

ENVIRONMENTAL MANAGEMENT PLAN

**Philippine Rural Development Project
Environmental Management Plan**

Name of Road: Rehabilitation of Junction National Highway, Mamawan-Diculom-Milidan
Farm to Market Road

Location: Barangays Mamawan, Diculom and Milidan

Implementing LGU: Municipality of Baligian

Estimated number of beneficiaries:

New or Rehab: Rehabilitation

Estimated Total Cost: Php 69,164,420.77

Issue (Potential Impact)	Assessment	Mitigation Measure	Instrument of Implementation (POW, Contract, or O&M Plan)*
1. Temporary increase in sedimentation during construction	[x] Topography of the road alignment necessitate massive earthmoving and cutting of clayey or loose topsoils [] Cut materials will consist mainly of hard rocks and are unlikely to generate significant sediments	[x] Earthmoving/ cutting of slopes to be done during dry months [] Proper disposal and compaction of spoils [] No measures required	DED/POW; Contract
2. Potential contamination of surface and groundwater with oil/grease	[x] Waste oil and grease from equipment could contaminate surface water [] There will be no or insignificant amount of waste oil/grease	[x] Proper handling and disposal of waste oil and grease	Contract
3. Potential contamination with human waste	[x] Construction workers would be temporarily housed in a base camp [] Workers would be mostly locals and are expected to go home to their respective houses after works	[x] Set up adequate latrine/toilet facility at the base camp	Contract
4. Potential disruption of	[] The access road and/or segments to be	[x] Keep the road open to traffic flow and minimize	Contract

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traffic flow	rehabilitated need is vital to daily activities of the residents and farmers and need to be kept open to traffic during construction [x] The construction will not affect daily movement of residents and farmers	disruptions along the access road and/or construction area; Provide adequate warning signs and traffic personnel when necessary; [x] Undertake regular maintenance measures on the passable portions of the roads [] No measures needed	
5. Potential dust/mud nuisance during construction	[x] Roads could become powdery during dry days and muddy during rainy days of the construction period [x] Access road and/or the construction/rehabilitation works passes through a populated area [] Access road and/or construction/rehabilitation does not pass through any populated area	[x] 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 [] No measures needed	Contract
6. Landslide/erosion of exposed road sides resulting in sedimentation of waterways	[x] The road will traverse a mountainous area necessitating deep cuts on mountainsides, particularly between: Left side road Sta. 0+900 to 0+950, Sta. 1+900 to 2+010, Sta. 2+440 to 2+650 Right Side Road Sta. 0+640 to 0+790 Sta. 0+900 to 0+990 Sta. 1+740 to 1+810 Sta. 1+900 to 2+090 Sta. 2+140 to 2+290	[x] Include slope protection works at the following stations: Left side road Sta. 0+900 to 0+950, Sta. 1+900 to 2+010, Sta. 2+440 to 2+650 Right Side Road Sta. 0+640 to 0+790 Sta. 0+900 to 0+990 Sta. 1+740 to 1+810 Sta. 1+900 to 2+090 Sta. 2+140 to 2+290 [] Bioengineering with geomat and cover crop	DED/POW Or (if budget does not permit) LGU Commitment Letter

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	<input type="checkbox"/> The exposed slopes will likely consist of highly erodible loose materials <input type="checkbox"/> The cut slopes will be hard materials that would resist erosion <input checked="" type="checkbox"/> The road passes through a relatively benign terrain, cuts will be minimal <input type="checkbox"/> The rehabilitation work does not involve additional road cuts	<input type="checkbox"/> Fast growing shrub species <input type="checkbox"/> Riprap <input type="checkbox"/> Gabions <input type="checkbox"/> Terracing <input type="checkbox"/> Concrete protection wall <input checked="" type="checkbox"/> Others <u>Stone Masonry</u>	
7. Inadequate drainage resulting in flooding or ponding	<input checked="" type="checkbox"/> The road will block runoff, resulting in flooding on one side of the road during rainy days. <input type="checkbox"/> Drainage issues unlikely	<input checked="" type="checkbox"/> Installation of cross drain between station : Sta. 0+ 504.50, Sta. 0+546, Sta. 0+640, Sta. 0+700, Sta. 0+920, Sta. 0+990, Sta. 1+205, Sta. 1+ 296, Sta.1+ 480, Sta. 1+524, Sta. 1+775, Sta. 2+380, Sta. 2+440, Sta. 2+515, Sta. 2+937, Sta. 3+067, Sta.3+450, Sta. 3+505, Sta. 3+780, Sta. 3+895, Sta. 4+069, Sta. 4+243, Sta. 4+451, Sta. 4+658, Sta. 4+897, Sta. 5+534, Sta. 5+630, Sta. 5+753, Sta. 5+930, Sta. 6+086, Sta. 6+272, Sta. 6+372.	DED
8. Potential increase use of pesticides due to intensification of cash crop production in the area	<input checked="" type="checkbox"/> There is an ongoing IPM program of DA in the service area <input type="checkbox"/> Farmers in the service area have not been trained on IPM	<input checked="" type="checkbox"/> DA to continue to support IPM program <input type="checkbox"/> LGU to Coordinate with DA on IPM training	Capacity Building Plan O&M Plan; Capacity Building Plan
9. Potential acceleration of	<input type="checkbox"/> The proposed road will connect to the	<input checked="" type="checkbox"/> DA to coordinate with LGU for the introduction	O&M Plan; Capacity

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denudation of the upland/hilly areas due to intensification of crop production	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. [x] The road connects only lowland farms to the market	of sustainable upland farming systems in the area [] No measure required	Building Plan
10. Potential increased in encroachments of human activities into the nearby public forest	[] The proposed road will improve human access to the nearby public forest, resulting in increase slash and burn cultivation, illegal logging and poaching. [x] The proposed road does not improve access to a public forest	[] Coordinate with DENR for the enactment of ordinance deputizing the local community to enforce forestry laws [x] No measure required	O&M Plan; Capacity Building Plan
10. Local employment	[x] Construction will provide local employment opportunities	[x] Hiring priority shall be given to qualified local residents; Implement IBUILD Manual on local hiring	Contract
	[] Construction does not provide any local employment opportunities	[] No measures required	
11. Motorists and pedestrians are prone to accident due to the dangerous curve and steep slopes.	[x] Horizontal alignments of the proposed road is consist of dangerous curve and narrow steep which prone to accident and road crashes	[x] Provision of guard rails/ concrete blocks to serve as roadside: protection starting: Sta.0+660, Sta. 0+640, Sta. 0+780 to Sta.0+900, Sta.0+960 to Sta.0+980, Sta. 1+740 to Sta.1+780 Sta. 1+800 to Sta. 2+120	POW

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		And Sta. 2+080 [] Downgrade steep slopes and widen the curve sections.	
12. Habitat destruction due to quarrying	[x] Source of aggregates for road construction will be sourced out from existing legitimate quarry area. [] A new quarry site will be opened to accommodate the requirements for aggregates.	[x] Close monitoring to ensure that the aggregates are from legitimate source, secure copy of the permit of the quarry operator [x] Require appropriate quarry permit	Contract
13. Damage to access/existing road due to construction vehicle	[x] Construction vehicles will cause damage to existing road due to loading/hauling of construction materials	[x] Contractor to assume responsibility for the repair and maintenance of the damaged road.	Contract
14. Increase community hazard of vehicular accidents and construction works		[x] Provide appropriate warning signs, lighting and barricades, whenever practicable [x] Observe traffic rules, e.g. vehicle speed [x] Observe proper housekeeping during construction and demobilization to clear site of construction debris	Contract & Operation and Maintenance Plan
15. Occupational health hazard to workers	[x] Most of the workers are from the community and lacks of appropriate training on occupational health hazard.	[x] Require all workers to strictly observe safety standards [x] Put up safety signs along the road construction route [x] Provide potable water	Contract

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		& sanitary facilities for construction workers	
16. Increased water turbidity and obstruction to water flow	[x] Congestion of construction debris in creeks due to spillway/culvert construction [] Construction of spillway/culvert cause inconvenience to the downstream user of the creek	[x] Remove all unnecessary construction debris [x] Designate holding area for excavated river sediments [x] Coordinate with residents on timing of earthmoving activities in the river	Contract

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