

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

| Issue (Potential Impact) | Assessment | Mitigation Measure | Schedule/ Duration of the Mitigation Measures | Instrument of Implementation | Responsible Unit |
|---|---|---|--|---|----------------------------------|
| 1. Temporary increase in sedimentation during construction | Cut materials will consist mainly of hard rocks and are unlikely to generate significant sediments | <ul style="list-style-type: none"> • Proper disposal and compaction of spoils | 1 st and 4 th week of February 2015 | DED/POW; Contract | PLGU; Contractor |
| 2. Potential contamination of surface and groundwater with oil/grease | Waste oil and grease from equipment could contaminate surface and groundwater | <ul style="list-style-type: none"> • Proper handling and disposal of waste oil and grease | 1 st to 3 rd week of April 2015 | Contract | PLGU; Contractor |
| 3. Potential contamination with human waste | Construction workers would be temporarily housed in a base camp | <ul style="list-style-type: none"> • Set up adequate latrine/toilet facility at the base camp | Before project starts | Contract | PLGU; Contractor |
| 4. Potential disruption of traffic flow | The construction will not affect the daily movement of the residents and farmers | <ul style="list-style-type: none"> • 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 | 1 st week of February until the end of the construction | Contract | PLGU; Contractor |
| 5. Potential dust/mud nuisance during construction | Roads could become powdery during dry days and muddy during rainy days of the construction period <ul style="list-style-type: none"> • Access road and/or construction/rehabilitation does not pass through any populated area | <ul style="list-style-type: none"> • 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 | 2 nd week of March until the end of construction | Contract | PLGU; Contractor |
| 6. Landslide / erosion of exposed road sides resulting in sedimentation of waterways | The rehabilitation work does not involve additional road cuts | <ul style="list-style-type: none"> • Placement of adequate drains outlets and turn outs • Seeding and planting on erodible surfaces | 1 st week of April to 1 st week of May 2015 | DED/POW Contract | PLGU; Contractor |
| 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. | <ul style="list-style-type: none"> • Installation of cross drain system | 2 nd week of May 2015 until 4 th week of November 2015 | DED | Provincial Government of Bulacan |
| 8. Potential increase use of pesticides due to intensification of cash crop production in the area. | There is an ongoing IPM program (KASAKALIKASAN) of DA in the service area | <ul style="list-style-type: none"> • DA to continue support IPM Program | June-July for the orientation of farmers August to November 2014 (16 weeks per FFS-IPM) | Capacity Building Plan O&M Plan; Capacity Building Plan | Provincial Government of Bulacan |
| 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 | <ul style="list-style-type: none"> • DA to coordinate with LGU for the introduction of sustainable upland farming systems in the area | Last quarter of 2015 (before the completion of the project) and onwards | O&M Plan; Capacity Building Plan | Provincial Government of Bulacan |
| 10. Potential increase in encroachments of human activities into the nearby public forest | The proposed road will improve human access to the nearby public forest, resulting in increased slash and burn cultivation, illegal logging and poaching | <ul style="list-style-type: none"> • Coordinate with DENR for the enactment of ordinance deputizing the local community to enforce forestry laws | Last quarter of 2015 (before the completion of the project) and onwards | O & M Plan Capacity Building Plan | Provincial Government of Bulacan |

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| 11. Local employment | The construction will provide local hire employment opportunities | <ul style="list-style-type: none"> Hiring priority shall be given to local residents Implement RI Manual on local hiring | 1 st week of February 2015 (start of implementation) | Contract | PLGU; Contractor |
| 12. Potential to accidents to workers | Workers are exposed to work related hazards such as tripping, slippage that may result to injuries and even loss of life | <ul style="list-style-type: none"> Sealing of construction site. Placement of warning signboards Use of proper construction uniform | 1 st week of February 2015 until the end of the construction | Contract | PLGU; Contractor |
| 13. Potential disturbance of noise | Noise generation maybe at its peak during certain phases | <ul style="list-style-type: none"> Avoid use of heavy equipment during night time. | 2 nd week of March 2015 to 4 th week of November 2015 | Contract | PLGU; Contractor |
| 14. Potential disturbance to wildlife | Closure of migratory routes, disturbance of habitats and noise related problems. | <ul style="list-style-type: none"> Intermittent use of heavy equipment Distance from thickly vegetated areas. | 2 nd week of March 2015 to 4 th week of November 2015 | Contract | PLGU; Contractor |
| 15. Potential to siltation | Stack file of soil and rocks could be eroded during heavy rains and silt up creeks and streams | <ul style="list-style-type: none"> Enclose hazardous area with fence and barriers. | 1 st week of February 2015 to 3 rd week of April | Contract | PLGU; Contractor |
| 16. Potential landscape damages | Scarred from road cuts and induce landslides | <ul style="list-style-type: none"> Maintenance and restoration of roadside vegetation Construction spoils and other waste materials are properly disposed | 2 nd week of May 2015 to 4 th week of November 2015 | Contract | PLGU; Contractor |
| 17. Potential on vegetation control | Avoid cutting of trees as necessarily | <ul style="list-style-type: none"> Replanting of plants and trees to allow it to regenerate and also to protect embankment. Adherence to the guidelines stipulated in the permit to cut trees given by the DENR | 3 rd to 4 th week of February planting within construction period and onwards | O & M Plan Contract | PLGU; Contractor |
| 18. Potential on domestic solid waste | Lack of garbage disposal of construction waste materials and workers garbage | <ul style="list-style-type: none"> Coordinate with LGU in enforcement of solid waste laws Efficient housekeeping services Proper collection and disposal of construction waste | Before projects starts and onwards | Contract | PLGU; Contractor |
| 19. Potential issue on right-of-way acquisition | Affected land owners will voluntarily donate or waive their rights on the affected portion for the road widening | <ul style="list-style-type: none"> Conduct of consultation meeting with the affected land owners Establish Grievance and Redress Mechanism in accordance with the IESSF accessible to the beneficiaries/ affected households for their feedbacks. | last week of February Whole duration of the project | notarized Deed of Donations and Waiver of Quit claims. O & M Plan Contract | PLGU; Contractor |
| 20. Potential issue on compensation for the demolition and restoration of affected structures | The affected structures for the road widening are temporary structures such as fences and makeshift sari-sari store. | <ul style="list-style-type: none"> Proper dissemination of information during the consultation meetings. The demolition of the affected structures will be done by the contractor under the supervision of the Provincial Engineer's | Consultation meeting – before the implementation stage starts (February 2014) Demolition of structures – | DED/POW Contract | PLGU; Contractor Municipality of San Ildefonso |

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| | | Office • The reconstruction of the affected temporary structures will be provided by the municipal government in coordination with the concerned households, and the barangay. | Clearing and Grubbing Phase (1 st to 2 nd week of February 2015) Reconstruction of structures – After the clearing and grubbing phase (3 rd week of February 2015) | | |
| 21. Potential discovery of artifacts, bones, or other objects of interests during the implementation stage | The project has no significant effect in the physical cultural resources that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. | • The adoption of the Chance Archaeological/Paleontological Finds Procedure will be observed. | Start of construction schedule (1 st week of February 2015) until the end of the project | Contract | PLGU; Contractor |
| 22. Potential negative feedbacks from the affected households | Implementing Agency (LGU) is open for feedbacks and concerns arising from the project performance in all phases. | • Grievance and Redress Mechanism will be established in accordance with the IESSF accessible to the beneficiaries/ affected households for their feedbacks. | Whole duration of the project | O & M | PLGU |

Source: Environmental and Social Management Plan/PRDP

Noted by:


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