	19,998.00	1,951.60	Donated
Girlie Glorioso	9,737.00	1,622.00	Donated
Domingo Camus (Presentacion)	9,157.00	1,663.00	Donated
Pastor Glorioso	21,669.00	2,350.20	Donated
Domingo Camus (Antonio Untalan)	9,167.00	1,466.20	Donated
Barangay Arbismen			
Regino Aro	309,985.00	9,231.20	Donated
Apolinar Decepida	12,155.00	1,426.60	Donated
Elmer Arellano	27,829.00	1,625.00	Donated
Benjamin San Mateo	19,782.00	554.40	Donated
Emilia Penol	17,009.00	1,267.00	Donated
Ireneo Diesmos Sr.	21,200.00	1,628.20	Donated
Teodorico Diesmos	21,000.00	1,507.00	Donated
Victor Belmin	15,600.00	447.80	Donated
Juancho Argote	15,700.00	1,330.65	Donated
Domingo Serenilla (Josefa)	30,000.00	635.55	Donated
Bonifacio Manalo	30,000.00	468.75	Donated
Virgilio Endaya	30,000.00	749.10	Donated
Lea Ramos	12,755.00	316.80	Donated
Alma Vizcarra	27,190.00	582.45	Donated
Victor Oquindo (Manolito Macaraig)	27,617.00	471.45	Donated
Emiel Celiz (Emilio)	10,095.00	449.55	Donated
Alicia Solitaria (Ireneo)	10,000.00	556.80	Donated
Anacito Manalo	18,779.00	1,106.85	Donated
Matea Valdoria (Victor Bonifacio)	57,500.00	7,829.00	Donated

Name of Landowner (Occupants/Tenants)	Total Landholdings (sq.m.)	Total Area Acquired for RROW (sq.m.)	Remarks
Barangay CapuluanTulon			
Manuel Florendo (Simporo)	26,071.00	1,474.65	Donated
Alejandra H. Arellano	45,000.00	1,336.95	Donated
Rodrigo Pagsuyu (Juanito)	103,158.00	2,834.70	Donated
Pedro Lacerna (Renato Ilagan)	120,119.00	3,457.65	Donated
Catalina Cleope (Marcelina)	30,000.00	1,801.95	Donated
Catalina Cleope (Marcelina)	30,000.00	1,471.80	Donated
Juan Florendo (Helen Torres)	2,452.00	2,452.00	Donated
Juan Mendoza (Gloria Estopen)	41,302.00	382.80	Donated
Mariano Rosales (Gloria Estopen)	51,546.00	1,653.00	Donated
Juan Florendo (Mario Rosales)	2,521.00	2,521.00	Donated
Carlito Cabanes	23,992.00	1,103.85	Donated
Pelagio Cueto (Loreto Dueñas)	99,540.00	1,100.00	Donated
Lilia Obis (Abelardo Obis)	31,466.00	1,252.80	Donated
Pelagio Cueto (Loreto)	17,465.00	550.00	Donated
Gloria Argana (Sevilla Obis)	31,467.00	2,897.85	Donated
Lucia de Claro	31,000.00	2,897.85	Donated
Manolito Cantos	19,525.00	582.45	Donated
Barangay Capuluan Central			
Francisca Bico (Evelyn Federiz)	10,000.00	1,774.65	Donated
Oscar Rojas (Vivencia)	124,470.00	1,431.30	Donated
Concepcion Revarez (Felix)	11,489.00	1,730.85	Donated
Clarita Dadulla	7,754.00	1,078.95	Donated
Silvestre Jimenez	12,913.00	1,228.95	Donated
Nicolasa Abanilla (Feliciano Isles)	7,941.00	1,160.85	Donated
Jose Regala (Fidela)	130,069.00	1,259.10	Donated
Anecita Gamboa (Joshepine Rala)	130,069.00	1,415.70	Donated
Marcelino Abanilla	20,340.00	448.80	Donated
Isaac Cantos	95,000.00	1,330.65	Donated
Aurea Jimenez	72,034.00	5,695.95	Donated
Bonifacio Cueto (Josefa M. Cueto	8,508.00	1,415.00	Donated
Clemente Dimaano, Jr.	150.00	0.00	
Juan Elmido	450.00	0.00	
Emecir R. Bico (Soledad Purio)	20,000.00	1,334.10	Donated
Crispino (Claro Bico)	53,008.00	4,438.80	Donated
Balbina Ramirez	34,077.00	4,879.35	Donated
Jovito Agno (Ruel)	9,900.00	1,684.95	Donated
Epifanio Bico (Soledad)	35,258.00	1,817.55	Donated
Editha Claveria (Merlinda)	49,700.00	1,533.15	Donated
Wilma Burog (Adam Obar)	50,000.00	1,996.00	Donated

There are about 96 land properties that are traversed by the proposed sub-project. Of these, 21 land properties (with 20 landowners) traversed in

Barangay Himbubulo Este, 9 land properties (with 9 landowners) in Barangay Dancalan Central, also 9 land properties (with 9 landowners) in Barangay Dancalan Caimawan, 21 land properties (with 19 landowners) in Barangay Arbismen, 17 land properties (with 17 landowners) in Barangay Capuluan Tulon and 19 land properties (with 19 landowners) in Barangay Capuluan Central.

There are a total of 93 landowners/households with a total of 435 household members which compose the PAPs who will be affected by the proposed sub-project.

The total affected by the road improvement is about 18.1 hectares. The largest land area affected is 7,829 square meters while the lowest area is 20 square meters.

iv. Damage to Standing Crops, Houses and/or Properties

Considering that the site of the project is an existing road network with almost fully cleared road right of way, 10 meters in width, it will negligibly affects standing crops and structures.

The proposed Concreting of the Manggagawa – Capuluan Central Farm-to-Market Road will only affect the cutting of a few coconut and two 3-years old gmelina trees planted along the road right-of-way edges but were voluntarily donated by the landowners considering the benefits that this road project will bring to the communities. There is also a newly constructed structure (welcome marker) in Barangay Capuluan Tulon and an electrical post that will be affected by the sub-project. In cooperation with the concerned barangay and the Electric Cooperative, the structures will be relocated and placed outside the road right-of-way.

v. Physical Displacement of Persons

The proposed Concreting of Farm-to-Market Road Sub-Project will have a wider road right-of-way which will partly affect an encroaching property fence along the Capuluan Central section. After due consultation and dialogue with the concerned PAP, he agreed to voluntarily relocate his fence outside the road right-of-way to give way with the successful implementation of the sub-project.

During the road resurvey, there were no other houses and other properties within the road right of way that will be affected by the project.

vi. Economic Displacement of Persons

Considering that the proposed Concreting of Farm-to-Market Road Sub-Project will be implemented in an existing road, therefore it will not result in the relocation of any house and other properties and will not economically displaced any person during the implementation of the project. Upon RROW donation, no PAPs lost more than 20% of their total landholdings.

vii. **Grievance Redress Mechanism (GRM)**

The LGU has established a Grievance Redress Mechanism (GRM) wherein all feedbacks from the beneficiaries and resolution of complaints regarding the PRDP sub-project performance and activities in all phases of its implementation (pre-construction, construction and operation phases) will be collected and firstly resolved.

The Municipal Mayor has designated the Head of the Project Management Implementing Unit (PMIU) as the Grievance Point Person (GPP) who will be responsible in implementing the GRM such as initial screening of feedbacks and complaints as well as the organization of preliminary meetings with the concerned parties to establish an acceptable resolution to grievances received or for the efficient registry of feedbacks from stakeholders.

e. Environmental Analysis

i. **Natural Habitat**

The proposed project site is not within an officially declared or proposed protected area of natural habitat. There are no identified important species present in the project site. Vegetations along the roadside are mostly shrubs and fruit trees.

Major crops cultivated within the Road Influence Area (RIA) include coconut, banana and rice. Other crops cultivated in the area are corn, root crops, high-value vegetables, coffee, citrus and mango.

There is a moderately large mangrove area existing within the nearby vicinity of the proposed sub-project particularly in Barangay Capuluan Central and Cabong Norte. These mangroves help preserve the natural setting of the existing Municipal Fish Sanctuary, 82 hectares in size, located on the eastern part of Barangay Capuluan Central and Cabong Norte along the Ragay Gulf.

A rice field on both sides of the road located at Segment "B" Sta. 4 + 900 to Sta. 5+ 000 will be traversed by the sub-project. Embankment of the road will be included as work item for the sub-project in order to raise the elevation of the road higher than the rice field.

The land area in the RIA totaled to 6,280 hectares. A bigger portion of these lands are classified as agricultural land occupying 5,243.8 hectares (83.50%). Grassland occupies 483 hectares (7.69%), mangrove areas comprised 383 hectares (6.10%), while the remaining 170 hectares or 2.71% are categorized as built-up areas.

ii. Physical/Cultural Resources

There are no physical/cultural resources present within the proposed road and its road influence area.

However, in any case of archaeological/paleontological finds or upon discovery of artifacts, bones or other objects of interests during the sub-project construction/implementation, all civil works within the 10-meter radius from the discovery point must be immediately suspended. The proper mechanism for the reporting of such finds shall be applied. The highest ranking officer of the Contractor in coordination with any member of the Local Sub-project Management Implementing Unit (SPMIU) shall be the primary responsible persons in ensuring the strict proper reporting of such finds.

The reporting mechanism shall include among others, the taking of photographs of the artifacts, bones or other objects of interest and the immediate and simultaneous reporting of incidence to the PRDP-RPCO–Social and Environmental Safeguards (SES) Office, the local police and civil authorities and the National Museum in compliance to RA 8492.

iii. Terrain, Soil Types and Rainfall

The topography of the proposed subproject varies from plain to series of rolling to steep hills with elevation ranging from 50 to 100 meters above sea level.

Of the three major soil types found in the municipality of Guinayangan namely Hydrosol, Faraon Clay and Bolinao Clay Loam, the dominant soil types found in the project site are Bolinao Clay Loam and Hydrosol. Bolinao Clay Loam is the soil type made up of soils developed from limestone, it is heavy clay and has a distinct reddish-brown color. When wet this soil is very sticky and plastic but it is friable and mellow when moist. It is mostly found in the municipality's hilly terrains and low-lying mountains. In Guinayangan, this particular soil type is widespread covering almost 30 percent of the entire municipality which include Barangays Manggagawa, Himbubulo Este, Dancalan Central, Dancalan Caimawan, Arbismen, Cabong Norte and Cabong Sur. The Hydrosol type also represents 30 percent of the municipality's total land area. These soils are mostly concentrated along the coastal zones like in barangays Capuluan Tulon and Capuluan Central. It is best suited for fishpond purposes. On the other hand, the Faraon Clay Loam which is the most prevalent soil type in the municipality representing 40 percent of the municipality which include Barangays Sintones, San Isidro and Ligpit Bantayan are the soil type derived from decomposition of coralline limestone, it is black clay in color and mostly found in high terrains and the upland.

As per data obtained from PAGASA, the mean annual rainfall for the municipality of Guinayangan has been recorded at 1,750 mm. The months of August to October are typically the typhoon season followed by the months of November to December falling under the intermediate season. The months of January to April were observed as the distinct dry months.

iv. Hazard/Risk Assessment (Drainage Situations, Erosion, Flooding Potential)

The proposed sub-project does not involve additional road cuts and fills considering that it is an existing road which passed only through generally low terrains. As shown in Figure 4 – Landslide Hazard Map on page 23, the sub-project site is located within an area with low susceptibility to landslide/erosion. Drainage issues are unlikely since existing Line Canals, Pipe Culverts, Box Culverts and Spillways are provided on previously identified locations prone to floods on the existing road network. The table below presents the location of the pipe culverts, box culverts and spillway that were previously constructed within the road network that will be traversed by the proposed sub-project.

Table 10. Location of Existing Pipe Culverts, Box Culverts & Spillway

Description	Type	Station	Description	Type	Station
Road Segment "A"			Road Segment "B"		
1 - 0.60 Ø x 8 pcs	RCPC	0 + 360	1 - 0.60 Ø x 8 pcs	RCPC	0 + 100
3 - 0.60 Ø x 6 pcs	Spillway	0 + 880	2 - 0.90 Ø x 8 pcs	RCPC	0 + 520
1 - 0.90 Ø x 10 pcs	RCPC	1 + 160	3.0 x 3.0 x 10.0 m	Box culv.	0 + 670
1 - 0.90 Ø x 10 pcs	RCPC	1 + 360	1 - 0.60 Ø x 8 pcs	RCPC	2 + 480
1 - 0.90 Ø x 10 pcs	RCPC	1 + 520	1 - 0.60 Ø x 8 pcs	RCPC	2 + 595
2 - 1.20 Ø x 10 pcs	RCPC	1 + 810	1 - 0.60 Ø x 8 pcs	RCPC	2 + 840
1 - 0.90 Ø x 10 pcs	RCPC	2 + 300	1 - 0.60 Ø x 8 pcs	RCPC	3 + 275
1 - 0.90 Ø x 10 pcs	RCPC	3 + 480	1 - 0.60 Ø x 8 pcs	RCPC	3 + 300
1 - 0.90 Ø x 8 pcs	RCPC	3 + 560	1 - 0.60 Ø x 8 pcs	RCPC	3 + 390
1 - 0.90 Ø x 8 pcs	RCPC	3 + 660	1 - 0.60 Ø x 8 pcs	RCPC	3 + 455
3.0 x 3.0 x 10.0 m	Box culv.	3 + 980	2 - 0.60 Ø x 8 pcs	RCPC	3 + 795
1 - 0.90 Ø x 8 pcs	RCPC	4 + 305	1 - 0.60 Ø x 8 pcs	RCPC	4 + 885
3.0 x 3.0 x 10.0 m	Box culv.	4 + 750	1 - 0.60 Ø x 8 pcs	RCPC	5 + 008
1 - 0.90 Ø x 8 pcs	RCPC	4 + 835	1 - 0.60 Ø x 8 pcs	RCPC	5 + 040
1 - 0.60 Ø x 8 pcs	RCPC	5 + 160	1 - 0.60 Ø x 8 pcs	RCPC	5 + 132
1 - 0.90 Ø x 10 pcs	RCPC	5 + 473	1 - 0.60 Ø x 8 pcs	RCPC	5 + 355
1 - 0.60 Ø x 8 pcs	RCPC	5 + 770	3 - 0.90 Ø x 8 pcs	RCPC	6 + 630
1 - 0.60 Ø x 8 pcs	RCPC	5 + 950	1 - 0.90 Ø x 8 pcs	RCPC	6 + 795
1 - 0.90 Ø x 10 pcs	RCPC	6 + 460	1 - 0.90 Ø x 8 pcs	RCPC	7 + 440
3.0 x 3.0 x 10.0 m	Box culv.	6 + 795	1 - 0.90 Ø x 8 pcs	RCPC	7 + 830
1 - 0.90 Ø x 8 pcs	RCPC	7 + 020	1 - 0.90 Ø x 8 pcs	RCPC	8 + 380
1 - 0.90 Ø x 10 pcs	RCPC	7 + 090	1 - 0.90 Ø x 8 pcs	RCPC	8 + 640
1 - 0.90 Ø x 8 pcs	RCPC	7 + 310	1 - 0.90 Ø x 8 pcs	RCPC	8 + 760
1 - 0.60 Ø x 8 pcs	RCPC	7 + 480	1 - 0.90 Ø x 8 pcs	RCPC	8 + 870
1 - 0.60 Ø x 8 pcs	RCPC	7 + 780			
1 - 0.90 Ø x 8 pcs	RCPC	7 + 940			
1 - 0.60 Ø x 8 pcs	RCPC	8 + 650			
1 - 0.60 Ø x 10 pcs	RCPC	9 + 060			

However, if flooding on new sites of the road surface will be observed, this will be mitigated through the construction of drainage canal leading the runoff immediately outside of the roadway to the intercepting outlets. To minimize increase of quantity of flows on the receiving river, appropriate flooding measures such as planting of trees and vegetation on riverbanks should be implemented.

During the ocular validation and assessment of the proposed sub-project, two of the existing spillways previously constructed along Segment "A" Station 0 + 840 and Segment "A" Station 6 + 625 were found to exhibit states of deterioration and therefore need rehabilitation and improvement. Work Item 506 – Stone Masonry was included in the proposed sub-project to rehabilitate and improved said spillways.

v. Status of DA-IPM Program (KASAKALIKASAN) in the Road Influence Area –

At present, there is an existing Farmers Field School (FFS) on Corn with emphasis on IPM and Organic production being conducted at Brgy. Cabong Norte just after Brgy. Capuluan Central with 29 farmer-participants.

FFS on Rice IPM had been conducted some years ago at Brgy. Dancalan Caimawan and Sintones with 62 farmer-participants. From then, Farmers have been using only the required kind and amount of fertilizer being used and observed the proper time of application. More or less 70% of these farmers have refrained from the use of too much insecticide/pesticides when not needed. When confused, they secure first the assistance of the technicians from the Municipal Agriculture Office on what to do when insect-pests attacked their crops. Also, It had been observed that 80% of the farmers no longer burn their rice straw, instead, some use it to feed African night crawlers for vermiculture and vermicast production.

Likewise, System of Rice Intensification (SRI) is being practiced by small farm holders of Dancalan Central, Dancalan Caimawan, Arbismen, Sintones and Capuluan Central using low external input on rice production like the use of leguminous crops for rice and vegetables for fertilization. From their experience on these technologies, an increase in the net income on rice was attained by the farmers in addition to the fact that the members of their family now eat healthier and safer food.

For the continued attainment of objectives of the municipal government, the following programs have been designed for KASAKALIKASAN:

1. Mangrove reforestation – since the area is a coastal area, continuous mangrove planting will be done not just to protect the people from storm surge but to allow breeding sites for marine species.

2. Organic production – Organic Vegetable production, Organic fertilizer production and native swine and goat production are some of the plans and programs being pursued by the local government for this year and the coming years to safeguard the health of the people and to care for the environment.
3. Agro-forestry – since most of the farms in this area practiced mono-cropping, we have plans to introduce intercropping or multi-cropping either with banana, coffee or root crops.
4. In coordination with national agencies particularly of the DENR, strict implementation of environmental laws will be observed in the whole municipality.

vi. Status of Environmental Clearances – *ECC*

The Municipal Government has already prepared and submitted the documentary requirements for the issuance of environmental clearance from the DENR as a pre-requisite for the project approval. A received copy of the application from EMB Region IV-A is attached.

Sub-base course (Item 200) can be sourced in the nearby Barangay Bayog, Buenavista, Quezon which is approximately 37 kilometers away from the project site. Other construction materials such as cement and reinforcing bars as well as RCPCs are available at the hardware stores and dealers of concrete products at the Metro-Poblacion/Town Center of Guinayangan, Quezon which is about 1 kilometer nearest and 19.2 km farthest from the proposed project site. Gravel and sand can be sourced from a PMRB quarrying permittee in Sariaya, Quezon which is about 150 km from the project site.

vii. Social and Environmental Impacts

The proposed sub-project will not cause substantial damage to the environment whether on green field or previously developed sites within the immediate vicinity of the road concreting project.

The sub-project will not encroach into or traverse any declared protected area of natural habitat. Neither will it displace, disfigure or render inoperable/inaccessible any monument or physical structure of known cultural and historical significance.

However, during road construction, the contractors and the LGU should jointly observe and consider the following environmental issues and must implement the mitigation measures to address potential impact of the proposed project to the environment.

Table 11. Environmental Issues and Mitigation Measures

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation Measure	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*	Schedule of Implementation	Responsible Unit
1. Temporary increase in sedimentation during construction	Topography of the road alignment necessitate massive earthmoving and cutting of clayey or loose topsoils	Proper disposal and compaction of spoils	DED/POW; Contract	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team
2. Potential contamination of surface and groundwater with oil/grease	Waste oil and grease from equipment could contaminate surface water	Proper handling and disposal of waste oil and grease	Contract	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team
3. Potential contamination with human waste	Workers would be mostly locals and are expected to go home to their respective houses after works	Set up adequate latrine/toilet facility at the base camp	Contract	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team
4. Potential dust/mud nuisance during construction	Roads could become powdery during dry days and muddy during rainy days of the construction period Access road and/or the construction/ rehabilitation works passes through a populated area	Undertake sprinkling of road (including access roads) during dry days, and filling up of potholes during rainy days, especially in residential areas Set up speed limits for vehicles, especially within residential areas	Contract	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team
5. Landslide/ erosion of exposed road sides resulting in sedimentation of waterways	The rehabilitation work does not involve additional road cuts	No measures needed	DED/POW	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team
6. Inadequate drainage resulting in flooding or ponding	Drainage issues unlikely	No measures needed	DED	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation Measure	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*	Schedule of Implementation	Responsible Unit
7. Potential increase use of pesticides due to intensification of cash crop production in the area	Only a few Farmers in the service area have been trained on IPM	LGU to Coordinate with DA on IPM training	Capacity Building Plan O&M Plan; Capacity Building Plan	Post-Construction Phase	Municipal Agriculture Office
8. Potential acceleration of denudation of the upland/hilly areas due to intensification of crop production	The proposed road will connect to the market an upland/hilly area where farmers are currently practicing erosive farming techniques. The road could help accelerate the denudation of the upland/hillsides rendering them unproductive in a few years.	DA to coordinate with LGU for the introduction of sustainable upland farming systems in the area	O&M Plan; Capacity Building Plan	Post Construction Phase	Municipal Agriculture Office
9. Potential increased in encroachments of human activities into the nearby public forest	The proposed road does not improve access to a public forest	No measure required	O&M Plan; Capacity Building Plan	Post Construction Phase	MENRO
10. Local employment	Construction will provide local employment opportunities	Hiring priority shall be given to qualified local residents; Implement RI Manual on local hiring	Contract	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team
11. Conversion of Land-use/natural habitat due to quarry	Quarry site is existing and proven as a good source of quarry materials	Quarry materials will be procured to existing quarry sites	Certification	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team
12. Potential damage to existing road due to hauling of quarry materials	Source of quarry materials is <u>37</u> km from project site. Transportation of quarry materials from source to FMR will cause damage to existing FMR	Regular maintenance and repair of existing road	Contract	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team
13. Dangerous curve having vertical ascend of around 28 percent	A portion of the existing FMR located at Segment "A" Sta. 2 + 225 to Sta. 2 + 470 in Brgy. Himbubulo Este has a vertical ascend around 28%	Identified portion located at "A" Sta. 2 + 267.5 to Sta. 2 + 380 having an ascend around 28% will be down-graded to 18% thru reblocking and embankment works	Contract	Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation Measure	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*	Schedule of Implementation	Responsible Unit
		Installation of road safety warning signs which include: “dangerous curve ahead”, “no over speeding”, “give way to upcoming vehicle”, “blow your horn” etc, provision of slope protections on both sides of the identified section of the road	Annual Investment Plan Contract	Construction Phase Construction Phase	MPDC/ Municipal Engineering Office/I-BUILD Team Contractor, Municipal Engineering Office/I-BUILD Team
14. Potential road hazards of road section with spillways and bridge	The proposed road will traverse 2 spillways and a 52 lm. bridge	Both existing spillways at Segment “A” Sta. 0 + 840 and Sta. 6 + 625 will be rehabilitated due to signs of deterioration Installation of road safety warning signs and bridge tonnage capacity on appropriate sections of the road	Contract Annual Investment Plan	Construction Phase Construction Phase	Contractor, Municipal Engineering Office/I-BUILD Team MPDC/ Municipal Engineering Office/I-BUILD Team
15. Environmental conservation and protection	Presence of mangroves within the road influence area Presence of rural folks engaged in charcoal making	Strict implementation and enforcement of existing environmental laws and regulations on mangrove protection and conservation Strict implementation and enforcement of appropriate environmental laws and regulations regarding charcoal making	Sangguniang Bayan Ordinance Sangguniang Bayan Ordinance and Resolutions	Whole year round Whole year round	MENRO, Office of the Mayor, concerned Sangguniang Barangays MENRO, Office of the Mayor, concerned Sangguniang Barangays

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation Measure	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*	Schedule of Implementation	Responsible Unit
16. Possible discovery of artifacts, bones and other objects of interest during construction of the processing plant	Discovery of artifacts, bones and other objects of interest within the 10 meter radius Discovery of artifacts, bones and other objects of interest outside the 10 meter radius	Suspension of the activities and immediately report to the PLGU and RPCO SES Focal Person	Contract	During construction period	Contractor
17. Conflict between project implementers and other stakeholders/ Grievance during implementation	There is an acceptable Grievance Redress Mechanism in place	The project implementers to ensure that all grievances are properly addressed	Grievance Redress Mechanism Framework Contract	Before and during project implementation	PPMIU/ Contractor