

# Environmental Assessment and Review Framework

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## TON: Cyclone Gita Recovery Project

Prepared by Tonga Power Limited and the Ministry of Finance and National Planning, Kingdom of Tonga for the Asian Development Bank (ADB)

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## ABBREVIATIONS

ADB	-	Asian Development Bank
COEP	-	Codes of Environmental Practice
DOE	-	Department of Environment
DRR	-	Disaster Risk Reduction
DRM	-	Disaster Risk Management
EA	-	Executive Agency
EAC	-	Environmental Assessment Committee
EARF	-	Environmental Assessment Review Framework
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
EMS	-	Environmental Management Specialist
ESU	-	Environment and Social Unit
GFP	-	Grievance Focal Point
GoT	-	Government of Tonga
GRM	-	Grievance Redress Mechanism
IA	-	Implementing Agency
IEE	-	Initial Environment Examination
km	-	kilometer
kV	-	kilovolt
m	-	meter
MEIDECC	-	Ministry of Meteorology, Environment, Information, Disaster Management, Energy, Climate Change & Communication
MFNP	-	Ministry of Finance and National Planning
MPE	-	Ministry of Public Enterprises
OIREP	-	Outer Island Renewable Energy Project
PMU	-	Program Management Unit
PCC	-	Project Coordinating Committee
REA	-	Rapid Environmental Assessment
SPS	-	ADB Safeguard Policy Statement (2009)
tCO <sub>2</sub>	-	ton of carbon dioxide
TERM	-	Tonga Energy Road Map Implementation Unit
TOR	-	Terms of Reference
TPL	-	Tonga Power Limited

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## I. INTRODUCTION

### A. Project Background

1. The Tonga Cyclone Ian Recovery Project (the project) will support the Government of Tonga reconstruct and climate proof the main electricity grid network in the Nuku'alofa, damaged by Tropical Cyclone Gita. On the evening of 12 February and early morning of 13 February 2018, Tropical Cyclone Gita passed by the main island of Tongatapu and the nearby island of 'Eua causing substantial damage. An estimated 80,000 people were directly affected (around 80% of the population) and an estimated 800 homes were destroyed and a further 4,000 damaged. The electricity network was also substantially damaged, disconnecting all Tonga Power Limited (TPL) customers in Tongatapu and 'Eua.

2. The government declared a state of emergency for the whole of Tonga on 12 February 2018 and led a post-disaster rapid assessment with assistance from development partners including the Asian Development Bank (ADB). The assessment estimated the total value of effects caused by the cyclone to be approximately \$164.3 million, equivalent to about 38% of the nominal 2017 gross domestic product in Tonga. The total recovery and reconstruction cost is estimated at \$148.7 million, of which \$45.9 million is for the energy sector, including the cost of reconstruction of the power grid infrastructure assets on Tongatapu to a higher disaster resilience standard.

3. The Government of Tonga, through the Ministry for Finance and National Planning (MFNP), requested ADB support for post-cyclone reconstruction on 12 April 2018. The proposed Project will finance reconstruction and "building back better" of priority areas of the Nuku'alofa electricity network particularly from Matakī'eua, Tofa to Fanga composed of around 11 villages. The Project in this context will finance the reconstruction of immediate priority areas of the Nuku'alofa electricity network, identified as the most affected by the cyclone, restoring access to supply and upgrading the network order to ensure improved climate resilience.

4. All the physical components included in the Project are located in the Nuku'alofa Area on the island of Tonga. Nuku'alofa is the capital and largest city of Tonga, and it is located on the island of Tongatapu. More than 73% of Tonga's total population live on the main island of Tongatapu, with 34% of this lives in Nuku'alofa. As per 2016 census, the total population of Tongatapu was 109,008, with 31,375 living in the Nuku'alofa area, and 6,255 households. The Nuku'alofa Area covers a total land area of 9.4 sq. miles.

5. The government through its MFNP will be the executing agency (EA) of the Project. The implementing agency (IA) will be TPL. TPL has key hands-on expertise and will nominate counterpart staff with adequate capacity in engineering and power system planning, finance, environment, and social areas. Specifically, an Environment and Social Unit (ESU) will be established within TPL Project Management Unit (PMU) to implement and monitor safeguards with capacity building support provided by the project. TPL will also carry out the operations and maintenance (O&M) of the network. During project implementation a project coordinating committee chaired by the MFNP will supervise project implementation. An assessment of TPL, the proposed implementing agency, confirmed that the organization is well capable of taking on and managing the proposed project. TPL has the necessary resources, experience and technical and commercial services to ensure a successful outcome. It is envisaged that the Project will be implemented between June 2018 and December 2020.

6. This is the environmental assessment and review framework (EARF). The provision for the use of frameworks is required for components of projects where decisions on scope and location and/or detailed design of components take place after ADB Board approval. The immediate disaster response nature of this particular project requires further due diligence to

be fulfilled during the early stages of implementation. This EARF has been prepared to provide consistent and appropriate environmental standards to be considered under the Project. Prior to approval of any subprojects or components by ADB, an environmental assessment process as outlined in this EARF will be undertaken.

7. The government's environmental requirements as outlined in the Environmental Impact Assessment Act, 2003 and the Environmental Impact Assessment Regulations, 2010 have also been taken into account during the development of this EARF.

## **B. Purpose of the Environmental Assessment and Review Framework**

9. The purpose of this EARF is to provide a framework to review and assess environmental aspects of activities undertaken within a project, including preconstruction, construction and operational phases. It will provide an overview of the anticipated impacts of the project's components and set out the requirements and procedures to ensure compliance with the national environmental assessment and review procedures in Tonga, as well as those required by ADB. Consultation mechanisms, grievance redress, and environmental monitoring and reporting will also be addressed within this framework to ensure ongoing adherence to environmental safeguards.

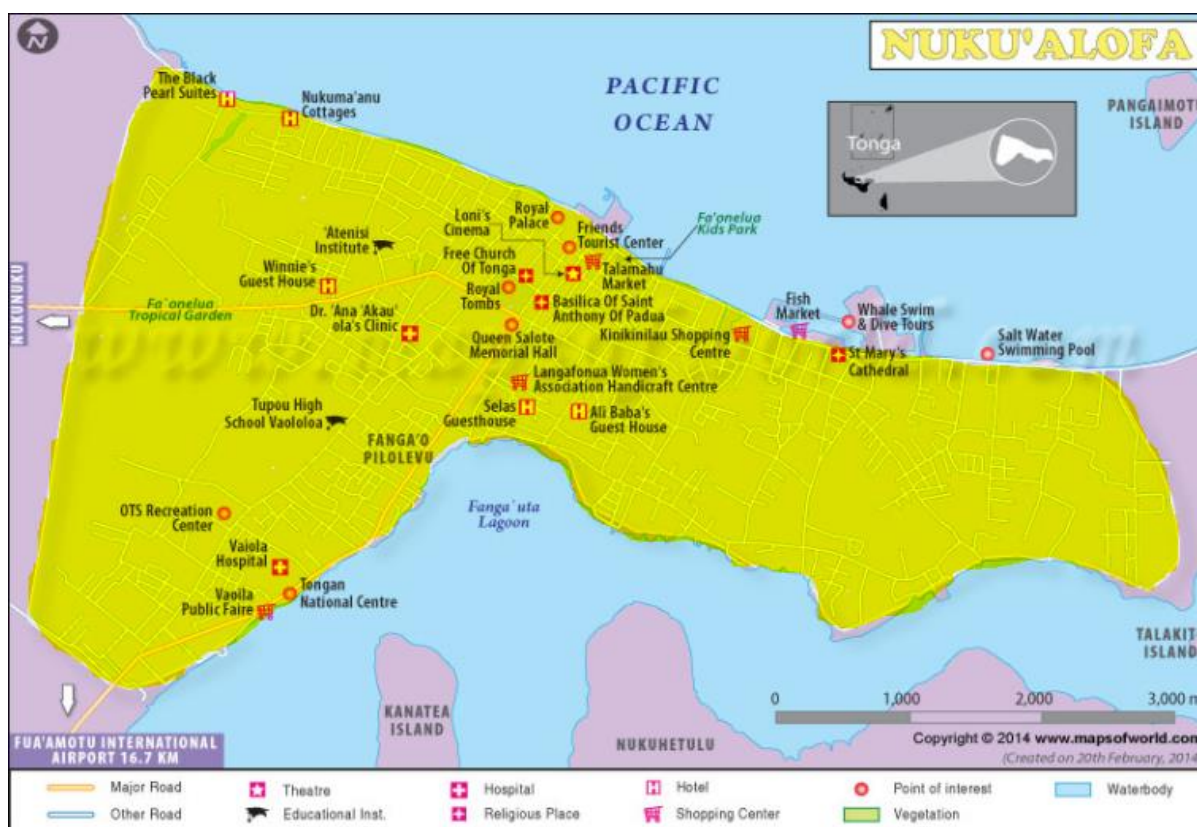
## **II. OVERVIEW OF PROJECT COMPONENTS**

### **A. Priority Sections of Nuku'alofa Electricity Network Rehabilitated**

10. The Project will restore access to the existing electricity supply network and make it more resilient to extreme weather and disasters, by repairing the damage to these utilities and upgrading them to a higher disaster resilience standard. It is noted that no new lines will be constructed. Specifically, the Project will rehabilitate the existing 11 kV overhead network; restore and climate proof the existing low voltage overhead network using disaster resilience measures including modern aerial-bundled conductors; install new 11/0.4 kV distribution transformers and new underground service cables to customer premises with new smart meters. In summary the main components of the Project are as follows:

(i)	kilometre (km) of HV network	-	16 km
(ii)	number of HV/LV trafos	-	35 tx's (10 new and 25 rebuilds)
(iii)	km of LV network	-	58km
(iv)	number of meters	-	1,736

Figure 1: Locations of Project Areas on Tongatapu Map



Source: [http://www.lib.utexas.edu/maps/islands\\_oceans\\_poles/tonga\\_pol\\_1989.pdf](http://www.lib.utexas.edu/maps/islands_oceans_poles/tonga_pol_1989.pdf)

### III. TONGA'S ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURES

#### A. EIA Review Procedures

14. The Ministry of Meteorology, Environment, Information, Disaster Management, Energy, Climate Change and Communication (MEIDECC) is the agency responsible for administering environmental protection and management laws including requirements for environmental impact assessment (EIA). The Department of Environment (DOE) in this context was formally created by the Environmental Management Act 2010. The role of DOE is to protect the environment and promote sustainable development. Under the Act, the Director of DOE is empowered to inspect or investigate any facility or activity deemed to be causing potential impact on the environment. The Director also has the power to serve a notice to cease the activity, which takes effect immediately.

15. The Environmental Impact Assessment (EIA) Act was passed in 2003. Regulations to support the Act have recently been passed under the Environmental Impact Assessment Regulations 2010.

16. Under this regulatory framework, all development activities must be referred to the Minister of MEIDECC, either directly or through the Determining Authority. With this notification, the proponent must complete a *Determination of Category of Assessment* form, providing an overview of the proposed development and a number of details in relation to the existing environment, potential environmental impacts and mitigation measures. The secretariat and the Minister determine whether the proposed development is a minor or major project and advises the proponent within 30 days. If it is a major project, the proponent then

submits a full EIA for review by the secretariat, which makes recommendations to the Environmental Assessment Committee (EAC). The Minister receives an assessment report and issues the approval (with or without conditions), a request for further information, or a rejection. The schedule outlining major projects as per the EIA Act 2003 is provided in **Annex 1**. However, under the regulations, a development proposal not reflected in this schedule may still be deemed as a major project through the determination of category process.

## **B. Local Capacity for Environmental Assessment.**

17. The recent ADB Country Portfolio Review for Tonga highlighted one of the serious constraints to sustainable development as a lack of capacity and resources within DOE to act as an independent regulator for the environment. Development permit conditions are not currently followed up to ensure that implementation has occurred, and DOE does not have the resources to monitor environmental impacts from individual developments. This results in a reactive rather than proactive environmental management context.

18. The capacity of DOE to review environmental impact assessments and make appropriate recommendations to protect the environment is adequate especially now in the energy sector with the recent development of the Codes of Environment Practice developed by the World Bank<sup>1</sup>. It is the lack of resources to follow up environmental development conditions that is the key area of weakness. In addition, there is the limited capacity within Tonga of local consultants to conduct professional EIAs.

19. **Annex 2** provides a terms of reference (TOR) for the proposed TPL ESU to be formally established for project implementation with capacity building support from ADB under the project. In addition to preparing the assessments required for activities and investments made under the project, the TOR covers how the ESU will work with DOE to provide environmental due diligence under this project.

## **C. Codes of Environmental Practice**

20. It is noted that through the World Bank supported New Renewable Electricity Generation and Electricity Infrastructure in Tonga Program, Codes of Environmental Practice (COEP) for the energy sector have been developed. The COEP, and accompanying guidelines, identify good practice in undertaking safeguards due diligence and developing supporting documentation for the clearance process under the country safeguards system. It is yet to be approved by cabinet but both documents were developed to help stakeholders to understand and navigate through the approvals process relating to land and the environment and were commissioned under the auspices of the Tonga Energy Road Map. The COEP will be integrated into the project environment assessment and identification of mitigation measures tracked through to the project's EMP. **Annex 3** provides a summary list of the COEP.

## **IV. ANTICIPATED ENVIRONMENTAL IMPACTS**

21. In anticipating environmental impacts for the project, screening will cover three aspects: siting, construction, and operations. A number of environmental issues will potentially arise, as outlined in Table 1. The mitigation measures provide general guidance, but as part of the assessment process will be adapted to suit the particular development activities.

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<sup>1</sup> World Bank. 2016. COEP: Managing Environmental and Social Impacts and Guidelines for Land Acquisition Approvals, Environmental Permits and Building Permits



**Table 1: Potential Environmental Impacts and Mitigation Measures**

<b>Subprojects Anticipated Environmental Impacts</b>	<b>Mitigation Measures</b>
Loss of biodiversity	Particular care must be taken to avoid clearance of mangrove areas or impacts on marine ecology. Siting of components will also be undertaken to minimize land clearance. Clearance of any trees of significance within the urban area is to be avoided.
Loss of land and / or livelihoods	Facilities should avoid land acquisition or resettlement impacts if possible. If land acquisition is required, or if livelihoods will be impacted, the procedures within the resettlement framework are to be followed to ensure that appropriate compensation is paid.
Loss of physical cultural resources	Components that are likely to cause permanent damage to irreplaceable cultural relics and archaeological sites will be ineligible. As a component of environmental assessment, any minor or moderate impacts must be fully addressed, with all efforts made to avoid damage and to provide restitution wherever possible.
Land clearance	Trees of significance in the urban landscape are to be preserved. All land clearance to be undertaken should minimize loss of vegetation.
Noise emissions	Mitigating impacts of noise emissions, particularly during construction, will be achieved through appropriate contracting requirements and supervision. Limiting construction to standard daytime work hours minimizes disruption to households. Plant and machinery will be required to be well maintained to reduce noise emissions. Noise emissions from component operations will be minimized through appropriate siting and mitigation measures.
Dust emissions	Dust can be controlled through minimizing areas of exposed soil and using mitigations such as water carts to suppress dust emissions or covering of fill / sand stockpiles.
Worker and community health and safety	Safety is of primary importance in infrastructure development. All contractors will be required to adhere to strict Occupational Health and Safety (OH&S) requirements to ensure that workers health and safety are not compromised through project activities. Appropriate levels of contractor supervision are to be undertaken by the TPL PMU to ensure all safeguards are practically implemented, including training of site staff. This also extends to the health and safety of the public. With civil works often requiring trenching or construction works, all sites must be adequately fenced, signed and lit at night to avoid any hazards to the community. TPL will be required to submit a health and safety plan for approval by the TPL PMU prior to commencement of works.
Loss of amenity	Siting of facilities needs to take into account any aesthetic or social values of the area. This is particularly relevant when siting power supply infrastructure, ensuring that there is no significant loss to landscape values or general amenity.
Disruptions to businesses and communities	Disruptions can occur, particularly through activities such as siting power supply infrastructure construction. These disruptions need to be minimized through effective consultation and dialogue, and planning works to minimize disruptions. Measures can include increasing the workforce in priority areas and providing

Subprojects Anticipated Environmental Impacts	Mitigation Measures
	temporary access points for vehicles or pedestrians across trenches. Any significant disruptions to livelihoods will need to be addressed and compensated as per the requirements of the resettlement framework.
Siltation of surrounding drains and water	Backfilling of excavated trenches is to be done immediately on completion of works. Silt fences will be used to prevent clogging of drains. Sand piles will be covered as required, particularly during periods of heavy rain.
Soil erosion	Limit the amount of soil exposed during construction works, and replant / seal finished areas as soon as practical. Bring soil or sand stockpiles to the site only as required. Use sediment trap fencing as required.
Production of solid waste materials	All waste materials to be produced will be projected beforehand, with appropriate disposal planned under the current TPL waste disposal plan. TPL will supply bins at work sites and remove waste appropriately after all efforts are made for resource recovery and recycling. Any potentially hazardous wastes are to be avoided wherever possible through material substitution. Disposal of potentially hazardous wastes should also occur with the advice of the TPL waste disposal plan.
Pollution prevention and abatement	Secure and control storage of all toxic and hazardous materials including fuels. Spill kits are to be kept at fuel storage points and disposed of adhering to international standards and coordination with Government. Integrity of the water quality is to be protected through appropriate siting and mitigation measures. Air pollution is to be avoided, with practices such as burning of waste not permitted.
Water pollution	Pollution of groundwater must be avoided. Effluent outfalls to the marine environment are also to be avoided.
Marine resources	Coastal resources are important from an ecological and livelihood perspective. Impacts such as adding nutrient loads into the marine environment or removing marine or estuarine resources are to be avoided altogether or mitigated through appropriate design and rehabilitation measures.
Sustainable resource use	The project must consider the use of nonrenewable resources such as quarry materials, water, and fossil fuel-generated power. Resources are to be conserved wherever possible, and when used, mitigation measures that address the sustainability aspects of resource use must be put in place. Offsetting may be considered as a mitigation measure (e.g., planting trees to off-set carbon emissions). Energy efficiency, cleaner production, and resource conservation are all principles to be considered, and where relevant incorporated.
Social impacts	Social benefits and impacts need to be assessed, with mitigation measures in place to ensure minimum disruption to the community, and provision of tangible outcomes to improve quality of life in the urban sector. Impacts must also be analyzed for who bears the burden, taking care to avoid inequitable burdens on vulnerable groups such as the poor or women.
Climate change	The potential impacts of climate change must be considered, with mitigation measures put in place where considered beneficial. These may include

Subprojects Anticipated Environmental Impacts	Mitigation Measures
	implementation aspects such as coastal erosion protection measures, or design adaptations.

## V. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS

### A. Environmental Criteria for the Project

22. Under this disaster risk grant facility, no category A subproject will be funded, that is, projects that are likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. This includes transboundary or cumulative impacts. This implies that subprojects or activities under this project are confined to categories B and C, requiring an initial environmental examination (IEE) or due diligence report, respectively. A Rapid Environment Assessment checklist attached in **Annex 4** will be completed by the project team to support the environmental classification of any subproject. **Annex 5** provides the generalized scope and content required in an environmental assessment.

### B. Specific Procedures for Environmental Assessment

23. There are nine steps to be conducted for the environmental assessment process for core components outlined in this section.

24. **Initial screening** for eligibility was determined by Government priority recovery needs following the aftermath of Cyclone Gita. This was then subject to initial classification according to the ADB classification system. As the project will only include activities that will likely create impacts that are site-specific, few if any effects are irreversible, and mitigation measures can be readily identified and implemented, the project is categorized as B. An IEE and environmental management plan (EMP) are required. Category C projects are unlikely to have adverse environmental impacts and require no assessment. However environmental implications still need to be closely reviewed and a due diligence report prepared. Categorization is established by defining the most environmentally sensitive component and the extent and duration of the potential impact.

25. **Scoping** is the second step in the process, defining the boundaries and time scale for assessing impacts, mitigation, and monitoring. Some projects may require the analysis to go beyond the life of the infrastructure and address post closure or rehabilitation issues. Most disaster recovery infrastructure investment project environmental assessments will focus predominantly on construction, but this must be reviewed on a case by case basis.

26. **Baseline environmental conditions** will require review and analysis as steps in the project's assessment mode. Documenting baseline environmental conditions includes land use, water and air quality, biodiversity, soils, geology, topography, climate, physical cultural resources, and socioeconomic conditions. This step involves fieldwork to document existing site conditions, as well as the review of relevant reports. In some instances, detailed testing is warranted for conditions such as existing water quality.

27. **Predicting likely impacts** requires a thorough analysis of potential environmental impacts and proposed mitigation measures. Table 1 provides an overview of the types of impacts that may occur, but the analysis must be project and site specific rather than generic. Any environmental issues that are likely to have an inequitable impact on women or disadvantaged groups need to be given particular attention with appropriate measures put in place to either reduce this impact or provide adequate compensation.

28. **Public consultation, information disclosure, grievance redress mechanism.** Consultation and disclosure are required throughout the environmental assessment cycle,

providing not only the mechanism to inform the community of the proposed subproject, but also to receive inputs into potential impacts and appropriate mitigation measures. Consultation with relevant government officials, the business community, and nongovernmental organizations (NGOs) will assist in providing a number of perspectives. Direct consultation with and accessible information disclosure to any people affected by the proposed subproject is an imperative to understanding the existing situation and providing effective means to mitigate any environmental impacts for people in the immediate area. The grievance redress mechanism (GRM) is meant for people seeking satisfactory resolution of their complaints on the environmental performance of the project. The mechanism will ensure that (i) the basic rights and interests of every affected person by poor environmental performance of the project are protected; and (ii) their concerns arising from the poor environmental performance of the project during the phases of design, construction and operation activities are effectively and timely addressed.

29. **Preparation of an EMP** provides the implementation mechanism for the mitigation measures. The document needs to provide practical and relevant means to achieve the environmental safeguards. It includes delineation of roles and responsibilities, how each impact will be mitigated, and the monitoring program to ensure that the response has been adequate. When a subproject is in the implementation phase, TPL and the PMU will review and update the EMP to ensure its relevance.

30. **Implementation mechanisms** are important to define at the outset. Responsibilities as allocated in the EMP are to be understood and agreed to. The capacity of each of the players needs to be evaluated as a part of the environmental assessment process, with appropriate training or capacity development incorporated into the subproject to underpin effective implementation. Relevant EMP mitigation measures are to be incorporated into the bidding documents, with the contractor to describe and cost them. Relevant penalties must be included within the contract to ensure compliance. Prior to the commencement of works, TPL will prepare an EMP and a health and safety plan for approval by the PMU. The monitoring process must be practical and effective, providing an assurance that safeguard measures are implemented.

31. **Costing mitigation and monitoring measures** provides for adequate resourcing. Costs covered within civil works budgets should not be double-counted, requiring good communication between the environmental assessment staff and the technical project designers. Monitoring will be undertaken to establish baseline parameters where necessary and to ensure compliance of TPL with the approved EMP.

32. **Reporting** is the final step in the process, although all steps require documentation to compile the final report. The preparation of environmental assessment documentation will be based on the ADB SPS of 2009 and will also comply with the requirements of Tonga's EIA Act 2003 and EIA Regulations 2010. It is imperative in this context that monthly reports are provided by contractors on any environmental incidents that impacted on the environment. This will feed into quarterly reports of the IAs and substantiate semi-annual or annual safeguard monitoring reports to ADB.

## VI. INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

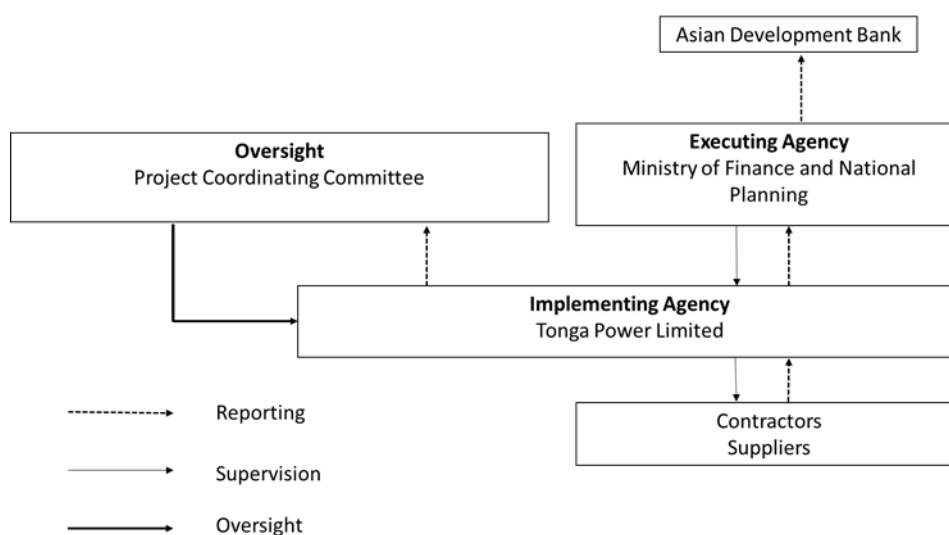
### A. Implementation Arrangements

33. The EA for the project will be the Ministry of Finance and National Planning (MFNP) and the IA is Tonga Power Limited. MFNP will administer the overall project grant and chair the project steering committee (PCC) for the project. The PCC will consist of TPL and the National Policy Sector Bodies (MEIDECC & MPE). It will be responsible for overall direction,

guidance, and providing an oversight role for the program. The PCC will meet at least on a quarterly basis to discuss the progress of the project. Its members will include a representative from MEIDECC in particular to review and provide inputs for the environmental aspects of project implementation and quarterly monitoring reports.

34. All Project compliance will be managed through capacity building support under the project to the TPL PMU and in particular the ESU. The PMU in this context will also consist of one environment and social safeguards focal point who will be responsible for all policy actions, administration, and maintenance of records and will prepare quarterly project progress updates and all safeguard reporting requirements such as screening, preparation of assessments and stakeholder consultations. All PMU staff working on this project will be funded by TPL. An overview of the institutional arrangements for project implementation is presented in Figure 1 and responsibilities for Environmental compliance in Table 2.

**Figure 2: Project Implementation Structures**



## B. Implementation Responsibilities

**Table 2: Implementation Responsibilities**

Organization	EARF Implementation Responsibilities
<b>ADB</b>	<ul style="list-style-type: none"> <li>- Confirm categorization of project activities</li> <li>- Capacity building support to help develop, review and approve IEE.</li> <li>- Screen projects for compliance with safeguard requirements and ensure that appropriate measures are in place to avoid, minimize, mitigate, and compensate for adverse environmental impacts</li> <li>- Review and approve quarterly project and EMP monitoring reports.</li> <li>- Monitor and supervise client's environmental performance throughout the project cycle.</li> <li>- Disclose environmental assessments and monitoring reports on the ADB website.</li> <li>- If a client fails to meet safeguard obligations, ADB will seek corrective measures and work with the client to reinstate compliance.</li> </ul>

Organization	EARF Implementation Responsibilities
<p><b>Executing Agency</b> Ministry of Finance and National Planning</p>	<ul style="list-style-type: none"> <li>- Overall responsibility for management of the project.</li> <li>- Submit component IEE from IA to ADB.</li> <li>- Submit any updates or changes to component IEE to ADB for approval.</li> <li>- Chair of the project steering committee.</li> </ul>
<p><b>Implementing Agency</b> Tonga Power Limited (PMU)</p> <p><b>Environment and Social Unit</b> (within TPL PMU)</p>	<ul style="list-style-type: none"> <li>- Establish appropriately staffed and qualified environment specialist for PMU.</li> <li>- Prepare and submit IEE to MEIDECC along with a <i>Determination of Category of Assessment</i> form and provide any further information as requested by MEIDECC.</li> <li>- Obtain necessary permit from MEIDECC to proceed with project components.</li> <li>- Update project EMPs &amp; IEE from TPL if required after detailed design stage. Any changes need to be submitted to the EA, which will submit to ADB for approval.</li> <li>- Ensure that all relevant EMP mitigation measures are integrated into civil works, along with financial penalties for breaches and the requirement to pay for mitigation measures.</li> <li>- Provide training to TPL staff prior to preparation and submission of construction EMP (CEMP)</li> <li>- Assess the proposed environmental mitigation measures and costs, and its capacity to implement them.</li> <li>- Approve CEMP in consultation with ADB.</li> <li>- Provide TPL civil works team with induction prior to commencement of any site works.</li> <li>- Monitor TPL's civil works compliance with the CEMP. Undertake necessary actions to address noncompliance of CEMP.</li> <li>- Submit monitoring reports to EA and ADB and provide inputs on safeguards to quarterly and semiannual progress reports</li> </ul> <p>Direct responsibility for implementing the EARF under the PMU, including the following;</p> <ul style="list-style-type: none"> <li>- Undertake rapid environmental assessment screening of each subproject proposed by PSC for feasibility, and classify according to ADB categories, reporting to the PMU.</li> <li>- Conduct the IEE or environmental review for selected subproject, with the assistance of project capacity building support, and provide to PMU.</li> <li>- Conduct consultation and disclosure events during project preparation and implementation, facilitating informed participation.</li> <li>- Submit the assessments to DOE for clearance under national law and obtain development consents</li> <li>- Coordinate the grievance redress mechanism in accordance with the procedure outlined in EARF.</li> <li>- Provide training to TPL civil works team prior to preparation and submission of construction EMP (CEMP)</li> <li>- Assess TPL's proposed environmental mitigation measures and costs, and its capacity to implement them.</li> <li>- Approve TPL's CEMP in consultation with ADB.</li> <li>- Provide TPL civil works team with induction prior to commencement of any site works.</li> <li>- Implement all environmental monitoring as outlined in subproject's EMP.</li> <li>- Preparing quarterly EMP progress reports for inclusion in the Project quarterly progress reports for PMU/PMC to submit to PCC.</li> <li>- Liaison and communication with stakeholders and general public on objectives of subprojects, and environmental risks, mitigation measures, and outcomes.</li> <li>- Implement GRM as appropriate and maintain a complaints/grievance record. The records will be the subject of monitoring.</li> </ul>

Organization	EARF Implementation Responsibilities
	<ul style="list-style-type: none"> <li>- Submit an environmental subproject completion report to the ADB within 3 months of completion; detailing all aspects of environmental performance compared to the EMP, and measures in place to mitigate potential impacts during the operational phase.</li> <li>- Prepare semi-annual safeguards monitoring reports to PCC and ADB</li> </ul>

### C. Budget and Financing for EARF Implementation

35. The full costs of developing, disclosing, staffing and implementing the EARF will be borne by the Government and TPL and will be considered as counterpart funding. In addition, the Government will provide assistance in environmental screening through DOE's EIA unit and ADB will provide capacity building support with internal resources to develop the IEE and conduct all necessary environmental safeguards training.

## VII. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

36. Meaningful public consultation is required throughout the project cycle to ensure that potential environmental and social impacts are fully disclosed, and mitigation measures are appropriate. The following are the key principles to be followed for consultation processes:

- (i) Adequate and relevant information is disclosed in a timely manner.
- (ii) Information is readily accessible and understandable to affected people.
- (iii) Consultation is undertaken in a non-threatening atmosphere, ensuring that all dialogue is free from intimidation or coercion.
- (iv) Processes are gender inclusive and responsive, and tailored to meet the needs of disadvantaged and vulnerable groups.
- (v) Consultation is meaningful, with all relevant views of stakeholders and affected people taken into account for decision making in areas such as project design, environmental mitigation measures, sharing of development benefits and opportunities, and implementation issues.

37. In undertaking implementation of the project, an extensive consultation will be undertaken with relevant stakeholders by the TPL PMU early in implementation once the project is effective. Key issues of environmental concern will be discussed, particularly with MEIDECC, civil society and communities. These will be conducted through consultation implemented through household surveys; public meetings with media coverage; focus group discussions; and detailed interviews with town and district officers, church and community groups, and other relevant stakeholders. This level of engagement, beyond simple information provision, recognizes all partners in the development process and provides input into a robust project design and implementation. Up-front dialogue from an early stage will often prevent unnecessary and costly project delays during implementation.

38. The PMU will continue an ongoing dialogue during construction and implementation provides for greater accountability, strengthening the relationship between implementers and beneficiaries, and enhancing results achieved. Efforts to strengthen communication with women and any socially disadvantaged groups are required so that consultation processes empower all people to contribute and do not inadvertently exclude people.

39. A public information brochure will be developed for the overall project. While it provides a general overview of the whole program, it will also outline the commitment to undertaking the development with minimal environmental impacts. The information brochure, will be

updated during implementation to incorporate IEE process, translated into Tongan and can be used as a model for future disaster related recovery projects.

40. Meaningful public participation is encouraged throughout the project cycle using a range of mechanisms. Public consultation will be conducted at national and sector levels, and include environmental, social, and resettlement presentations. Meeting highlights from the initial project inception briefing and discussion will be broadcast on TV and over the radio. This will seek to confirm the disaster related priority components for investment under the project. A follow-up public discussion will also be facilitated seeking input on how to improve outcomes of the project. In each of these forums, sustainability will be a key issue of discussion, particularly the means to better implement this project within the Tongan context.

41. Documenting all public consultation and information disclosure is important to provide a transparent overview of dialogue within the context of environmental assessment. A record of meetings needs to include an overview of invitees, attendance, and details of how information has been disclosed, and any pertinent issues raised in each public forum. See **Annex 6** for a summary of the information to be documented and an example of the type of meeting minutes that may be taken. Consultation summaries are to be provided as an annex to the IEE.

## **VIII. GRIEVANCE REDRESS MECHANISM**

### **A. General Principles**

60. ADB requires that a grievance redress mechanism (GRM) be established and maintained. It should be designed to efficiently receive and facilitate the resolution of affected peoples' concerns and grievances about project-level social and environmental issues within a reasonable timeframe. The GRM should be scaled to the risks and impacts of the project. It will address affected people's concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the community. The GRM will be established on the first project inception mission after grant effectiveness and may be revised once the project commences to ensure that its provisions are relevant and practical. It should also be updated as required during the construction process, to optimize the redress process.

61. During project implementation, it is possible that people may have concerns about the project's environmental performance. People may perceive negative impacts during the construction or operational phase, and they have the right to have their complaint fairly heard and acted on. Many issues can be resolved effectively through timely communication, inquiry, and mitigation measures.

62. The grievance redress process will be widely disseminated to all affected people during project consultations, focus group discussions and the resettlement plan census. It will be contained in the public information brochure distributed to each affected household/business during the census. The GRM is in place for all safeguard issues, providing a streamlined process for any concerns or issues in relation to resettlement, social safeguards, and environmental impacts.

63. Consideration of the grievance process should be given to both the construction and operational phases. Environmental impacts from operations are considered within an IEE and EMP, and as such breaches to the EMP in operations need to also provide a GRM. In the post project period, this GRM will usually revert to the mechanisms available within the facility operator's procedures, or within an external agency such as MEIDECC.



## B. Grievance Coordination

64. A grievance focal point (GFP) will be established by the district/town Officer to coordinate and address all complaints and concerns arising from the project. The contact details will be provided to all affected persons.

65. The GFP will be assisted and supported by the ESU who will maintain a register of complaints, keep track of their status, and report to the PSC and EA. They will regularly track complaints received, actions taken and the status of resolution. All communications with the affected person(s) will be documented, and whether management action has been taken to avoid community concerns in the future. Complaint forms will be distributed to the GFP to facilitate recording of complaints.

## C. Grievance Procedures

66. Affected persons will be informed that they may ask any questions or discuss grievances with their community leader or the district/town GFP by phone or in person; or to project staff visiting the area. The GFP is encouraged to discuss the issue with the TPL and the ESU, as often minor environmental impacts can be remedied with immediate action.

67. If these questions/grievances are not answered within 1 week, they should be prepared in writing (using the assistance of the local community leader, church, or school if necessary). Written complaints can be sent or delivered to the PMU, where they will be registered as being received, and will be treated confidentially. The PMU will have 1 week to deliver a resolution to the affected person.

69. In the event that a satisfactory answer cannot be provided, the affected person may lodge the complaint with the Minister of MEIDECC and receive a reply within 7 days.

70. In the event that the situation is not resolvable, or the complainant does not accept the decision, the affected person(s) may have recourse to the land court (or other relevant court). All court costs (preparation and representation) will be paid for by the project, regardless of the outcome.

71. The process is summarized in Figure 3.

**Figure 3: Grievance Procedure**

Step	Process	Duration
1	Displaced Person/Affected Person (AP) takes grievance to the village chief/ then with Town Officer to the PMU/TPL/MEIDECC. This could be done after initial notification of grievance at civil works site office.	Any time
2	PMU/TPL/MEIDECC reviews issue, and in consultation with contractor (if appropriate), then records a solution to the problem.	1 week
3	TPL/MEIDECC reports back to AP and gets clearance from complainant.	1 week
<b>If unresolved</b>		
4	AP take grievance to relevant government agency for resolution (Minister of MEIDECC)	Decision within 1 week

Step	Process	Duration
5	Minister consults with other Ministers, TPL/MEIDECC and PMU in the resolution of complaints.	1 week
6	AP is informed by the Minister through PMU/TPL/MEIDECC	1 week
<b>If unresolved or if at any stage and AP is not satisfied with progress</b>		
AP can take the matter to appropriate court.		As per judicial system
The court hears the case and makes a final decision that is binding on all parties.		The court hears the case and makes a final decision that is binding on all parties.

72. In the post project period, there remains the potential for environmental harm to occur through the operations of the subproject. The GRM would revert to existing systems of environmental protection. Persons or groups can seek resolution of a grievance in relation to environmental harm through directly triggering the environmental complaint and investigation mechanism existing within DOE. Any complaints in relation to environmental matters are referred immediately to the Director of DECC. After assessing the nature of the complaint, it is delegated to the relevant staff member to investigate and report on the complaint and follow-up action taken.

## IX. MONITORING ENVIRONMENTAL PERFORMANCE AND REPORTING

73. The EMP for the project will define how mitigation measures prescribed in the IEE are to be monitored during the design, construction, and operational phases in addition to the need for any baseline monitoring and follow-up surveying. The EMP in the assessment will be updated during detailed design and be integrated into all relevant subproject activities. TPL must have prepared and submitted the construction EMP (CEMP), which will be approved by the PMU before any construction can commence.

74. Monitoring procedures will include documentation of who is responsible for each monitoring action, and the timeframe and schedule for monitoring activities. Each of the three project stages of preconstruction, construction, and operation requires monitoring to be designed and implemented.

75. Good monitoring practice requires a monitoring report to be completed according to the following schedule:

- (i) a report at the end of project design (prepared by the PMU)
- (ii) a monthly report prepared by the civil works team during construction
- (iii) a report prepared every quarter by the PMU for ADB, and
- (iv) an annual report that is prepared by the operating agency during operation for as long as the monitoring is specified in the EMP.
- (vi) Semi-annual safeguards monitoring reports

76. The design of the individual monitoring program within the EMP needs to be commensurate with the level of environmental impact predicted, and the complexity of mitigation measures.

## CLASSIFICATION OF MAJOR PROJECTS IN TONGA

### Kingdom of Tonga's Environmental Impact Assessment Act, 2003

#### Schedule - Major Projects

Any of the following activities shall be deemed to be major projects;

- (i) Abattoirs;
- (ii) brewery works;
- (iii) building, works, or land associated with the landing, take-off, parking or servicing of aircraft or helicopters;
- (iv) canning and bottling works in excess of floor space 2000 square meters;
- (v) cattle feeding or intensive piggeries with excess of 50 animals;
- (vi) cement works or concrete batching works in which more than 2,000 tons per annum are manufactured;
- (vii) ceramic work, being works in which excess of 200 tons per annum are produced of brick, tiles, pipes, or glass are manufactured in furnaces or kilns;
- (viii) chemical factories, or chemical storage areas in excess of 1,000 square meters'
- (ix) electricity generating stations;
- (x) marinas (comprising pontoons, jetties, pier, dry storage, mooring) for more than 20 vessels primarily for pleasure or recreation;
- (xi) mining, being an activity that disturbs the surface of the land in excess of one hectare;
- (xii) sand and gravel extraction from any beach within 50 meters of the high tide mark;
- (xiii) liquid, chemical, oil, or petroleum refineries, storage or waste processing works;
- (xiv) farms for the propagation of marine, estuaries, or freshwater organisms;
- (xv) pre-mix bitumen works;
- (xvi) rubber on plastic works;
- (xvii) the removal of trees (including mangroves) or natural vegetation of any area in excess on half a hectare;
- (xviii) construction of road, wharfs, barrages, embankments, or levees which affect the flow of tidal waters;
- (xix) any facility involving the use, storage, or dumping of nuclear materials;
- (xx) sawmills where more than 2,000 cubic meters per annum of timber is sawn, milled, or machined in any way; or
- (xxi) tourism or recreational resorts, buildings or facilities involving a total building floor area of greater than 1,000 square meters or a potential total overnight accommodation level (visitors and staff combined) in excess of 20

## **TERMS OF REFERENCE FOR ENVIRONMENT AND SOCIAL UNIT**

The ESU is a team based in the TPL PMU with the responsibility to ensure all Project activities are undertaken in line with the ADB Safeguards Policy Statement (2009) and national laws and regulations. It is recommended that the ESU comprises of a minimum of three members; the PMU team leader, a Social Focal Point, and an Environmental Focal Point. In addition, there can be additional members, as it is seen as an opportunity for capacity building with TPL staff. Relevant environmental and social safeguard qualifications for the focal points will be required with 3 years minimum experience in Tonga. Costs for safeguards implementation is estimated at \$TOP 50,000 for the duration of the project and will be borne by TPL.

In addition to the ADB SPS, the points of reference for the ESU are the following project documents:

- Project Grant Agreement,
- Project Administration Manual,
- Indigenous Peoples Policy Framework
- Environmental Assessment and Reporting Framework, and
- Land Acquisition Resettlement Framework

The ESU has four main roles which is (i) assessment, (ii) implementation, (iii) monitoring and (iv) reporting.

### **Assessment**

- All new sub-projects must have potential social and environmental impacts identified, minimized and mitigated, through Initial Environmental Examination reports and/or Resettlement Plans.
- In the case of unforeseen impacts occurring during implementation, such as a court dispute over land use or an environmental incident, the ESU must report this immediately to ADB and prepare a Corrective Action Plan.

### **Implementation**

- The ESU is responsible for implementing the Resettlement Plan, ensuring all entitlements are paid, and that affected persons are kept well informed.
- The ESU ensures that TPL prepare a Construction Environmental Management Plan (CEMP). The ESU reviews and approves the CEMP and monitors compliance.

### **Monitoring**

- The ESU must complete regular environmental monitoring reports for all works under the project.
- For social aspects, the Entitlements Matrix within the Resettlement Plan must be updated on an as needs basis

### **Reporting**

- On a quarterly basis, all environmental monitoring and other activities of the ESU must be summarized into a brief report, which is included as an annex in each Quarterly Project Report(QPR) for the ADB.
- On a semi-annual basis, this information is collated and presented as a Safeguards Monitoring Report and submitted to the ADB. This is a public report and will be disseminated via the ADB website.

A key requirement for the ESU is transparency. Information disclosure to potentially affected parties, stakeholders and to the ADB is essential to minimize the potential for disputes. A clear process for addressing grievances is also important. The grievance redress mechanism is contained in the EARF and sub-project IEE and RP and must be adhered to in the case of complaints raised.

## CODES OF ENVIRONMENTAL PRACTICE

The COEP set out good environmental practice for RE design, operation, maintenance and decommissioning in terms of site selection, consultation, risk management, land acquisition and compensation; and environmental and social impact assessment and impact mitigation. The COEP are applicable for both “Minor” and “Major” projects as defined in Environmental Impact Assessment Regulations 2010.

The COEP are intended to support Guidelines which were prepared to help project proponents and other stakeholders involved in new RE generation and new electricity infrastructure projects to meet Tongan Government and development partner land, environmental and social-impact legal requirements.

The COEP were commissioned under the auspices of the Tonga Energy Road Map, and are targeted at the following parties:

- Developer/Project Proponents
- Tonga Power Limited (TPL)
- Communities undertaking projects on any of the four island grids in Tonga (Tongatapu, Vava’u, Ha’apai and ‘Eua),
- Community-owned and operated mini grids
- Off grid energy generation and
- Government Agencies.

These COEP are intended for both “Major” and “Minor” RE generation and new electricity infrastructure projects in Tonga:

- COEP 1 - Site Selection and Project Design
- COEP 2 - Stakeholder Engagement, Cultural Heritage and Land Acquisition
- COEP 3 - Land Acquisition, Resettlement and Compensation for Lost Assets
- COEP 4 - Cultural Heritage
- COEP 5 – Earthworks and Erosion Control
- COEP 6 - Health and Safety
- COEP 7 - Traffic Management
- COEP 8 - Biodiversity
- COEP 9 - Water quality
- COEP 10 – Working in Coastal Marine Areas
- COEP 11 - Solid Waste
- COEP 12 - Hazardous substances
- COEP 13 - Noise
- COEP 14 - Landscape and visual impacts
- COEP 15 – Battery Disposal
- COEP 16 - Shadow Flicker
- COEP 17 - Interaction with Aviation Operations
- COEP 18 - Electric and Magnetic Fields (EMFs)
- COEP 19 – Network Upgrades/Maintenance
- COEP 20 - Decommissioning
- COEP 21 – Monitoring and Management

## RAPID ENVIRONMENTAL ASSESSMENT (REA) CHECKLIST

**Instructions:**

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

**Country/Project Title:**

**Sector Division:**


Screening Questions	Yes	No	Remarks
<b>A. Project Siting</b> Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site			
▪ Protected Area			
▪ Wetland			
▪ Mangrove			
▪ Estuarine			
▪ Buffer zone of protected area			
▪ Special area for protecting biodiversity			
<b>B. Potential Environmental Impacts</b> Will the Project cause...			
▪ encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?			
▪ encroachment on precious ecosystem (e.g. sensitive or protected areas)?			
▪ alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?			
▪ damage to sensitive coastal/marine habitats by construction of submarine cables?			
▪ deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>▪ increased local air pollution due to rock crushing, cutting and filling?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ chemical pollution resulting from chemical clearing of vegetation for construction site?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ noise and vibration due to blasting and other civil works?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ dislocation or involuntary resettlement of people?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ hazardous driving conditions where construction interferes with pre-existing roads?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ dislocation and compulsory resettlement of people living in right-of-way of the power transmission lines?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ environmental disturbances associated with the maintenance of lines (e.g. routine control of vegetative height under the lines)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ facilitation of access to protected areas in case corridors traverse protected areas?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ disturbances (e.g. noise and chemical pollutants) if herbicides are used to control vegetative height?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ social conflicts if workers from other regions or countries are hired?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ risks to community safety associated with maintenance of lines and related facilities?</li> </ul>			
<ul style="list-style-type: none"> <li>▪ community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?</li> </ul>			



Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?</li> </ul>			
<ul style="list-style-type: none"> <li>community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?</li> </ul>			

Climate Change and Disaster Risk Questions	Yes	No	Remarks
<p>The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.</p>			
<ul style="list-style-type: none"> <li>Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunamis or volcanic eruptions and climate changes (see Appendix I)?</li> </ul>			
<ul style="list-style-type: none"> <li>Could changes in precipitation, temperature, salinity, or extreme events over the Project lifespan affect its sustainability or cost?</li> </ul>			
<ul style="list-style-type: none"> <li>Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g. high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?</li> </ul>			
<ul style="list-style-type: none"> <li>Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., increasing traffic or housing in areas that will be more prone to flooding, by encouraging settlement in earthquake zones)?</li> </ul>			

## Appendix I: Environments, Hazards and Climate Changes

Environment	Natural Hazards and Climate Change
<b>Arid/Semi-arid and desert environments</b>	Low erratic rainfall of up to 500 mm rainfall per annum with periodic droughts and high rainfall variability. Low vegetative cover. Resilient ecosystems & complex pastoral and systems, but medium certainty that 10–20% of drylands degraded; 10-30% projected decrease in water availability in next 40 years; projected increase in drought duration and severity under climate change. Increased mobilization of sand dunes and other soils as vegetation cover declines; likely overall decrease in agricultural productivity, with rain-fed agriculture yield reduced by 30% or more by 2020. Earthquakes and other geophysical hazards may also occur in these environments.
<b>Humid and sub-humid plains, foothills and hill country</b>	More than 500 mm precipitation/yr. Resilient ecosystems & complex human pastoral and cropping systems. 10-30% projected decrease in water availability in next 40 years; projected increase in droughts, heatwaves and floods; increased erosion of loess-mantled landscapes by wind and water; increased gully erosion; landslides likely on steeper slopes. Likely overall decrease in agricultural productivity & compromised food production from variability, with rain-fed agriculture yield reduced by 30% or more by 2020. Increased incidence of forest and agriculture-based insect infestations. Earthquakes and other geophysical hazards may also occur in these environments.
<b>River valleys/deltas and estuaries and other low-lying coastal areas</b>	River basins, deltas and estuaries in low-lying areas are vulnerable to riverine floods, storm surges associated with tropical cyclones/typhoons and sea level rise; natural (and human-induced) subsidence resulting from sediment compaction and ground water extraction; liquefaction of soft sediments as result of earthquake ground shaking. Tsunami possible/likely on some coasts. Lowland agri-business and subsistence farming in these regions at significant risk.
<b>Small islands</b>	Small islands generally have land areas of less than 10,000km <sup>2</sup> in area, though Papua New Guinea and Timor with much larger land areas are commonly included in lists of small island developing states. Low-lying islands are especially vulnerable to storm surge, tsunami and sea-level rise and, frequently, coastal erosion, with coral reefs threatened by ocean warming in some areas. Sea level rise is likely to threaten the limited ground water resources. High islands often experience high rainfall intensities, frequent landslides and tectonic environments in which landslides and earthquakes are not uncommon with (occasional) volcanic eruptions. Small islands may have low adaptive capacity and high adaptation costs relative to GDP.
<b>Mountain ecosystems</b>	Accelerated glacial melting, rockfalls/landslides and glacial lake outburst floods, leading to increased debris flows, river bank erosion and floods and more extensive outwash plains and, possibly, more frequent wind erosion in intermontane valleys. Enhanced snow melt and fluctuating stream flows may produce seasonal floods and droughts. Melting of permafrost in some environments. Faunal and floral species migration. Earthquakes, landslides and other geophysical hazards may also occur in these environments.
<b>Volcanic environments</b>	Recently active volcanoes (erupted in last 10,000 years – see <a href="http://www.volcano.si.edu">www.volcano.si.edu</a> ). Often fertile soils with intensive agriculture and landslides on steep slopes. Subject to earthquakes and volcanic eruptions including pyroclastic flows and mudflows/lahars and/or gas emissions and occasionally widespread ashfall.

## **CONTENTS OF ENVIRONMENTAL ASSESSMENT**

### **A. Executive Summary**

This section describes concisely the critical facts, significant findings, and recommended actions.

### **B. Introduction**

This section explains why, for whom and by whom the EIA has been prepared. Include sub-sections on the following:

- Statement of need (the objective of the project)
- \* Justification for the necessity of the project
- \* Tabulation of personnel involved in the preparation of the EIA, their expertise and their roles

### **C. Policy, Legal, and Administrative Framework**

This section discusses the national and local legal and institutional framework within which the environmental and social assessment is carried out. It also identifies project-relevant international agreements to which the country is a party.

### **D. Description of the Project**

Describe the project; this can be brief but should include drawings and maps at a conceptual level illustrating the layout and components, the project site and the projects area of influence. The following should be provided:

- \* Scope of Work and Development Concept plan
- \* Location criteria, including constraints
- \* Area for development and the current types of uses
- The proposed materials to be used (including brief description on quantities, sources and nature of materials for fill, aggregate for construction etc) and the transport methods and routes;
- \* Excavation (including earthworks), clearing to be undertaken.
- Methods of storm water drainage, including details of the expected volumes and velocity of discharge and the proposed point/s of discharge into receiving water ways
- \* Infrastructure and utilities to be applied on site
- \* Waste Management Plan and practices during construction

### **E. Description of the Environment (Baseline Data)**

This section describes relevant physical, biological, and socioeconomic (including cultural characteristics) conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

## **F. Anticipated Environmental Impacts and Mitigation Measures**

This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socio-economic (including worker and community health and safety in the project's area of influence), in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, trans-boundary, and cumulative impacts as appropriate.

## **G. Analysis of Alternatives**

This section examines alternatives to the proposed project site, technology, design, and operation—including the no project alternative—in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed and, justifies recommended emission levels and approaches to pollution prevention and abatement.

## **H. Information Disclosure, Consultation, and Participation**

This section: (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders; (ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

## **I. Grievance Redress Mechanism**

This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental and social performance. This should be based on traditional conflict resolution or custom processes as much as possible and form part of the GRM for the overall program as set out in the PSA and LARP.

## **J. Environmental Management Plan**

This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

(i) Mitigation: (a) identifies and summarizes anticipated significant adverse environmental and social impacts and risks; (b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and (c) provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.

(ii) Monitoring: (a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and (b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

(iii) Implementation arrangements: (a) specifies the implementation schedule showing phasing and coordination with overall project implementation; (b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures; (c) identification of measures to strengthen environmental and social management

capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and (d) estimates capital and recurrent costs and describes sources of funds for implementing the environmental and social management plan.

(iv) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

## **K. Conclusion and Recommendation**

This section provides the conclusions drawn from the assessment, including whether any further and more detailed assessment is required, and provides recommendations.

## **L. References**

## **M. Appendices**

## DOCUMENTATION OF PUBLIC CONSULTATION ACTIVITIES

### Summary of Key Information Required for Consultation

CONSULTATION METHOD	DETAILS OF ACTIVITIES	CONSULTATION OUTCOMES
Public notice	Date(s) of notice	n/a
Location of notice		
Newspaper notification	Date(s) of notice	n/a
Name of newspaper		
Public announcement/ radio	Date(s) of announcement	n/a
Time(s) of announcement		
Newsletter / questionnaire	Date(s) sent	Number received
Number sent	Main issues raised	
Area of distribution		
Feedback sought (Yes / No)		
Public meeting	Date(s) held	Meeting minutes attached (Yes / No)
Location(s) held	Attendees	
Invitees		
Methods of invitation		
Agenda attached (Yes / No)		

Note: You may need to include agendas, list of attendees, minutes of meetings etc. as annexes to the EMP.

## Example of Meeting Minutes Documentation

**Name of Subproject:**

**Location:**

**Date:**

**Time:**

**Location:**

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### MEETING AGENDA

1. Introduction ....
  
2. Presentation and key points.....:

### PARTICIPANTS

Name (if possible) number, associated organization, gender.

### QUESTIONS / COMMENTS OF PARTICIPANTS AT MEETING

- 1.
- 2.
- 3.
4. etc.

### REPLIES OF PRESENTORS

- 1.
  - 2.
  - 3.
  4. etc.
- 

*The meeting was at XXX the same day. All participants agreed with the minutes of meeting.*

Signed by person taking minutes:

Position: