c. Social Analysis

i. Subproject Beneficiaries

Residents of Sitio Magtuod and Sitio Vergara will be the main beneficiaries of the subproject. The total population who can benefit with the rehabilitation of the FMR is 5,866 with 1,219 households. There are four (4) sitios or puroks with a total population of 2,290 comprising of 448 households considered as direct sub project beneficiaries and the rest are indirect beneficiaries. Majority of them are farmers, agrarian reform beneficiaries and laborers. Their main economic activity is farming for those with land holdings, or CARP beneficiaries. Others are engaged as sugarcane farm workers and laborers. The FMR project was conceptualized when government officials visited the area during peace and order consultation with the residents last July, 2013 and they were the ones who presented the problem to the government officials who were present.

Table d. Subproject beneficiaries

Barangay	Population Number	Male	Female	No. of HH
w/in direct RIA				
1. Sitio Magtuod	877	357	520	235
2. Sitio Vergara	492	197	295	85
3. Sitio Dahlia	321	151	170	48
4. Sitio Magsilom	400	152	248	50
5. Ata Bukidnon	200	92	108	30
Total	2,290	949	1341	448

Source: MPDO, Toboso

The consultation was attended mostly by mothers or women who expressed their difficulties in finding other sources of income or livelihood opportunities because of the present road condition. The existing road condition is an all-weather road which is inaccessible from any type of public utility vehicles except for carts and four wheel drive vehicles or trucking which is used for hauling inputs for farm production and loads of sugarcane during harvest season.

Aside from the local community who attended the consultation, the tribal community identified as the Ata Bukidnon also wrote a letter to the governor expressing their desire to have the Bug-ang to Vergara FMR rehabilitated to give them accessibility to transport their products towards the trading centers.

The project is essential in influencing economic and social development of the target barangay. With the construction of farm-to-market road the residents can effectively drive the socio-economic development of their locality and feel more included in the national level interventions. The project will bring many benefits for the local residents and these include access to education and health facilities and improved socio-economic activities.

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

An Indigenous Cultural Community/Indigenous People (ICC/IP) called "Ata" is present within the road influence area of the proposed Farm-to-Market road project but no ancestral domain is located in the proposed sub project for this is an existing private owned sugar road subject for rehabilitation. These IP's community is located about 30 meters away from the proposed subproject and this will not pose any problems for they will also be the direct beneficiaries of the subproject FMR for this will give them ease and comfort to find livelihood opportunities. A Certificate of Non- Overlap from the National Commission of Indigenous People is hereby attached.

iii. Site and Right-of-Way acquisition -

The proposed Farm-to-Market road will traverse areas with Original/Transfer Certificate of Title and Certificate of Land Ownership Award (CLOA) from the Department of Agrarian Reform. Each land owner agreed to donate a portion of their land as required by PRDP, which is 9 meters wide (4 meters carriageway and 1.5 meters shoulder on both sides. As to survey, there are Project Affected Persons but, these households identified are either CLOA members or squatters of titled land that plant crops and trees on the roadsides.

There are 14 lots that were affected or being traversed by the proposed Rehabilitation of Barangay Bug-ang to Magtuod to Vergara Farm-to-Market Road under PRDP. Within the proposed FMR, a Bottom Up Budgeting (BUB) road rehabilitation project is constructed starting at Sta. 111 + 506 to Sta. 112 + 106 having a length of 600 meters covering Lot 420, 421 and 422. Lot 423, which was originally owned by Cynthia Fermin was covered by CARP and transferred to Joemarie Navajas and Teddy Olite through Voluntary Offer to Sell by the DAR thus the latter two executed Deed of Donation to this effect. For Lot 374 owned by James Tupas, Mr. Joseph Edgar Sarrosa was given a Special Power of Attorney to sign in his behalf.

For Lot 216 as declared under the name of Antonio Vaflor being deceased, his wife Socorro Vaflor signed the Deed of Donation in his behalf (*See Attached Notarized Deed of Donation; annotation with the Register of Deeds is on process.*

iv. Damage to standing crops, houses and/or properties

Since this is an existing sugar road, damage to standing crops include 24 forest trees, 7 coconuts, 8 bananas, 1 jackfruit tree and 1 bamboo. PAPs whose crops/trees will be affected waived their right for any monetary fees instead, they voluntarily cut down these trees and used to repair their houses that were damaged during Typhoon Yolanda. Upon 2nd validation, there are still trees that were not cut thus, a Cutting Tree permit is requested both from DENR and the Philippine Coconut Authority. Coconut trees are still unproductive thus, transferring of the said trees is highly suggested.

The 4 owners of Lot 421 and 422 were not included as PAPs for their property is under the BUB project and it was not included in the rehabilitation. Mildred Niez, Moreto Gabelan and Julia de la Fuente are included for they are the persons who planted trees and cash crops along the sugar road which will be removed upon the implementation of the proposed sub project. The implementation of the project does not affect any houses and /or properties for during the awarding of land ownership, the sugar road which is 10

meters width was segregated from the total land area. An inventory of project affected persons is hereby detailed in Annex G-2 and entitlements is in the form of Waiver of Quit Claim.

Whereas the land owned by the Municipality of Toboso is a vacant land being used by the community as grazing area for their animals with a total land area of 40,000 sq. m.

v. Physical displacement of persons

There will be no displacement of persons/properties or relocation of houses of the farmers/residents. The proposed project is a rehabilitation of the existing sugar road which was already segregated by the land owners themselves. For areas covered by agrarian reform, the concerned national agency had allocated and segregated 10 meters wide road exclusion prior to the distribution of CLOA to the farmer beneficiaries.

vi. Economic displacement of persons

Economic displacement of persons in the proposed subproject will unlikely to happen instead there will be increase in livelihood opportunities for the residents as well as the whole community of Barangay Bug-ang and the neighboring barangays & municipality. Water source can be tapped for irrigation or communal water system and hydroelectric power system can be expanded energizing more household consumers.

Annex G - Form 2. Inventory and Entitlement of Project Affected Persons

					1011112.							,						Pro	oject N	lumb	er:	
Bar	angay: Bug ang							Municipality: Toboso					Province: Negros Occ. Region: V			: VI						
				Land,	Crop, and	d Tree:	s Losse	es					Struc	cture	s Los	sses		Econ Loss	omic es			
HH Survey No.		Name of Head of Household	No. of Persons in HH	Total Landholding of Hhold in sq.m.	Land to be Acquired in Sq. M.	cand Type	Land Loss as % of Total	**Crops lost type	No. of trees lost	Coconuts	Cash Crop/bananas	Fruit trees Lost Number (Bamboo)	No. & Type of lost structures	Structures Permanent in Sq. M.	Structures Temp.in Sq. M.	Fombs Number	Wells No.	Business lost	income Lost	Temporary losses (Specify)	Other (Specify)	Total Entitlements n Pesos
1	Mildred Niez		3	200		A	6.5	Trees	4		8		N/A			•						Waiver of Quit Claim
2	Wilfredo Gregorio		6	51,935	783	A	1.5						,									Deed of Donation/ Quit Claim
3	Moreto Gabilan		7	240		A	4.16		7			1										Waiver of Quit Claim
4	Joemarie Navajas	7	1	93,104	630	A	4.02	Trees	8				N/A									Waiver of Quit Claim
5	Teddy Olete	}	6	·	3114	Α		Sugar cane														Deed of Donation
6	Julia Dela Fuente	力	8	280		A	1.78	Trees	5				N/A									Quit Claim
7	Eulando Serondo		6	392,565	11,151	A	2.84	Sugar cane														Deed of Donation
8.	Bibiano/Alberta Alquiza		6	79,746	1917	A	3.06	trees		3												Deed of Donation
9	Herminigildo Daniel	\bigcup	4		531	A		Sugar cane														Deed of Donation
10	Danilo Ducay		6	46,900	4059	A	8.65	Sugar cane														Deed of Donation

11	James Tupas		68,120	2502	A	3.67	Sugar cane									Deed of Donation (with SPA attached)
12.	Marcela Tingson (deceased) c/o Marlito Tingson	3	31,300	2475	A	0.94	Sugar cane									Deed of Donation
13.	Antonio/Socorro Vaflor		156,080	7038	A	4.50	Sugar cane									Deed of donation
14	Municipality of Toboso		40,000	4815	A	12.03										Tax Declaratio n
тотл	AL 6	2	960,470	39,015		53.65		24	7	8	1					

^{*} Refer to Form No.1 (on file) as source of above data

^{**} As to sugarcane- no economic lost declared for this area planted with sugarcane because only 3 -4 meters were affected by the proposed construction

The number of trees that were included in the inventory had been voluntarily cut by the owners themselves and being used to repair their houses that were damaged during Typhoon Yolanda

d. Environmental Analysis

i. Natural Habitat

The proposed project shall be located in Brgy. Bug-ang, Municipality of Toboso. It will traverse a private land/property passing through two (2) "overflow bridges" and the old sugarcane road that connects the area to the nearest point where basic services are easily available.

It is characterized by the presence of "hacienda systems" as indicated by the wide expanse of sugarcane plantation. Evidently, land use is focus on agriculture with sugarcane as the dominant crop. It was learned that the area has been covered by Certificate of Land Ownership Agreement of the Department of Agrarian Reform issued to 140 beneficiaries.

Sparse tree vegetation can be seen in small but rocky and distant part of the area. There are 24 forest trees, 7 coconuts, 8 bananas and 1 bamboo tree are observed to be an obstruction on the proposed 4.13 FMR project. The area is not a wildlife habitat for it is an agricultural land per Land Use Plan of the Municipality of Toboso, thus indicating that the project will have insignificant impact on the forest and its inhabitants. This subproject farm-to-market road is outside the declared natural habitat and it is not part of the proposed natural habitat for it will be utilizing the existing rugged road accessible only to four wheel vehicles and is basically earth and received little maintenance. It passes through a side cut and a through cut which needs widening.

However, the area enjoys the presence of two water ecosystem namely: Himoga-an River and Dalinson River. These two water ecosystem provides water for hydroelectric power and domestic needs of the communities.

ii. Physical Cultural Properties or Resources

The construction of the proposed farm-to-market road does not traverse any cultural property or resources either owned by the IP or of any declared cultural heritage nor it is within or adjacent to ancestral domain for the road influence area are titled property. There are no other observed monuments or archaeological sites in the area.

iii. Terrain, Soil Types and Rainfall

The area can be reached through rough, hilly road and is characterized by a flat and rolling topography with a maximum gradient of 17 .25 %. It has a clay and sandy type of soil which is generally loose. Based on the Soil Classification Map of the Province of Negros Occidental, the Municipality of Toboso, specifically that of Brgy. Bug-ang where the proposed

subproject shall be located is classified as Louisiana Clay type of soil. It has ASSHTO Soil Classification Rating of A-7 which means that it has a liquid limit of 41 min and a Plasticity Index of 11 min. It is observed to compose of primarily clayey soil with a general sub grade rating of fair to poor.

Rainy season starts from May to December with heavy rainfall occurring during the months of September-December.

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

Historically the area had experienced flooding because of the presence of Himoga-an and Dalinson Rivers. It was learned that flood height in Himoga-an River can reach approximately 3 meters high above the existing overflow while flood height in Dalinson River can reach 1.5 meters with a discharge of approximately 232 cu.m./second. Slide drainages only exist on steep grades with evidences of scouring due to absence of canal linings.

The presence of these two river crossings along with the Bug-ang Creek road crossing with an estimated total catchment area of 4,505.55 hectares presents a likelihood of flooding as Himoga-an river is a combination of an overflow and a modified pontoon bridge opening to a channel 6 m wide. The width of the overflow is 5m with a total length of 70 m. Another major road crossing is the unfinished Dalinson River Ford Slab with missing concrete pavement and exposed boulder fill with the width of 3m and a length of 30 m. Rehabilitation of these overflow will minimize the occurrence of flood in the area. Further, Bug-ang creek road crossing has an existing 910 mm RCPC and needs to be replaced for the culvert is damaged and dilapidated to the extent that it blocks the flow of water during heavy downpour.

Replacement of damaged and dilapidated box culverts, provide slope protection at the start and end of overflow and riprapping of concrete pavement to prevent scouring during downpour.

All major structural members of the spillway is made up of reinforced concrete which conforms to DPWH standards. Having a slab thickness of 0.15m all throughout, it is therefore expected to resist significant loadings such as moving loads for the passing vehicles and impact loads on the aprons and side walls for worst scenarios. Side walls were designed in an inclined angle to deflect incoming debris from clogging up in the culvert openings. The structure is expected to be anchored on bedrock as evident on the topography where the dam structure is situated a few meters downstream of the spillway. It is located a few meters

before a fall on a hard rock strata. Proper compaction of the foundation fill will greatly aid in the integrity of the structure. Concrete barriers were also added as safeguards for the passing vehicles. Wing walls are also added to protect the approaches from scouring and also the apron on the downstream side is increase to 3m to accommodate the effects of hydraulic jump which is computed to be within the 3m length where most likely scouring will occur. With regards to the hydraulic capacity of the 10-lines of reinforced concrete pipe, at normal river flow it only utilizes about 17% of the RCPC's capacity which means it has more than enough freeboard capacity to accommodate more water at slightly heavy to heavy rains. The spacing of the RCPC's is also considered in the design process to negate any negative effects of the water to the structure at its ends or its approaches. Lined canals are expected to exit at the end of the wing walls to avoid any scenario of scouring brought about by the water in the lined canals.

Countermeasures on the occurrence of high flood levels or when water overflows the spillway will be installed. Warning signs will be provided before each approaches of the overflow. Approximately 200 m before and after the structure. Lighting facilities will be provided on both ends of the structure using power from the hydroelectric plant. Designated areas for maneuvering will be provided alongside of the approach of the spillway or wherever possible. Planting of trees on the river banks upstream and downstream will be facilitated to ensure the stability of the banks. Additional countermeasure will be provided on critical areas, like geonets or rip-raps. During construction phase certain measures will be taken to ensure that there will be no adverse effect of the construction project on the environment before and after the project. This measures are as follow: (1) Ensure that the temporary water diversion structure of cofferdam is stable all throughout the construction period.

- (2) Demolition of the existing structure must have the minimum sedimentation effects on the downstream portion of the river. Careful excavation and enclosure of the excavated portion must be observed and utilized.
- (3) Spoils from the demolition of the ford slab are a mixture of boulder, well-graded gravel and concrete slab cut-outs. Boulders and well-graded gravel well be used as embankments in order to stabilize earth roads adjacent to our Sub-project FMR. While concrete slab cut-outs will be given to poor nearby households and may re-use them as slab floorings for their houses. And lastly,
- (4) Safety and proper solid waste disposal will be imposed all throughout the project duration. Solid waste will be collected and to be disposed to the barangay dump site. Note that there will be no trees that will be cut during the construction of the spillway within its construction area and if there is any, replacement of trees will be imposed.

v. Status of Environmental Clearances

The Rehabilitation of Sitio Magtuod to Sitio Vergara Farm-to-Market Road falls under Category B per DAO-03-2030 Procedural Manual, and we are processing an Environmental Clearance Certificate based on the revised guidelines of the Department of Environment and Natural Resources. The delay is due to the processing of the Proof of Ownership with various landowners that were affected with the rehabilitation of the Farm-to-Market Roads where their land titles cannot be located.

The rehabilitation of Sitio Magtuod to Sitio Vergara FMR consist of concreting the existing sugar road. The present width of the sugar road is 7 meters and PRDP requires us to increase its width to 9 meters to give room for a double lane concrete road with a 4 meter carriageway. Despite that the increase in width is less than 50%, an Environmental Clearance Certificate (ECC) is processed with the Environment Management Bureau of the DENR for this is more than 2 kilometer road length. Topographic /Vicinity map, Proof of Ownership in the form of Deed of donation from lot owners, the latitude and longitude of the subproject FMR is being complied for the issuance of ECC from DENR-EMB. Requests had been made to this effect and issuance is subject to the compliance of the above requirements.

The proposed location of quarries, borrow pits and construction materials are in Brgy. Tadlong and Brgy. Malubon, Sagay City with a distance of 25 km from the proposed sub-project site. The materials will be bought from the sources and to be hauled to the project site. The availability of the materials is more than enough to complete the said sub-project FMR. (See Annex Photo of Quarry site and DPWH certification).

Based on the Assessments in Annex A-2 (PRDP Screening Form) Environmental and Social Management/Mitigation Plan (ESMP) was prepared after identifying Potential issues and come up with mitigating /management measures to safeguard the implementation of the subproject. These issues and concerns are detailed in Annex E-1.

vi. Impacts During Construction (see Annex E-1)

Hereunder are the issues with potential impact with corresponding assessment and mitigation measures and how to implement such measures, identifying responsible authority to spearhead its implementation.

Annex E-1

a. Environmental Impacts and recommendations:

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation measure	Schedule/ Duration of the Mitigation Measures	Instrument of Implementa tion (POW, Contract, IDP, or OC&M Plan)*	Respons ible Unit
1. Temporary increase in sedimentation during construction	Topography of the road alignment necessitate massive earthmoving and cutting of clayey of loose of soil No excavation surplus that will be disposed because all excavated materials will be used for embankment purposes	Proper disposal and compaction of soils	5 CD	DED/POW; Contract	PEO, Mun. Gov't
2. Potential contamination of surface and groundwater with oil/grease	There will be no or insignificant amount of waste oil/grease	Proper handling and disposal of waste oil and grease	164 CD	Contract	PEO
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	164 CD	Contract	Mun. Gov't.
4. Potential disruption of traffic flow	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	164 CD	Contract	Mun. Gov't.

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/rehabilitat ion does not pass through any populated areas.	No measures needed		Contract/ O & M Plan	Mun. Gov't
6.Landslide/ erosion of exposed road sides resulting in sedimentation in waterways	The exposed slopes will likely consist of highly erodible loose materials	Include slope protection works at the following stations.110+24 8, 110 +871,13+350 & 113+350	27 CD	DED/POW or (if budget does not permit) LGU Commitment letter	PEO/Cont ractor
7. Inadequate drainage resulting in flooding or ponding	The road will block run off, resulting in flooding on one side of the road during rainy days	Installation of cross drain between stations 109 + 305, 109 +479, 110+280, 110+720, 110+850,111+0 00, 111+350,111+4 80, 112+115,112+2 63, 112+380,112+8 00,113+109&11 3+320	22 CD	DED	PEO
8. Potential increase use of pesticides due to intensification of cash crop production in the area	Farmers in the service area have not been trained on IPM	LGU to coordinate with DA on IPM training	Every quarter	Capacity Building Plan O & M Plan;	Mun. Gov't.
9.Potential acceleration of denudation of the upland/ hilly areas due to intensification of crop production	The road connects only lowland farms to the market	Reforestation program be incorporated with the Municipal Development involving residents and students in the road influence area.	Whole year round	O & M Plan; Capacity Building Plan	

10. Potential increased in encroachment 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	
11.Local employment	Construction will provide local employment opportunities	Hiring priority shall be given to qualified local residents; Implement RI Manual on local hiring	164 CD	Contract	PEO/Mun. Gov't.
12. Use of pesticides/her bicides on crop production	Increase labor cost during weeding and cultivation process	IPM- FFS is introduced Farmers will be trained on proper handling of pesticides and herbicides		O & M	Mun. Govt.
13. Potential flooding of Dalinson Overflow	As sugarcane area the possibility of flooding during heavy downpour could not hold the volume of water that flows from the origin and tributaries of the river	Road signs will be installed 50 meters before and after the spillway.		0 & M	
14. Narrow width of spillway in Himogaan	As protection of vehicles passing the spillway	Concrete barrier to be installed on the entire spillway		Variation Order	Contract
15. Increase volume of traffic after construction	With the improvement of the road network the number of vehicles will increase	Speed limit be regulated		O & M	MLGU/ Brgy Officials
16.Chance Find of Any Archaelogical/ paleontological resources	Construction will be suspended	Secure the area and take photographs of the artifacts with or without the LGU contract administrator or representative Report finds to PPMIU, RPCO SES Officer and to the National Museum			Contracto r/ Brgy Officials/ MLGU

[•] CD = calendar days