

ENVIRONMENTAL MANAGEMENT PLAN (EMP)
**BUILDING DISASTER/CLIMATE RESILIENCE IN
COMMUNITIES ALONG THE DILI-AINARO AND LINKED
ROAD CORRIDORS IN TIMOR LESTE**

Adapted from

ENVIRONMENTAL MANAGEMENT PLAN OF
TIMOR LESTE ROAD CLIMATE RESILIENCE PROJECT

PREPARED BY

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A. Introduction

The Government of Timor Leste has launched the Strategic Development Plan for 2011-2030 with plans to invest heavily in infrastructure, agriculture, rural development and social capital. There is a clear need to make these investments resilient to various shocks including that of disasters and climate change impacts. Coupled with existing vulnerability, periodic hazard events such as flooding and landslides are constantly depleting the resiliency of rural communities. Most disasters in Timor-Leste are localized and periodic, with serious impact on local communities.

Several donors are working in the field of Disaster Risk Management and Climate Change Adaptation in Timor Leste. These are Japanese International Cooperation Agency (JICA), The European Union (EU); UN agencies (FAO, WHO and IOM), international development partners (ADB, USAID and Ausaid) as well as the Red Cross and IFRC representative and Save the Children Fund.

The **Building Disaster/Climate Resilience in Communities along the Dili-Ainaro and linked Road Corridors in Timor Leste Project (DRM)** are developed in close coordination with and to support the development objectives of the World Bank financed Timor-Leste Road Climate Resilience Project (RCRP) which aims to deliver sustainable climate resilient road infrastructure on the Dili-Ainaro corridor through its rehabilitation.

B. Project Description

The DRM project uses a community-driven development approach to local communities at sub-district/ suco council level to reduce the impact of the landslides and flooding on the communities along the Dili-Ainaro and Linked Road corridors. Selected (or targeted) sub-districts along the Dili-Ainaro and linked road corridor will be supported to prepare comprehensive sub-district level Disaster Risk Management Plans. This includes: a) Supporting sub-district/suco councils to identify small scale structural and non-structural risk reduction measures, and prioritize for implementation, b) Supporting sub-district/ suco councils to implement up to 1-3 prioritized risk reduction/adaptation activities as pilot project.

The Environmental Management Plan (EMP) for potential structural measures under DRM project is adapted from the EMP for RCRP Project in ensuring that: (a) all DRM activities are evaluated before commencement of the activities, (b) the participation and inclusion of various groups of the targeted communities in sub-district/ suco council level in planning and implementing the activity, as well as maintaining the built disaster risk management/climate change adaptation measures under the DRM project.

C. Anticipated Environmental Impacts and Mitigation Measures

The types of structural works in the DRM project will prepare the communities with climate change adaptation measures through implementation of engineering “best practices”, therefore the anticipated impact would be minor and are likely to have minimal or no adverse environmental impacts.

The identified structural measures may include small scale bio-engineering, slope stabilization, river embankment, improving/ clearing drainage systems, strengthening roofing of schools and houses to prevent damage from strong winds, improvement of rural roads that are linked to the Dili-Ainaro corridor, soil and water conservation programs/initiatives, etc.

The project will bring benefits to local residents by providing small scale resilient structures such as providing more stable hillsides for agricultural use, reducing sedimentation and

downstream environmental impacts, slope stabilization, drainage improvement, etc. that would be best carried out with community participation, with the people taking ownership over the management of the areas in order to safeguard long-term establishment.

The design of pilot projects will take into account environmental safeguard policies of the WB that will include avoiding and/or minimizing environmental impacts through application of good engineering design and sound implementation measures. During the design, the beneficiaries/ communities at the sub-district/ suco council may also plan the routine maintenance such as grass/shrub cutting, drain cleaning, patching and shoulder repairs for rural roads, which will be performed at regular intervals. Periodic and timely maintenance will extend the life of the community infrastructure in adapting to disaster/ climate impacts, while in the same time reducing environmental impacts like erosion, flooding and landslides.

Proper application of mitigation measures during the construction will ensure that any potential impacts would be minor and temporary. Below are the some anticipated environmental impacts and proposed mitigation measures that will be applied to the structural measures work under the DRM project.

1. Mitigation measures to reduce land slide and erosion:
 - Minimize the time that the surfaces left bare or un-covered.
 - Keep clearing to a minimum.
 - Construct necessary temporary/permanent control structures.
 - Encourage re-vegetation after construction activity finishes by applying bioengineering measures where appropriate.
 - Rehabilitation of landslide sites and areas with obvious erosion problems to prevent further damage and repair existing ones.
2. Mitigation measures to control sediment:
 - All disturbed areas that are not to be constructed should be re-vegetated or prepared for natural re-vegetation after final land shaping.
 - Phase ground disturbance so that it is limited to areas of a workable size.
 - Schedule construction so that the areas of soil are not laid bare during wet seasons.
 - Contain construction areas using a simple bund or trench, or isolate them from other surface run-off, and clean and rehabilitate them when construction is complete.
 - If the construction is on loose or unstable rock, slope the batters gently; high batters will need steps or horizontal benches, and re-vegetation and/or bio-engineering will be necessary.
 - Avoid discharging water on to unstable slopes or old landslips.
 - Install bio-retention systems to filter sediment polluted surface run off.
3. Mitigation measures to control storm water:
 - Divert run-off from non-construction areas (temporarily) around the construction areas to keep the natural flow separate from construction run-off.
 - Pass storm-water run-off from construction areas over a vegetated surface (i.e. bio-engineering) to trap sediments before discharge into culverts or drainage systems.
 - Design drains and culverts to remove all run-off water without scour. On steep slopes culverts may need to be stepped using rock slabs or gravel in simple gabion baskets to dissipate the energy.
4. Mitigation measures to minimize dust and sediment:
 - Suitable sites for temporary stockpiling of construction material should be determined in the design stage, located at area which is avoiding the clock of surface run-off or drainage lines, and will be set back away from the watercourses, drainage lines and also avoid steep or unstable slopes.

- Spray water on exposed surfaces during dry periods.
 - Provide masks for the workers and communities, when necessary.
5. Mitigation measures to control noise: Carry out noise construction activities during normal working hours.
 6. Mitigation measures to ensure occupational health and safety:
 - Ensure all occupational health and safety requirements are in place on construction sites;
 - Install cautionary signs in hazardous areas;
 - Limit time of exposure to dust particles and noise; and,
 - Ensure safety and inspection procedures.
 7. Mitigation measures to avoid effect to the cultural heritage:
 - Upon the discovery of a ceremonial site or burial ground, all construction activities in the vicinity of the site will be ceased and immediately notify the PMU and avoid any impacts on the sites;
 - The communities, together with PMU will discuss and negotiate suitable arrangements with the communities' leaders with objective to minimize the impacts, and preferably move the ceremonial site/burial ground to a nearby location. The relevant Provincial and/or National authorities will be notified and no work should be started without official permission by the relevant authorities.
 - If no agreement can be reached, the relevant Provincial and/or National authorities on these issues should be consulted, and the WB be notified. A joint team of the Authorities, PMU will discuss with the communities to solve the issues. Only after a satisfactory agreement has been formally reached the construction at the concerned site will be allowed to continue.

D. Institutional Implementation and Reporting Arrangements

The National Disaster Management Directorate (NDMD) is the official Executing Agency (EA) for this project and will be responsible for the implementation and compliance with the EMP including the monitoring plan. The NDMD will provide counterpart staff or consultant for the day-to-day project management especially in defining the mechanism of community-driven development planning, implementation and monitoring. The PMU staff or Consultant will serve as a direct liaison to the WB environmental specialist.

The findings of the regular monitoring activities during the project will be included in the periodic progress reports, to be submitted to PMU. The reports will include type of the DRM activity implemented; environmental mitigation measures undertaken; environmental monitoring activities undertaken; environmental training conducted, and any environmental regulatory violations. The environmental monitoring reports will be submitted to WB semi-annually during the project period.

The DRM project completion report will also include the environmental report, summarizing overall environmental activities and impacts mitigation from the project. Compliance with the EMP will also be subject to review missions by the WB.

E. Project Consultations and Awareness

The DRM project has started to conduct public consultations.. Participants from various departments of the Government of Timor-Leste, international and national NGO members, officers from international development agencies and some District Administrators and community representatives are expected to attend the consultation. As this project does not

fall under the environmental category A, a single consultation based on the draft EMP should be sufficient to satisfy WB safeguards. The participants are likely to be involved in discussions related to the Project's goals and environmental issues.

Information contained in the EMP will be disseminated to the public and made available for public comment and participation as prescribed by the applicable Guidelines of the Government of Timor-Leste, Ministry of Economy and Development. At a minimum government regulations require that Public Notices of the proposed actions be widely disseminated and that members of the affected public be given at least 30 days to comment on the proposals.

Beneficiaries consultations will be continued throughout the duration of the preparation and construction phase, and records of environmental and social complaints and grievances, received during consultations, field visits, informal discussions, and/or formal letters, together with the subsequent follow-up will be kept in a simple database in the PMU Project Office.

F. Information Disclosure

The Project will comply with the WB Public Communications Policy and will be published on the World Bank InfoShop. The EMP report will be provided to the public upon request. Moreover, the EMP report is available to the public for examination in the PMU offices.

G. FINDINGS AND RECOMMENDATIONS

Based on the assessment, it can be concluded that significant and/or irreversible impacts are unlikely, and the project complies with the World Bank's environmental safeguard policies as a 'Category B' project. The communities will positively benefit from the DRM project with an increased climate change adaptation capacity with all potential environmental concerns can properly be mitigated, and there will be local governments or community based organization to maintain the built structural measures. The environmental and engineering measures described in the EMP strengthen the climate resilience actions.

Subsequently, the Environmental Monitoring Plan provides sufficient guidance for the PMU to successfully monitor and report on the environmental compliance of the project implementation.

Moreover, the proposed DRM project is limited to only small-scale community construction to increase resilience to natural disasters along the Dili-Ainaro road links. The works will be carried out along the existing road reserve.

Therefore, a more detailed environmental impact assessment is not warranted, and the EMP will be finalized as the final environment assessment document of the project.

H. CONCLUSIONS

The preceding analysis of potential environmental impacts was prepared based on available desk information, site visits conducted for RCRP project, and modified based on discussion/information supplied by NDMD, it is concluded that the proposed project '**Building Disaster/Climate Resilience in Communities along the Dili-Ainaro and Linked Road Corridors in Timor Leste**' is unlikely to result in any direct or indirect significant adverse environmental impacts. In fact, the project could improve existing environmental conditions such as slope failures and insufficient drainage. The findings indicate that this project should be designated as World Bank Environmental Category B. The nature of DRM

subprojects (for example, small scale bio-engineering, slope stabilization, river embankment, improving/ clearing drainage systems, strengthening roofing of schools and houses to prevent damage from strong winds, improvement of rural roads that are linked to the Dili-Ainaro corridor, soil and water conservation programs/initiatives, etc.) further support the conclusion that there will be no significant indirect or induced impacts from the project. Direct, adverse potential impacts relate mostly to the construction phase, and particular attention will be paid to ensure that contractors comply with the EMP and good engineering practices. The community-based organizations will be formed to maintain and sustain the project result.