INITIAL ENVIRONMENTAL EXAMINATION REPORT

1. BASIC INFORMATION ON PROJECT and PROPONENT

1.1 Project Title : Rehabilitation of NRJ-Gamis-Calaocan Farm to Market Road
1.3 Project Location : **Aglipay**(*Brgys. Dumabel & Cabugao*), **Cabarroguis**(*Brgys. Banuar, Eden, Burgos, Gomez*),**Saguday**(*Brgy. Gamis*) Quirino
1.4 Road Width : 7 Meters
1.5 Road Length : 19.38 Kilometers
1.6 Project Proponent: Provincial Local Government of Quirino

Contact Persons:
Hon. Junie E. Cua, Governor, Quirino Province
Mrs. Elizabeth S. Nicolas, Provincial Administrator
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2. PROJECT DESCRIPTION

2.1 Project Location

2.1.1 Location

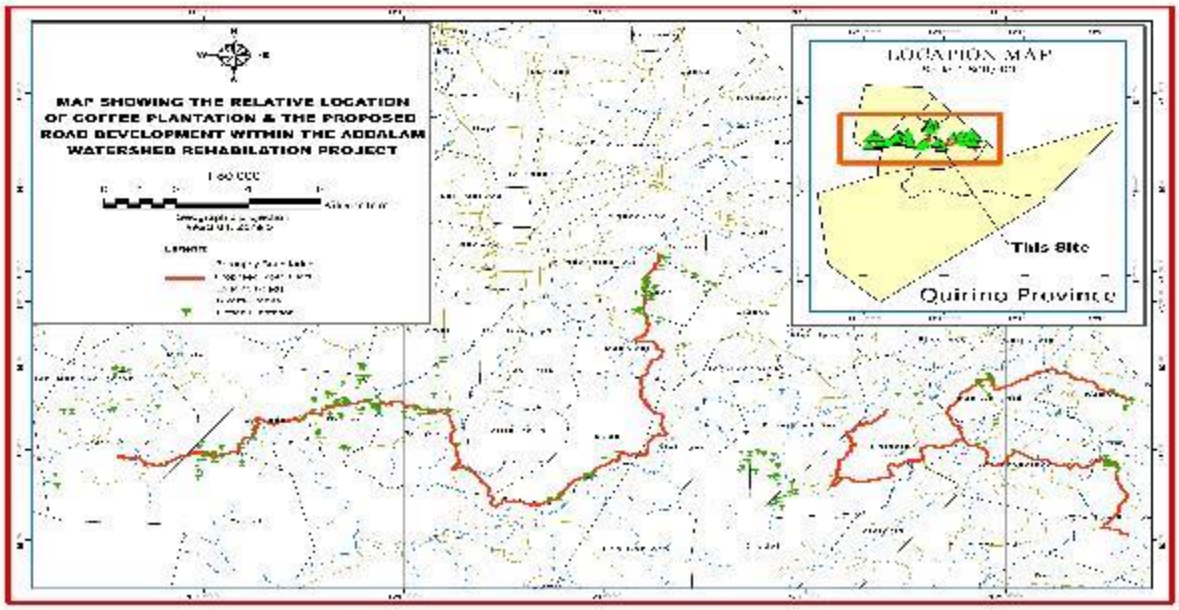
2.1.1.1 Geographic Boundaries

Aglipay is bounded on the north by the municipality of Saguday, on the south by the municipality of Maddela, on the east by the province of Isabela, and on the west by the municipality of Cabarroguis. The geographic coordinates of Aglipay are 16° 31' 13''-16° 32' 29'' N, 121° 31'13''-121° 42' 37'' E.

Saguday is bounded on the north by the city of Santiago. The geographic coordinates of Saguday are 16° 30' 13''-16° 35' 59'' N, 121° 31'52''-121° 37' 25'' E.

Cabarroguis is bounded on the North, Northwest and Northeast by the municipalities of Diffun and Saguday, respectively, on the East and Southeast by the municipality of Aglipay, on the South by the municipalities of Maddela and

Nagtipunan, and on the West by the province of Nueva Vizcaya. The geographic coordinates of Cabarroguis are. 16° 20' 13''-16° 33' 01'' N, 121° 25'46''-121° 34' 33'' E.



Map showing the Rehabilitation Road Project, Quirino, 2014

2.1.1.2 Relative Distance to growth and commercial centers

Aglipay is approximately 15 kilometers from Cabarroguis, the capital town of Quirino; about 52 kilometers from Santiago City via Cordon-Maddela Road; about 143 kilometers from Ilagan, the capital town of Isabela; about 171 kilometers from Tuguegarao City, the Regional Center, and about 353 kilometers from Manila with an average travel time of seven to eight hours by land.

2.2 Project Rationale

Quirino Province has a historically significant volume of coffee production, given its agro-climatic characteristics that are highly suitable for coffee plantation. In the 1990s up to the early 2000s, the province had close to 700 hectares of land planted with coffee and harvest volume reached as high as 400 metric tons per year. However, the area of plantation and the volume of production had been on the downtrend ever since farmers lost commercial interest in coffee production because of depressed farm prices. The same is true for coffee farmers all over the country. Currently, there is a revived interest in growing coffee in the country. This is because the coffee market situation has shown major improvement as evidenced by consistent world market coffee price increase since 2002 due to rising demand. To regain the country's long-lost position of being one of the world's top producers of coffee, the government plans to put in place necessary investments.

Coffee plantations in Quirino serve both as a crop for watershed rehabilitation and a source of livelihood. At present, the province is pursuing a watershed rehabilitation program through the Community Forestry Foundation of Quirino, Inc. (CFFQI) with agro-forestry farming and other livelihood support as integral components. The program is being supported by Nestle, Philippines, which provides quality planting materials of coffee and teaching the farmers the appropriate culture method for this commodity. The development of the coffee industry in Quirino province under the Philippine Rural Development Program (PRDP) may therefore address the twin objectives of improving the income and livelihood especially of the poor rural families while ensuring the sustainability of the province's natural resources.

Based on the Provincial Commodity Investment Plan of Coffee in Quirino Province, some of the interventions identified were expansion of coffee production area, rejuvenation of old coffee plantation and **construction and rehabilitation of farm to market road** particularly those that link the potential and existing coffee plantation to market and input/ service suppliers.

2.3 Project Development Plan

A study was conducted to assess the value chain of coffee in Quirino province as basis in the development of commodity investment plan for this commodity under the Philippine Rural Development Program (PRDP). The study employed the PRDP prescribed method and format for value chain analysis. The analysis was made using available secondary data and relevant literature as well as primary data obtained through Key Informant Interview (KII), Focus Group Discussion (FGD) and survey of coffee farmers and traders.

The value chain upgrading vision for coffee in Quirino province involves the expansion of coffee production in the province and improvement of added value by producing a differentiated product.

The main product, during the industry's establishment years will be green coffee bean which will be marketed directly to Nestle Philippines, Inc. Eventually, product differentiation will be pursued. The differentiated product will be roasted Robusta in 500 gram pack from coffee beans produced in the province pesticide free and the natural way. The strategic objectives of the upgrading process therefore, revolve around this vision.

The value chain upgrading solutions that were designed to achieve the value chain upgrading vision include: (1) the establishment and operation of organic fertilizer facility; (2) the establishment and operation of coffee nursery; (3) the establishment of a common service facility for coffee drying; (4) the dissemination to farmers and processors of the various production and processing technologies to improve overall productivity and competitiveness; (5) the establishment and operation of a warehouse and food terminal to enable farmers to store their harvest and to serve as venue for centralized trading of coffee in the province; and **(6) the construction of farm to market road.**

The **construction of farm to market road is especially important for this project.** Coffee is a highly perishable product and freshly-harvested coffee berries could ferment overnight. If there were better roads, transporting products to the market will be faster, and the sooner the coffee is marketed, the higher its buying price will be. Thus, a good road linking the influence area to the market is of high importance to ensuring that farmers gain from selling their produce.

2.4 Description of Project Phases

2.4.1 Pre-Construction/ Pre-Development Phase

Detailed Engineering Activity & Traffic Count were conducted, preparation of Traverse Plan, Cross Section, Profile Plans and Programs of Work were undertaken including Specifications.

Once the fund will be released for implementation, a Public Bidding will be conducted. The Notice to Proceed (NTP) will be issued and within 5 days from issuance of NRP, the project will be started.

2.4.2 Construction/ Development Phase

The implementation of construction phase will be guided by the Contractor's Plan of Work for the project. It is inherent that contract employees must exercise care and safety in their work at all times. The management will see to it that safety rules and procedures are enforced and apply during construction activities and to be carried out by all workers and contract employees.

The implementing office of the project is the Provincial Engineering Office (PEO) of Quirino. The method of procurement procedure is thru public bidding.

The items of work to be undertaken are the following: Final staking, excavation and embankment along the roadway and Subgrade Preparation, installation of RCPC, Stone Masonry, construction of concrete spillway and reinforced concrete box culvert will also be undertaken. Aggregate Sub-Base course shall be applied and compacted to the minimum degree of compaction of 95% and concrete pouring shall be done with quality test of cement and concrete aggregates, a 3pcs of Concrete Beam Samples shall be taken for every 330 sq.m. and/or each day of pouring. Upon completion of all the items of work, Final Inspection will be conducted and Certificate of

Completion will be issued then commence the 1 year defects liability period and if all defects or repair works occurred within the liability period of One (1) year is completed, a Certificate of Acceptance shall be issued.

2.4.3 Operational Phase

The whole stretch of the road project will be included as a provincial road, so the Office of the Provincial Engineer will undertake the maintenance activities after the completion of the road project. Corresponding budget will be allotted for its maintenance on an annual basis.

2.4.4 Abandonment Phase

Cleaning-up operation shall be implemented immediately after the project completion. Rubbles from structures/facilities and wastes removed will be disposed in accordance with the Municipal Waste Disposal Program.

2.5 Project Emissions/Effluent/Hazardous/Solid Waste/Other Wastes

Solid and liquid waste will be generated during the construction phase. Solid wastes(kitchen leftovers, wrappers and packaging of supplies) will be properly segregated and stored for collection by project's Waste Management Unit and will be disposed properly. Because most worker are skilled labor who are local residents who live in the area, they have easy access to private toilets, thus there is no contamination of human waste. Due to the presence of Heavy Equipment working in the area, proper handling and disposal is recommended to avoid potential contamination of surface and groundwater with oil and grease.

2.6 Manpower

During the implementation there will be an assigned **Project Engineer, Field Engineer and Laboratory Technician** to supervise and monitor the project implementation of the proposed road network. The members of the Provincial Project Management and Implementing Unit (PPMIU) headed by the Provincial Administrator and other concerned offices shall participate in the monitoring and evaluation of the Project.

The Project Engineer shall be responsible for the implementation of the project in accordance with approved Program of Work, Plans and Specifications. He will also be included in the conduct of weekly and monthly meetings with contractors and submit weekly and monthly reports to the PPMIU.

The Field Engineers shall be assigned to the different areas if the activities will be simultaneously undertaken. They will supervise and monitor the proper implementation of the project and submit daily status report to the Project Engineer.

The Laboratory Technician will conduct field density test of the sub-base course of the road to determine if it meets the minimum degree of compaction of 95% prior to concrete pouring of PCCP as well as taking of concrete beam samples for each day of pouring and/or every 75 cu.m.

The construction provides local employment and opportunities to local residents. The project will need **33 skilled workers and 47 unskilled** workers/laborers throughout the duration of 270 calendar days. The unskilled workers can be sourced from the locality while the skilled workers can be brought by the contractors or recruited from the province or influence municipality.

2.7 Project Cost

The total project cost is **Php155,031,975.52** with a road net length of 19.380 Kms. with per unit cost ofPhp7,999,585.60 /km.

2.8 Project Duration and Schedule

Start of project implementation would commence upon issuance of Notice To Proceed (NTP), following PRDP sub-project procurement timeline. The project is estimated to be completed within 270 calendar days.

3. Overview/Generic Description of Baseline Environment

3.1 Natural habitat

The total road length of 32.64-kilometer has a net length of 19.380 kilometers. This road project will traverse a large tract of agricultural lands starting from Barangay Gamis in Saguday, barangays Dumabel and Cabugao in Aglipay, and barangays Banuar, Eden, Burgos, Gomez, and Calaocan in Cabarroguis.

Part of the Province of Quirino has been declared as Quirino Protected Landscape (QPL) under Presidential Proclamation # 548 dated February 9, 2004 and #779 as amended, encompassing a total of about 175,000 hectares out of the total land area of the province of about 306,000 hectares. Under the NIPAS Act, the province has been classified as landscape instead of natural park and/or national reserve as there are already existing communities prior to its proclamation. As defined in the National Integrated Protected Area System Act

(NIPAS) under Republic Act 7586, **Protected landscapes/seascapes** are areas of national significance which are characterized by the harmonious interaction of man and land while providing opportunities for public enjoyment through recreation and tourism within the normal lifestyle and economic activity of these areas. While **Natural park** is defined as a relatively large area not materially altered by human activity where extractive resource uses are not allowed maintained to protect outstanding natural and scenic areas of national or international significance for scientific, educational and recreational us. [1] Hence, normal economic activities are allowed within the QPL being classified as protected landscape.

Out of the eight barangays in this Subproject, barangays Dumabel, Cabugao and Eden are within the QPL multiple use zones (MUZ). Part of barangays Calaocan, Gomez and Burgos are also within MUZ and Alienable and Disposable (A and D). Barangay Gamis and Banuar are both within the A and D. As defined in the QPL Management Plan, MUZ are areas where settlement, traditional and/or sustainable land use, including agriculture, agroforestry, extraction activities and other income generating or livelihood activities, may be allowed to the extent prescribed in the management plan. Land tenure may be granted to tenured residents, whether indigenous cultural members or migrants. This implies that road improvement is allowed and this would entail lesser pressure to the forest as farmers will be more encouraged to improve their farms instead of encroaching the forest. Improved road conditions imply more opportunity for the farmers to market their farm products. Attached is map showing the barangays within the MUZ and A and D.

In-situ conservation is one management strategy of QPL wherein communities are inside the PA. Adopting the different management zones described in the QPL Management Plan is ensured by the members of the Protected Area Management Board (PAMB) headed by the Regional Executive Director of DENR Region 2.

[1] NIPAS Act

3.2 Physical Cultural Resources

During the consultation/dialogue with the barangay councils and the beneficiaries with the participation of other sectors, reconnaissance survey was conducted in order to ascertain presence of any cultural and historical structures, features, landscapes, archeological sites monuments and physical or cultural resources. The reconnaissance survey found that neither existing structures nor trees will be damaged or demolished.

3.3 Terrain, Soil Types and Rainfall

The terrain along the 32.640-kilometer farm to market road as identified by the NAMRIA topographic map has an elevation that ranges from 80 meters to 126 meters above sea level. Generally the slope inclination is more than 18 percent which, according to land use planning guidelines, are exempt from intensive agricultural land use. In general, the capability of land to support agricultural production decreases as slope inclination increases. However soil types in the road influence area is suited to agricultural crops.

The maximum rainfall gathered in the proposed project is 1,500mm and 1,600mm annually. Flooding occurs during typhoons as was recorded in the Comprehensive Land Use Plan (CLUP) of Aglipay and Cabarroguis, Quirino.

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

The whole stretch of the proposed road is rolling terrain. However, there are a few sections in Cabugao, Eden and Calaocan where slope protection structures need to be constructed, particularly the embankment portion of the road so it could be protected from erosion and to stabilize the road. Drainage structure should also be constructed at identified location/station to avoid flooding of the road bed.

4. Environmental Management Plan

The proponent shall establish as institutional partnership with relevant to government agencies, various stakeholders and the local community relative to the project. This is necessary to maintain positive relationship of the project towards the host community and its residents to promote environmental protection and enhancement.

This may include the following:
-Comply with existing environmental policies, laws, and regulations
-Comply with all mitigating and enhancement measures identified
-Observe proper waste management practices by providing adequate garbage receptacles in strategic points of the project site observing regular collection and disposal in and approved disposal site
-Maintain the cleanliness of the project facilities and immediate vicinities;
Organize and conduct information, education and communication (IEC) activities on solid waste management program such as recycling, reuse, reduce with emphasis on composting, sanitation, proper handling, collection and disposal of generated waste.

Matrix of Potential Impacts and Mitigation Measure

Issue (Potential Impact)	Assessment	Mitigation Measure	Schedule/ Duration of the Mitigation Measures	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*	Responsible Unit
1.Temporary increase in sedimentation during construction	[√] Topography of the road alignment necessitate massive earthmoving and cutting of clayey or loose topsoil [√] Cut materials will consist mainly of hard rocks and are unlikely to generate significant sediments	Earthmoving/ cutting of slopes to be done during dry months	Whole project duration	Not Applicable	PEO
2.Potential contamination of surface and ground water with oil/grease	[√] Waste oil and grease from equipment could contaminate surface water [√] There will be no or insignificant amount of waste oil/grease	• Proper handling and disposal of waste oil and grease	Whole duration of the project	Not Applicable	PEO

3.Potential contamination with human waste	[√] Workers would be mostly locals and are expected to go home to their respective houses after works	• Laborers should come from the locals			
4.Potential disruption of traffic flow	[√] The access road and/or segments to be rehabilitated need is vital to daily activities of the residents and farmers and need to be kept open to traffic during construction [√] The construction will not affect daily movement of residents and farmers	• Keep the road open to traffic flow and minimize disruptions along the access road and/or construction area; Provide adequate warning signs and traffic personnel when necessary	Whole duration of the project	Employ road traffic personnel from the locality	PEO
5.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 construction/ rehabilitation does not pass through any populated area	• Set-up speed limits for vehicles, especially within residential areas	Whole duration of the project	Contract	PEO
6.Landslide/erosion of exposed road sides resulting in sedimentation of waterways	[√] The road will traverse a mountainous area necessitating deep cuts on mountainsides, particularly between station _____ and _____, etc (check DED for deep cuts)…	Stations are specified in the drainage station schedule. Consult with the Municipal Engineer:	Whole duration of the project	LGU Commitment Letter	PEO

	[√] The exposed slopes will likely consist of highly erodible loose materials [√] The cut slopes will be hard materials that would resist erosion [√] The road passes through a relatively benign terrain, cuts will be minimal [√] The rehabilitation work does not involve additional road cuts	Riprap and Terracing			
7.Inadequate drainage resulting in flooding or ponding	[√] The road will block runoff, resulting in flooding on one side of the road during rainy days. [√] Drainage issues unlikely	• Not Applicable	Whole duration of the project	DED	PEO
8. Potential increase of pesticides due to intensification of cash crop production in the area	[√] There is an ongoing IPM program of DA in the service area [√] Farmers in the service area have not been trained on IPM	• DA to continue to support IPM program • LGU to coordinate with DA on IPM training	Whole duration of the project	• Capacity building plan O and M Plan; • Capacity building plan/IEC activities	OPAg/DA
9. Potential acceleration of pesticides due to intensification of cash crop production in the area	[√] The road connects only lowland farms to the market	• No measure required		O and M; Capacity building Plan	OPAg /DA

10. 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 as these are already existing roads	Whole duration of the project	O and M; Capacity building Plan	PEO; OPAg/DA
11. Local employment	[√] Construction will provide local employment opportunities	• Earthmoving/cutting of slopes to be done during dry months	December 2014	Not Applicable	PEO

ANNEXES