ENVIRONMENTAL ASSESSMENT

Natural Habitat

The project is located outside the ancestral domain and will not affect any Indigenous Cultural Community or Indigenous People (IP). To officially state this claim, the provincial government has requested the National Commission on Indigenous Peoples (NCIP) to issue a certificate of non-overlap that the proposed site is not covered by any Ancestral Domain (Annex 21). Also, the project site is not within a declared or proposed protected area. The access road traverses both agricultural and residential areas. Based on a public consultation conducted in the concerned barangays, the affected communities in general are agreeable to the road width expansion and expressed support to the realization of the project for it is one of the long time aspirations of the residents.

It is also worth mentioning that there is no cultural or historical monument or structure which will be affected by such improvement.

The Provincial Government of Nueva Ecija, which is the implementing body, is responsible for the proper implementation of all the mitigating measures and will conduct regular monitoring during project execution. Local planning and policies will take climate change into consideration and will make infrastructure such as roads and other development needs be climate proofed.

The proposed subproject is a 2.95593 kilometer farm-to-market road traversing four barangays of Basang Hamog, Pantoc Bulac and Bulac in Talavera. The subproject site is not within a declared or proposed protected area. The road passes through productive agricultural land. However, the road right-of-way requires a total width of 8 meters, thereby expanding the existing road width of 5 meters. Based on a public consultation conducted in the concerned barangays, the affected communities in general are agreeable to the road width expansion and expressed support to the realization of the project for it is one of the long time aspirations of the residents.

In terms of land use or vegetation the proposed sub project will not cause to conversion of agricultural to non - agriculture use and it will not affect wildlife since the area is considerably alluvial plains with 0 ï 3% slope. There is no existing body of water as source of irrigation/drinking since the road influence area is mostly agricultural and the existing water supply is hand pump and the construction will not affect the aquifer in the area since there is extraction and waste water.

No wildlife will be disturbed as there are no terrestrial ecosystem like forest, marshland, grassland, mangrove and wetland existing in the area and so therefore there is also no endangered and other important species.

Physical Cultural Resources

The project has no significant effect in the physical cultural resources which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. The existing access road traverses both agricultural and residential areas. Most of the existing residential structures have enough set back from the road. Thus, the widening of road will not affect any structure. However, some of the perimeter fences made of concrete and/or wooden materials, fruit-bearing and/or forest trees and electric posts will be affected. Appropriate actions to transfer, replace and rebuild said structures will be made. It is likewise worth mentioning that there is no cultural or historical monument or structure which will be affected by such improvement. On the other hand, the agricultural land that will be affected by the widening is immaterial compared to the benefits of the project to the farmers in terms of agricultural productivity and increase in farmersô income. This perception was confirmed by the farmers during the consultation meeting conducted in the concerned barangays. The project implementer will observe all the provisions stipulated in the Integrated Environmental and Social Safeguards Framework (IESSF). Further, the Chance Archaeological/Paleontological Finds Procedure will be discussed by the provincial LGU to the contractor, site engineers and other on-site personnel for their reference. A copy of the Chance Archaeological/Paleontological Finds Procedure for the subprojects will be made available at the construction site at all times (Attached the Annex H 2 the Archaeological Chance Finds Procedure).

Terrain, Soil Type and Rainfall

The terrain of the RIA is relatively flat, or having slopes less than 3 percent. Meanwhile, the surface soil is Maligaya Silt Loam, which is brown to dark-brown, slightly friable and fine granular silt loam with some bricks red streak. It covers more or less 856 hectares, the depth ranges from 25-30 centimeters. Vegetables, corn, onion and fruit trees are grown in this soil type. Quingua Silt Loam covers 17.13 % of total area of the RIA with approximately 180 hectares. This type of soil is characterized by

a heavy friable find to a course granular surface soil to a depth ranging from 25 ï 40 centimeters. Rice, onion, vegetables and corn are grown in this soil type and the remaining 1.43 % is Quingua Fine Sand, it covers 15 hectares of the RIA. This soil is formed by the accumulation of fine sandy material deposited by water during floods. Corn, vegetables, onion, watermelon and fruit trees such as santol, pomelo and other citrus species are grown in this soil. Erosion will not be a problem in the subproject because the project is relatively flat with 0- 3% slope.

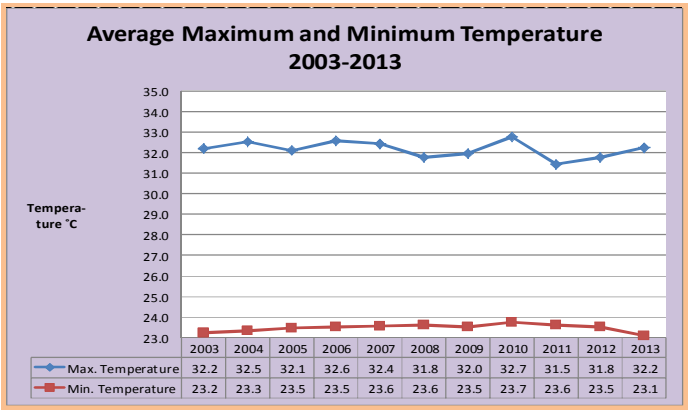
North Talavera where the RIA locates is characterized by favorable climate, which contribute to the diversity of its biological and physical environment. It belongs to Type - A climate with two distinct seasons (dry from Novemberï April and wet during Mayï October). Heavy rainfall usually occurs during the month of August to September that often causes flooding in low areas resulting to the total destruction of crops planted thereon based on the comparative Monthly Weather Summary for the years 2003 to 2013. The average temperature of North Talavera during the same period was 24.66 °C. The coldest month was recorded in December at 21.91 °C while the mercury level was at its highest at 31.66 °C in May.

Hazard/Risk Assessment

a. Temperature (2003-2013)

The annual average maximum and minimum temperatures for the period 2003-2013 from PAG-ASA Agroment Station, CLSU, Science City of Muñoz as shown in the figures below showed variability but not statistically significant. A slight increase or decrease was recorded.

Average Maximum and Minimum Temperature (North Talavera)



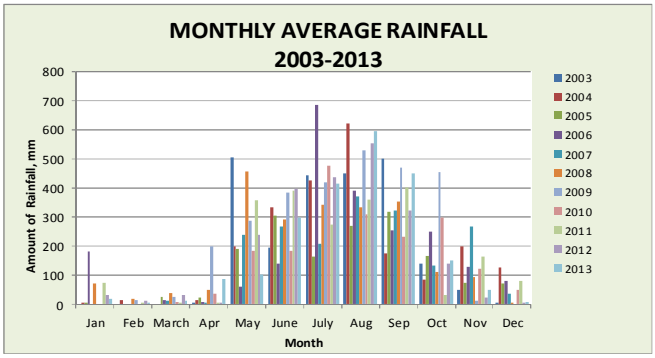
Source: Muñoz PAG-ASA Agromet Station, CLSU

Most part of Nueva Ecija including Talavera has a type III climate or seasons are not so pronounced but relatively dry from November to April and wet

for the rest of the year. There is a dry season or a minimum rainfall would occur during summer season or from the month of March-April-May; rainfall increase during southwest monsoon or Habagat during the months of June-July-August; a slight decrease of rainfall for the months of September-October-November but there is a tendency of having a maximum amount of rainfall due to weather disturbances and for the months of December-January-February or during the Northeast Monsoon or Amihan a relatively dry season would be experienced.

From the data gathered from CLSU Station showed in the below figures and tables, the occurrence of rainfall in North Talavera are not so pronounced, sometimes the rain comes in dry season November to April, though the highest amount of rainfall still comes in the months of June, July and August.

Monthly Average Rainfall (North Talavera)



Source: Muñoz PAG-ASA Agromet Station, CLSU

North Talavera Monthly Average Rainfall CY 2003-2013

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2003	0	0	0	3	503.6	195.7	443.4	448.7	503	140.6	48.6	1.2
2004	2	15.6	0	14.6	198.4	331.2	424.4	621.6	173.2	83	197.6	123.6
2005	0.2	0	25.8	20.4	189.4	306	162.6	269.6	319.1	166.8	74.9	68.7
2006	181.4	0	13.3	8.4	59.6	140.3	685	390.2	254	249.4	130.2	79.6
2007	0	0	11.3	4	240.1	266.8	209.5	369.5	322.9	130.7	266.8	34.6
2008	70.5	18.8	40.4	50.6	455	291.4	341.3	330.7	353	110.2	93.3	1
2009	0	16.6	25.2	197.2	286.5	383	418.9	530.4	469.8	454.2	10.1	0
2010	0	0	8	36.2	184.9	183.4	476.1	307.1	233.1	297.4	120.6	49.2
2011	74.4	0.4	2.8	0.5	356.5	391	274.6	360.3	401.9	32.6	164.1	80.4
2012	31	12.3	32.4	4.6	240	398.1	435.2	552.3	322.7	138.7	21.2	5.3
2013	17	5.2	11	86	100.7	297.4	416.6	593.7	450.1	148	48.5	8.4
Total	376.5	68.9	170.2	425.5	2814.7	3184.3	4287.6	4774.1	3802.8	1951.6	1175.9	452
Ave.	31.38	5.74	14.18	35.46	234.56	265.36	357.3	397.84	316.9	162.63	97.99	37.67

Source: Muñoz PAG-ASA Agromet Station, CLSU

Typhoon That Hits Talavera, Nueva Ecija

TYPHOONS THAT HIT NUEVA ECIJA				
2010				
TD, TS, TYP	BASYANG	July 12-23	55-120	1,2
TD, TS	DOMENG	Aug. 3-5	45-65	1
2011				
TD, TS	BEBENG	May 5-9	55-85	2
TD, TS	JUANING	July 25-28	55-95	2
TD, TS, TYP	MINA	Aug. 21-29	45-195	1
TS, TYP	PEDRING	Sept. 24-28	65-140	3,1
TS, TYP	QUIEL	Sept. 29-Oct. 2	105-140	2,1
2012				
No Typhoon hits Nueva Ecija				
2013				
TYP, TD, TS	GORIO	Jun 26-Jul 1	45	2,1
TYP, TD, TS	LABUYO	Aug. 9-12	45-175	2,1
TS, TD, TYP	SANTI	Oct. 8-Oct. 13	45-150	3

Source: MENRO, 2014

Nueva Ecija as frequently visited by typhoon which make is susceptible to flooding due to heavy rains but it is not susceptible to landslide or erosion due to its flat topography. The flooding potential of Talavera particularly in the area of FMR is low to moderate.

Drainage Situations and Flooding Potential

There is an existing box culvert in the farm to market road located in Sta. 0 + 108.99 aside from the irrigation system (Sta. 1 + 760 to 2 + 183.36) coming from the creek that connects to the nearby Talavera River which then supplies water to the agricultural land.

Rain water coming into the right of way also increases the water level of the creek and streams. Mud and silt carried by heavy rains or storm flow could deposit gradually inside drains and channels and affect their effective capacity. Debris, large objects and tree fragments could also be washed down catch pits and channels and create serious flow restrictions going to creek and streams. In minimizing the increase of the quantity of flows on the receiving creek and streams, appropriate flooding measures should be consider in the construction of the farm-to-market road such as cross drain system (2 RCPC will constructed) to

the drainage outlets, clearing of waterways and planting of trees to lessen the water flow by way of infiltration. These improvements could affect flow paths and could bring unexpected flow to certain section of the drainage system.

Pest Management

These direct beneficiaries have been a recipient of different projects and programs under the Department of Agriculture. One of such program that help the farmers to increase their harvest is the Integrated Pest Management (IPM) Kasakalikasan wherein the farmers were trained to identify insects pest and diseases and how to manage the ricer field during the sixteen (16) weeks of on-site training conducted during wet season (June ï Oct. 1997) wherein 57 farmers have undergone the said training cum practicum on the field conducted by the Philippine Rice Research Institute (PHILRICE) and LGU Talavera . This was followed by Palay Check Farmers Field School in Wet Season 2009. This was in collaboration with the Department of Agriculture Region 3, Agricultural Training Institute (ATI), OPA and LGU Talavera. The Palay check System is an offshoot of IPM Kasakalikasan.

Due to the said trainings and seminars, farmers have lessen the use of chemical insecticide thus protecting their health as well as the environment in the hazardous effect of toxic chemicals. The farmers also learned from the said trainings the right timing and amount of fertilizer needed by the plants thereby increasing their average yield 4 MT to 7 MT per cropping.

Under the farm mechanization program of the DA-RFO3, Bulac, Pantoc Bulac, Basang Hamog and Tabacao are recipients of Multi-Purpose Drying Pavements, Hand Tractors, Mechanical Dryers Laminated sacks, Palay shed and flatbed dryers.

On civil society organization, there are various organizations in these barangays, the Irrigators Associations (Bulaklak FIA, Tabas IA, Trianggulo IA, etc,), the Nagkakaisang Magsasaka ng Tabacao Agricultural Multi-Purpose Coop,, Kababaihan ng Tabacao Cooperative, Rice-Vegetables Growers assn. of Tabacao and Basang Hamog, Barangay Pastoral Council, 4-H Club of Bulac and 4-H Club of Basang Hamog, Rural Improvement Club of Bulac, RIC-Pantoc Bulac, RIC Basang Hamog, RIC Tagaytay, RIC Tabacao.

Action Plan - Pest Management, CY 2015

Program / Project / Activities	Barangay	Target Indicator (no)	Time Line	Person Responsible
1. Conduct of Farmers Classes / Information Dissemination on Pest & Diseases (RBB, Rat)	Basang Hamog	1	May 19	V. Leandro
	Tabacao	1	May 20	V. Leandro
	Bulac	1	May 21	R. Galindez
	Pantoc Bulac	1	May 22	R. Galindez
2. Technical Briefing on Rice Crop Management	Basang Hamog	1	June 18	V. Leandro
	Tabacao	1		V. Leandro
	Bulac	1	June 4	R. Galindez
	Pantoc Bulac	1	June 5	R. Galindez
3. Technical Briefing on Hybrid Rice Production	Basang Hamog	1	June 5	V. Leandro
	Tabacao			V. Leandro
	Bulac	1	June 11	R. Galindez
	Pantoc Bulac			R. Galindez

Status of Environmental Clearances

Status of Environmental Compliance Certificate (ECC) Application (Annex 20)

The Municipal Environment and Natural Resources Office (MENRO) filed an application for Environmental Compliance Certificate (ECC) to the Environment and Management Bureau (EMB) Region III, San Fernando Pampanga on January 12, 2015. A certification was issued by the DENR/EMB for procedural screening on the same date. Part of the screening, EMB review committee together with the MENRO had done actual review of Initial Environmental Examination (IEE) checklist and site validation last February 26, 2015. LGU is now waiting for the result of their study, if they will issue ECC or deny for further review and revision. The DENR/EMB Region III should issue an ECC certifying that based on the representations of the proponent, the proposed project or undertaking will not cause significant negative: environmental impact. The ECC will also certifies that the proponent has complied with all the requirements of the EIS System and has committed to implement its approved Environmental Management Plan. The ECC will contains specific measures and conditions that the project proponent has to undertake before and during the operation of a project, and in some cases, during the project's abandonment phase to mitigate identified environmental impacts.

Status of Application for Cutting of Trees (Annex 18)

On November 6, 2014, the Municipal Mayor of Talavera filed a written request to the CENRO of Talavera, Nueva Ecija for a permit of a cutting of existing trees in Barangay Basang Hamog, Pantoc Bulac, Bulac, Tabacao and Tagaytay. The same request was filed by three concern barangays: Basang Hamog, Pantoc Bulac and Bulac thru their respective barangay captain dated November 20, 2014. Then, after an inspection conducted by the CENRO; a memorandum dated November 26, 2014 was issued for the Provincial and Natural Resource Officer (PENRO) Re: Request to issue Tree Cutting Permit in favor of the Municipality of Talavera and sent and received by PENRO November 27, 2014. The PENRO forwarded the request to Regional DENR on December 2014. The Regional DENR due to conflict in the figure of inventory of trees requested the CENRO Science City of Munoz to do a recount and it was conducted on March 26, 2015. The final count will be forwarded again to Regional DENR for their final assessment and issuance of cutting of tree permit.

Aside from fruit and forest trees, they also found out that there are numerous coconut trees to be cut regardless of sizes and age and there is a need to request again a special cutting permit from Philippine Coconut Authority, Region I, II, III and IVB. And, on January 21, 2015 the MENRO submitted a letter for the Regional Manager of Philippine Coconut Tree and sent and received by the concern office on January 26, 2015. All requirements had also been submitted to PCA Balanga, Bataan on March 13, 2015 for their review and consideration for the issuance of Special Cutting of Coconut Trees.

Status of Application for Transfer of Electric Post (Annex 17)

A written request to the Manager of Nueva Ecija Electric Cooperative II, Area I was sent thru the Municipal Assessor and Noted by the Municipal Mayor on December 23, 2014.

Location of Quarry Source, Disposal and related Clearances

Based on the validation report of the Environment and Natural Resources Office of Nueva Ecija, construction materials for embankment could be sourced out within the nearby barangay and municipality. The location of the proposed quarry site is in Talavera River where the existing quarry area located. The quarry site is 5 - 6 kilometers away from the project site. The District Engineer of DPWH NE 1st DEO

conducted testing on the quality of materials in Talavera river bed to check for the good quality source of materials (Annex 14 Certification Issued by NE PEO on Capability on Performing Material Test), (Annex 36 pictures of propose quarry site)

Several authorized sources for quarrying are available within the influence area in barangay Lomboy, Sicsican Matanda, Tabacao, Basang Hamog and Pantoc Bulac, Talavera, Nueva Ecija which is approximately 1 to 3 KM away. Talavera River bed was the identified quarry site for the project. Other construction material such as cement, reinforcing bar is likewise not a problem because the existing hardware stores situated at Barangay Poblacion at around 10 to 15 kilometers away.

Location of disposal site for excess materials or logs of trees to be cut and excess excavation.

The proposed farm-to-market road will entail surplus common excavation. Disposal site have been identified to haul these surpluses outside of the limits of the road right of way. This will minimize the amount of site litters and will prevent the indiscriminate dumping of surpluses along the roadside. Assurances is made by the LGU that these wastes will be collected and properly disposed of in accordance with government regulations. The vegetation covered there are acacia, anonang, camachile, gmelina, ipil-ipil, mahogany, mango jackfruit, coconut and malunggay. Log of trees to be cut will be given to the occupants who raised the trees.