Environmental Assessment and Review Framework

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Cook Islands: Renewable Energy Sector Project

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ABBREVIATIONS

ADB	-	Asian Development Bank
APS	-	Aitutaki Power Supply
CEFPF	-	Clean Energy Financing Partnership Facility
CIIC	-	Cook Islands Investment Corporation
CIRECIP	-	Cook Islands Energy Chart Implementation Plan
EA	-	Executing Agency
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
EPC	-	Engineering, Procurement and Construction
EU	-	European Union
GDP	-	Gross Domestic Product
GFP	-	Grievance Focal Points
GRC	-	Grievance Redress Committee
IA	-	Implementing Agency
IAC	-	island administration committees
IEE	-	Initial Environmental Examination
NEC	-	National Energy Committee
NES	-	National Environment Service
MFEM	-	Ministry of Finance and Economic Management
PCBs	-	polychlorinated biphenyl
PMU	-	Project Management Unit
PSC	-	project steering committee
PVP	-	photovoltaic power plant
REDD	-	Renewable Energy Development Division
SPS	-	Safeguard Policy Statement
TAU	-	Te Aponga Uira

CURRENCY EQUIVALENTS

(as of 10 February 2014)

Currency unit	–	New Zealand Dollar (NZ$)
NZ$1.00	=	US$0.829
US$1.00	=	NZ$ 1.206
EUR1.00	=	NZ$1.363
NZ$1.00	=	EUR0.733

NOTES

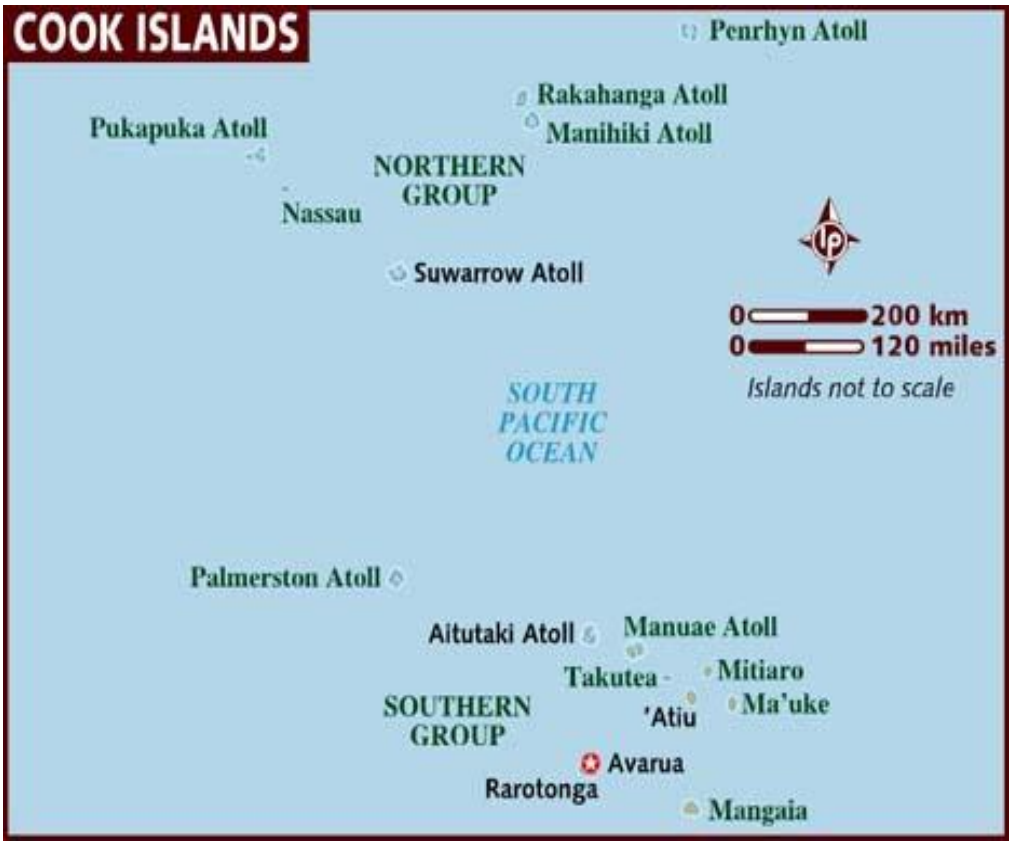
(i) The fiscal year (FY) of the Government of Cook Islands ends on 30 June. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2013 ends on 30 June 2013.

(ii) Unless otherwise stated, in this report, "$" refers to US dollars.

1. INTRODUCTION

1. **Location**. The Cook Islands is a Pacific island country divided into the two island groups with an estimated total population of 15,000 people. As shown on Figure 1, the Northern group consists of six low-lying, sparsely populated, coral atolls, while the Southern group consists of nine fertile volcanic islands. About 74% of the population lives in the capital city of Rarotonga. Economic development is hindered by the country's limited size, isolation and distance from markets, a lack of natural resources, periodic devastation from natural disasters, and inadequate infrastructure.

Figure 1: Location of Cook Islands



2. **The Project**. The Cook Islands is heavily dependent on imported fuels. The total fuel import bill of the Cook Islands in 2012 was $58 million or about 28% of the country's gross domestic product (GDP).[1] The Renewable Energy Development Sector Project (the project) will support the government's policy to increase power generation from renewable sources, and enhance institutional capacity of the government to implement the Cook Islands Renewable Energy Chart Implementation Plan (CIRECIP) 2012-2020 which sets a target of supplying electricity from renewable energy on all inhabited islands by 2020.

[1] In 2012, around 12.7 million litres of diesel (7.2 million litres used for generation of electricity), 4.2 million litres of petrol, and 9.7 million litres of kerosene were imported into the country.

3. The project will construct new solar photovoltaic power plants (PVP) and provide institutional strengthening support to implement the CIRECIP, which will result in annual savings of 1.09 million litres of diesel consumption and 2,930 tons of annual carbon dioxide emission, for greater energy security and sustainability for the Cook Islands.[2]

4. The project will: (i) construct and install new PVP on three islands of the Southern Group; and (ii) provide institutional strengthening and project management support to the executing agency (EA) and implementing agencies (IAs).

5. **Links to ADB policy**. The Energy Policy (2009) of the Asian Development Bank (ADB) supports the rationale of the proposed project by promoting deployment of clean energy in its developing member countries. Development of energy and infrastructure are a main component of the Pacific Approach 2010-2014. The project is included in the Country Operations Business Plan 2013-2015 which includes energy as a priority area of support and sets a primary goal of reducing the country's dependence on imported fossil fuels by generating power from its own renewable energy sources.[3]

6. **Institutional arrangements**. The National Energy Committee (NEC) was formed in 2007 to facilitate energy sector planning, management, and coordination and to work closely with the Energy Division in advising the Minister on issues concerning renewable energy technology and energy efficiency. A Renewable Energy Development Division (REDD) was established in 2010 within the Office of the Prime Minister, which includes the Office of the Energy Commissioner (OEC). REDD is responsible not only for implementing CIRECIP, but for sector planning, electricity tariff regulation, standardization of electricity services, overall sector development and management, and capacity-building.

7. Delivery of energy services is undertaken by two state-owned utilities, Te Aponga Uira (TAU) and (APS). Both utilities are owned and overseen by the Cook Islands Investment Corporation (CIIC), the government's holding company grouping the state-owned enterprises. TAU is a vertically-integrated electricity authority operating generation, transmission, distribution and retail of electricity on the main island Rarotonga, while APS supplies electricity on Aitutaki. On the outer islands, local island administration committees (IAC) are responsible for their own energy supply assisted and supervised by TAU and the Ministry of Infrastructure and Planning (MOIP).

8. The EA for the project will be the Ministry of Finance and Economic Management (MFEM). The IAs will be TAU on Rarotonga, and REDD on Aitutaki, Atiu, Mauke, Mangaia and Mitiaro. TAU and REDD will designate counterpart staff conversant in engineering, power system planning, finance, environment, and social safeguard areas. TAU and REDD have hands-on expertise important to the project due to their power engineering knowledge and experience managing utilities. The project management unit (PMU) and project steering committee (PSC) will be established for implementing the project.

9. This environmental assessment and review framework (EARF) identifies the broad scope of the project and outlines the policy, procedures and institutional requirements for implementing sub-projects under the sector project.

[2] ADB provided project preparatory technical assistance. ADB. 2013. *Technical Assistance to the Cook Islands for Preparing the Renewable Energy Project.* Manila (TA 8439-COO for $500,000 approved on 4 September 2013, financed by the Japan Fund for Poverty Reduction, and administered by ADB).

[3] ADB. 2013. *Country Operations Business Plan: Cook Islands, 2013–2015*. Manila.

2. SCOPE OF APPLICATION OF THE EARF

1. Requirements for a Sector Project

10. Under the ADB's sector project loan procedures, implementation of safeguards will follow the requirements of Cook Islands' legal framework plus any additional requirements of ADB's Safeguards Policy Statement (SPS, 2009). A sector project requires safeguards frameworks to set in place the procedures to be followed during implementation, given that all sub-projects cannot be identified and prepared during the preparatory project technical assistance (PPTA) stage. During the PPTA, three core sub-projects have been identified, and these are covered in an initial environmental examination (IEE) which can be used as an example to follow during implementation.

11. The general process requires for each sub-project: (i) an initial screening and categorization, (ii) preparation of an environmental assessment including the identification and establishment of required environmental mitigation and management measures, and (iii) monitoring of compliance with the approved measures.

2. Scope of the EARF

12. In compliance with the criteria established in the SPS, the works and activities under the project can be classified as Category B because the potential adverse environmental impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be readily designed. The appropriate level of assessment for category B subprojects is IEE.

13. As described in detail below, the project also must comply with the environmental laws and regulations of Cook Islands which are derived from the Environment Act (2003). Under the regulatory framework, activities likely to create significant environmental impact require a permit issued under the Act.

14. The EARF covers:

- Scope of works proposed and anticipated environmental impacts;
- Preparation, review and clearance of environmental assessment documents;
- Preparation of the environmental management plan (EMP);
- Requirements for public consultation and disclosure;
- Grievance redress mechanism;
- Monitoring and reporting; and
- Institutional arrangements and budget.

3. LEGAL AND POLICY FRAMEWORK

1. Cook Islands Environmental Law and Regulations

15. The Environment Act (2003) provides the legal framework for the management of any land prior to development. The Act provides for the application of environmental impact assessment to the planning of development in Cook Islands and to regulate major development projects and the applications of notification consistent with the Act. It establishes the roles and functions of the National Environment Service (NES), which includes the protection and management of the environment and its resources, in a sustainable manner among numerous other functions.

16. Section 36 of the Environment Act states that: (i) no person shall undertake activity likely to cause significant environmental impact, unless a project permit is obtained from the permitting authority; and that (ii) a project permit is obtained through a written report to the NES, setting out all activities that impact on the environment.

17. Under this regulatory framework, activities likely to create significant environmental impact require a permit issued under the Act. All development activities must be referred to the NES through the Island Environment Authority. With this notification, the proponent must complete an Application Form, providing an overview of the proposed development and a number of details in relation to the existing environment and potential environmental impacts and mitigation measures. The NES will determine whether the proposed development cause significant environmental impacts, and whether an Environmental Impact Assessment (EIA) is required.[4] If EIA is warranted, then NES will issue the Terms of Reference (TOR) for the EIA study. The proponent then submits an EIA for review and approval to the NES. The NES makes recommendations to the environmental assessment committee. The Minister receives an assessment report and can issue approval (with or without conditions), a request for further information, or a rejection.

18. The Act is not clear whether solar power generation projects are defined as environmentally significant activities requiring assessment. Based on discussions with NES officials, it is suggested that the project proponents (TAU/APS) submit an application to NES to determine whether assessment is required and whether studies additional to what is presented in this IEE are required. Accordingly EA will modify the assessment report to meet NES requirements.

2. ADB Safeguard Requirements

19. The implementation of the project will also need to comply with and fulfill the environmental safeguards requirements of ADB. The SPS sets out the policies and principles for the protection of the environment and communities.

20. The SPS requires that through a process of screening, categorization, assessment, and monitoring, the project will (i) reflect fully the policy objectives and relevant policy principles and safeguard requirements governing preparation and implementation of projects and/or components; (ii) explain the general anticipated impacts of the project and/or components; (iii) specify the requirements that will be followed for information disclosure, meaningful consultation, and grievance redress mechanism; (iv) describe implementation procedures and responsibilities, including budgets, institutional arrangements, and capacity development requirements; and (v) specify monitoring and reporting requirements.

21. This will be achieved through the identification of the impacts and the establishment of appropriate mitigating measures to minimize, or if at all possible, eliminate the adverse impacts of the development and/or provide compensation for impacts that cannot be avoided, as established by the process and procedures included in this EARF. This requires that an IEE be prepared for subprojects categorized as B for environment during the screening, and this is irrespective of whether EIA is required under the Environment Act 2003.

[4] An EIA required under the Environment Act 2003 does not require all of the items or detailed process required for an EIA under SPS. This IEE in fact meets the requirements for EIA as per the Environment Act 2003. Should the NES require EIA for the subprojects under Environment Act 2003, the EA/IA will be required to submit the IEE with the application and to follow the consultation and disclosure requirements set out in the Act.

22. The ADB will review, evaluate and assess the capacity of the EA and IA to properly manage the environmental and social impacts and risks of the project and to implement the relevant national laws and regulations and the ADB requirements. If gaps are identified relative to the existing national laws for safeguards and ADB requirements or if there are apparent gaps in the EA and IA capacity, details of the specific requirements to fill gaps will need to be incorporated in the EARF to ensure that the policy and principles of the ADB's SPS are complied with.

4. SCOPE OF WORKS

1. Project and Activities

23. The impact of the project will be increased energy security in an environmentally sustainable manner. The outcome will be an increased access to a higher share of electricity generated by renewable energy sources.

24. The project will be located in Southern Group. The project will construct and operate three solar PV power generation units with a total capacity of 3 MWp. The solar power generation units will consist of a set of solar photovoltaic (PV) modules, power inverters, switchgear, associated protection, control and monitoring equipment, and associated civil works. The electricity output will be directly fed into existing distribution grids in target islands for further distribution. As part of grid refurbishment, project will replace existing grid equipment i.e. cable, poles, distribution transformers and switchgears.

25. The project includes the following two components:

- **Solar Photovoltaic Power System Development.** The project will construct up to six solar photovoltaic power plants with a total installed capacity of about 3 megawatt peak coupled with advanced secondary battery energy storage installation, and rehabilitate the existing distribution network for core and non-core subprojects. The project will feature three core subprojects on Mangaia, Mauke, and Mitiaro and up to three non-core subprojects on Aitutaki, Atiu, and Rarotonga. Due diligence for core projects will be prepared prior to approval by ADB's Board of Directors. Due diligence for non-core projects will be prepared after approval, and in parallel with the administration of the core projects
- **Institutional Strengthening and Project Management Support.** The project will provide institutional strengthening to OEC and REDD for (i) developing the energy efficiency policy implementation plan including an energy audit and monitoring scheme to enhance demand side energy efficiency management practices for targeted major electricity consumer groups; (ii) developing capacity for renewable energy technology assessment and appropriate off-take tariff setting for power purchase agreements for private sector funded projects, and (iii) updating the CIRECIP through refining electricity load demand up to 2020, renewable technology choice, and least cost investment plan. The consultants to be engaged under this component will be the project owner's engineer (POE) who will also provide project management support for REDD and TAU to help implement core and non-core subprojects in the Southern group islands.

26. The government has requested a loan and a grant totalling NZ$21.79 million equivalent to help finance the project (Table 1). Financing will comprise (i) a loan of NZ$13.43 million from ADB's ordinary capital resources, and (ii) a grant of EUR5.30 million (equivalent to NZ$8.36 million) from the European Union, administered by ADB.

27. The loan will be used for the procurement of equipment and materials, civil works, services, related transportation, insurance, installation costs, and interest and commitment charges on the loan during construction for non-core subprojects on Atiu, Aitutaki, and Rarotonga. The loan will also be used to finance consulting services and contingencies. The grant will be used for the procurement of equipment and materials, civil works, related transportation, insurance, and installation costs for core subprojects on Mauke, Mitiaro, and Mangaia. The government of Cook Islands will finance land acquisition, environmental and social monitoring, taxes and duties not funded by the loan and grant, and contingencies.

Table 1: Project Investment Plan

(NZ$ million)

Item		Amount
A.	**Base Cost** [a]	
	1. Solar photovoltaic module procurement	3.34
	2. Solar photovoltaic power system development	17.41
	3. Institutional strengthening and project management support	1.50
	4. Land acquisition	1.50
	5. Tax and duties	1.87
	Subtotal (A)	**25.62**
B.	**Contingencies** [b]	1.90
C.	**Financing Charge During Implementation** [c]	0.98
	Total (A+B)	**28.50**

Note: Numbers may not sum precisely because of rounding.

[a] In February 2014 prices. The amounts are indicative since the non-core subprojects will be appraised during implementation.

[b] Physical contingencies estimated at 5.0% of base cost. Price contingency is based on estimated domestic inflation rate during project implementation.

[c] Include interest and commitment charges. Interest during construction for the Asian Development Bank loan has been computed at the 3-year forward NZ dollar swap rate plus spread 0.5%. Commitment charges for an Asian Development Bank loan are 0.15% per year to be charged on the undisbursed loan amount. 2% of ADB administration fee for EU grant financing (NZ$0.19 million equivalent) is included.

Source: Asian Development Bank estimates.

2. Proposed Works and Anticipated Impacts

28. **Proposed works**. The main activities under the project include installation and commissioning of grid-connected solar PV power plants ranging 120 kWp to 1.0 MWp capacity with lithium-ion battery storage and refurbishment of grid assets. The project would also include capacity building of executing and implementing agencies, and efficient project management services.

29. The local infrastructure required at each site includes roads, wharf, and the pre-existing energy grid. The solar power plant will be connected to the existing grid and will feed it energy. Access by road and wharf will be needed to transport necessary materials and equipment during construction. In all the project islands, the proposed sites are accessible and well connected with existing roads and wharfs/ports. It is estimated that maximum 2-3 trucks mostly carrying construction materials will be moving daily for a maximum 3-4 days during peak construction time. Therefore there is no need to construct additional access roads as part of this project.

30. Table 2 below summarizes the island wise plant size and summary of existing features and proposed interventions.

Table 2: Summary of Existing Features and Proposed Interventions

Feature	Target Island					
	Rarotonga	**Aitutaki**	**Atiu**	**Mangaia**	**Mauke**	**Mitiaro**
Number of HH	3255	502	137	172	95	58
Location	Rarotonga (capital)	Remote island located 225 km north of Rarotonga	Located at 185 km northeast of Rarotonga	Southern-most island, 177 km south of Rarotonga	One of smallest islands, located 270 km northeast of Rarotonga	Located 230 km northeast of Rarotonga
Proposed interventions	Installation of 1 MWp solar power plant with lithium-ion storage battery (LISB) connected to existing power grid	Installation of 1 MWp solar power plant with LISB connected to existing power grid	Installation of 400 kWp solar power plant with LISB connected to existing community manager mini-grid	Installation of 420 kWp solar power plant with LISB connected to existing community manager mini-grid	Installation of 240 kWp solar power plant with LISB connected to existing community manager mini-grid	Installation of 120 kWp solar power plant with LISB connected to existing community manager mini-grid
Estimated Land area required (m^2)	12,000	16,000	6,000	20,000	10,000	10,000
Vegetative area to be cleared (m^2)	10,000	0	5,500	4,500	1,500	1,200
No of trees to be cleared	0	0	45	56	40	0
Ownership of land	Private land	Crown land/ private Land	Private land	Private land	Private land	Private land

Source: PPTA documents (February 2014)

31. **Anticipated impacts**. The proposed sites of the power plants are mostly unused open land except in Mangaia, Mauke and Atiu where the proposed sites are covered by trees and invasive vegetation. The project facilities do not encroach any of the physical infrastructure (roads, buildings, transmission lines etc.). Also there are no sites of any archaeological importance in and around the proposed facilities. All the selected sites are accessible by existing roads, therefore there is no need for construction of new roads/wharfs. Therefore impacts associated with project siting on physical environment are negligible.

32. Minor impacts on topography and visual impacts are expected due to installation of the solar power plants. However these impacts are permanent and these impacts were minimized by careful site selection to avoid inhabited areas.

33. The equipment to be procured and installed by the project will comply with international standards for noise as well as escape of polluting materials. The project will use compact and preassembled systems to minimize the impacts. Therefore no adverse impacts due to the project design are anticipated. To ensure that all the environmental mitigation measures are implemented, the EMP will be updated during detailed design and incorporated in the bidding documents.

34. The project will involve only minor civil works such as clearing of site, earth work and foundation for panels. Mechanical and electrical works will take place at various locations within a large project site.

35. The site preparation will involve only minor levelling, and thus will not significantly change the drainage pattern. A number of temporary impacts – dust, noise, and vibration - could also arise during construction. However, these will be controlled and can be minimized.

36. The nature of the construction works indicates that no toxic or hazardous materials will be used, apart from fuel oils for vehicles, which will be properly stored. Construction waste will be sorted out by the contractors for recycling. The residual waste will be properly handled by the relevant Island Council units for waste disposal.

37. Clearing of 2.27 ha land and cutting of about 141 trees and trimming of some trees on surrounding areas will have some adverse impacts on the environment. Except coconut, the trees to be cut are mostly invasive tree species (which are in abundance on the islands and have no economic value).

38. The climate risk profile for Cook Islands indicates that the main impacts of climate change are expected to be high sea levels, extreme winds, and extreme high air and water temperatures. Best estimates of long-term, systematic changes in the average climate for Cook Islands indicate that sea level is likely to have increased by 36 cm and the frequency of severe short sea level rise resulting from storm surge (2.2 meters above mean sea level) will increase from a one in 580-year event to a one in five-year event by 2050.

39. The construction will require not more than 30 workers, who will reside outside the project sites for a period of about three months. Technical staff will be from outside whereas labours and support staff would be hired locally. No groundwater will be tapped at the project sites as these sites have low groundwater potential. The water required for construction (concrete mixing) and consumption will be brought in from outside sources.

40. This EARF has been prepared to provide a general framework and guidance for sub-projects to be updated and prepared during implementation, the assessment to be prepared for each sub-project will provide a site-specific plan for mitigating measures to avoid or reduce impacts of proposed works and the contractor will further detail their construction methodology in the construction environmental management plan (CEMP). During the rehabilitation and upgrading works, it shall be ensured that the contractor strictly implements the approved CEMP and that the contractor employs the best engineering practices in the works to eliminate or adequately mitigate the adverse impacts that will accrue from the implementation of the works.

5. PREPARATION, REVIEW AND CLEARANCE OF ASSESSMENTS

1. Subproject Screening and Categorization

41. As prescribed in the criteria established in the SPS sub-projects will be screened and categorized based, at the minimum, on the preliminary design and sufficient information to assess the extent and scale of the works that will be undertaken and the projected significance of the environmental impacts. Based on this the environmental categorization of each sub-project can be determined and the level of environmental assessment required can be identified.

42. The proposed works are anticipated to be site-specific, few if any impacts will be irreversible and mitigation measures for anticipated impacts can be made readily, therefore Category B is the appropriate categorization with IEE as appropriate level of assessment.

2. Environmental Assessment

43. Environmental assessments based on the requirements of the SPS and Environment Act 2003 will need to be prepared for each and every sub-project that will involve physical works. As per the SPS, the assessments will cover the items listed below (refer to Appendix 1 for detail):

- Introduction to the project and sub-projects (components);
- Description of the existing legal and policy framework for environmental protection and management;
- Description of the sub-project works and timeframe for the implementation;
- An assessment of the pre-construction, construction and operation impacts on physical and biological environment including water quality and habitat, as the roadways are already existing and is not likely that rare, threatened, or endangered species, and ecologically-sensitive habitats will be affected by the subprojects but this should be confirmed in the assessment;
- An assessment pre-construction, construction and operation impacts on socio-cultural and economic environment, including identification of possible physical cultural resources (PCR) at materials sources/sites;
- Identify potential impacts of climate change on the subprojects, and recommendations for adaptation measures to climate proof or increase resilience in project design;
- Detailed measures to mitigate impacts to acceptable levels in a targeted and specific EMP. The EMP will include (i) mitigations measures; (ii) institutional arrangements; and (iii) monitoring requirements and plan;
- Documentation of the public consultations with affected people and stakeholders in based and in coordination with specialists preparing the social assessments and resettlement plans (if required) and establish procedures for disclosure of the draft environmental assessments;
- Establish procedures for a grievance redress mechanism; and
- Conclusions and recommendations.

44. The IAs will be responsible for the implementation of the entire environmental assessment and review procedures and for the non-core sub-projects. This will include, but not be limited to, ensuring that the EARF procedures are strictly adhered to, and that preparation of assessment will be carried out in a timely and adequate manner, environmental monitoring and institutional requirements will be fully met while meaningful public consultations will be carried out satisfactorily. The IAs will submit the IEEs and monitoring reports to ADB for review in a timely manner. The ADB will review and clear all assessments and reports prepared. The assessments will be prepared following ADB prescribed format (Appendix 1) which also complies with requirements of Environment Act.

45. The IAs through the PMU will discuss with NES whether permits are required for each sub-project. In the event that permits are required, the IAs will submit the application(s) along with the IEE(s) to the NES. Permits are to be secured before any works start at the sites.

46. It should be emphasized that it is the contractual obligation of the contractor to comply with the regulatory requirements of the Cook Islands. Training and induction relevant to the environmental regulations of the Cook Islands will be provided to the contractor after the contract is awarded.

47. All assessment and monitoring reports will be disclosed following ADB's Public Communications Policy 2011 and will be uploaded to ADB's website upon clearance. The assessments and other relevant project information will be disclosed to the local community before commencement of any civil works as stated in Section 10 of this EARF.

48. The IAs through the PMU will monitor the progress of the environmental work stream to ensure that environmental safeguards as set out in this EARF are implemented and the project complies with country safeguards requirements and the SPS.

6. REQUIREMENTS FOR ENVIRONMENTAL MANAGEMENT PLANS

1. Environmental Management Plans

49. The SPS provides guidance on the preparation of the EMP. The EMP should be a result of the environmental assessments that will be prepared for sub-project. The EMP provides the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (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):

- **Mitigation**: (a) identifies and summarizes anticipated significant adverse environmental impacts and risks; (b) describes each mitigation measure 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 or emergency response) required for the project.
- **Monitoring**: (a) describes monitoring measures, 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.
- **Implementation arrangements**: (a) specifies the implementation schedule; (b) describes the institutional arrangements for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan; and (d) 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.

50. The EMP included in the IEE will be updated, as required, based on detailed design. The IAs will include the requirements of the updated EMP, along with all other relevant safeguards provisions, in the bid documents. Where modifications to designs are incorporated at a later stage, additional or further updated assessments (including EMPs) IEEs will be prepared and submitted to ADB for review and clearance.

2. Contractor Environmental Management Plan (CEMP)

51. Based on the EMP included in the approved IEEs, at the onset of project implementation, model construction contracts will be prepared which incorporates the general environmental safeguards and practices required for the development. These will be modified specific to each subproject to ensure that all special or particular safeguard requirements and mitigation measures, recommended in the EMP provisions based on detailed design, are incorporated within the contract of each subproject. The EA/IA will also allocate sufficient resources to supervise EMP implementation including monitoring of the environmental mitigation measures of all construction contracts. Further, the contractor will be provided with the necessary training on the preparation of the construction EMP (CEMP), safeguards requirements of the ADB and the requisite environmental regulations of Cook Islands especially those that relate to the materials sourcing and opening and operation of quarries, if required. This will be undertaken by the PMU supported by the project owners' engineer (POE).

52. Based on the EMP included in the bid documents the contractor, after receiving induction training, will be prepare a CEMP which will specify the construction methodologies they will use and identify where materials (such as aggregates and gravel) will be obtained from. The CEMP will respond to the mitigation and monitoring measures stipulated in the contract (as adapted from the IEE/EMP).

53. The CEMP will set out how the contractor will achieve environmental safeguards, identify the staff designated with responsibility for ensuring and reporting CEMP implementation including implementation of the grievance redress mechanism (GRM). The CEMP will also establish how the contractor will report on CEMP implementation and corrective actions as part of monthly reporting to the PMU. The contractor may only move to the site and commence work after the CEMP has been reviewed and approved by PMU.

7. INSTITUTIONAL ARRANGEMENTS

54. **Roles**. The main institutions that will be involved in environmental management activities are the MFEM as the EA of the project, TAU and REDD as IAs, POE, contractor, and line agencies including the NES.

55. EA has overall responsibility for all aspects of the project. IAs through support of POE will be responsible for day-to-day management of technical aspects of the project. POE will be responsible to update EMP followed by design phase and he will also be responsible to approving contractors' CEMP, emergency plan, and occupational health and safety plan as well as to ensure on-ground implementation of the environmental management plan. EA will ensure the environmental management and monitoring budgets are available and utilized as necessary for timely implementation of EMP. The PMU and PSC will be established for implementing the project.

56. **Responsibilities and tasks**. The EA will submit the environmental assessment report to ADB and NES or Island Environment Authority, as applicable for review and approval as per the Environment Act 2003. During implementation the EA with support from POE environmental expert will update this IEE and EMP based on the detailed designs. The EMP from the updated assessment will be integrated into the bid documents.

57. Efficient project implementation related to the turnkey contract will be provided by the POE, and will include safeguards aspects as related to preparation of bidding documents; assistance during the bidding process; and supervision of the project design, supply, construction including monitoring of compliance with the approved EMP, and commissioning.

58. TAU and REDD will nominate counterpart staff conversant in engineering, power system planning, finance, environment, and social safeguards areas. TAU and REDD have hands-on expertise important to the project due to its power engineering knowledge. However, there is need to enhance capacity of TAU and REDD staff in safeguards implementation and monitoring. POE will provide training to IA and contractor staff on managing the environmental issued associated with project. The contractor(s) will be required to have one staff with experience in environmental management. This staff will be responsible for preparing plans such as emergency preparedness plan and occupational health and safety plan etc.

59. **Capacity building for safeguards**. TAU and REDD have little experience in implementation of safeguards under country systems or ADB's requirements. The POE will include an environmental specialist who will provide both on-the-job training and workshops and/or training sessions on basic environmental management systems and requirements linked to the project for the IAs, PMU, and for the contractor(s). The POE's environmental expert will be tasked to (i) strengthen the environmental management of the project during contract process, construction, and implementation, (ii) provide induction training to contractors prior to preparation and submission of the CEMP for each subproject; (iii) provide assistance for review and clearance of the CEMPs; (iv) monitor compliance with the approved CEMP of each subproject and work with NES as required to build capacity in project monitoring and compliance; and (v) prepare reports on environmental safeguards activities as required. Cost of capacity building is included in the capacity building component of the project.

60. Table 3 presents the institutional responsibilities for the implementation of the environmental safeguards for the project.

Table 3: Institutional Responsibilities for Environmental Safeguards

Organization	Implementation Responsibilities
IAs through the PMU (with assistance from the POE)	Prior to the commencement of civil works: ▪ Submit environmental assessments required for regulatory approval by the NES and obtain permits ▪ Ensure that EMPs are updated as required (based on detailed design), updated EMPs are included in the bidding document of the subproject and that all bidding contractors have access to the environmental assessments and EMP ▪ Ensure that the EMP and all required mitigation measures during construction, including conditions stipulated in the NES' clearance or environmental permit, are included in all the contracts signed by the contractor(s) with requirements to update the EMP in response to any unexpected impacts and that all selected contractors have agreed the to implement the full suite of environmental mitigation measures prescribed in the EMP ▪ Receive environmental safeguard clearance on subproject(s) ▪ Provide training to contractor for preparation of CEMP, safeguards requirements of ADB and regulatory requirements of NES ▪ Review and clear the contractors CEMP for each subproject During the implementation of civil works: ▪ Monitor the implementation of CEMP and submit the monitoring reports to EA and ADB ▪ In case unpredicted environmental impacts occur during project implementation, inform ADB, review the CEMP with the contractor, and implement alternative environmental mitigation program. In case a subproject changes in scope, inform ADB and reconfirm the environmental classification, determine whether a supplementary IEE is required, and carry out the study including the requirement for information disclosure and public consultation; ▪ Submit the requisite reports on progress with social and environmental compliance and implementing the CEMP as required by the NES/ADB ▪ Ensure that ADB be given access to undertake environmental due diligence for all subprojects. However, the PMU will have the main responsibility for undertaking environmental due diligence and monitoring of all the subprojects. The due diligence report as well as monitoring reports on CEMP implementation, as required, will be systematically prepared and be made available to the public
ADB	▪ Review and approve subproject IEEs. Provide technical guidance to the PMU as needed ▪ Reviewing quarterly progress reports and disclosing the IEEs and monitoring reports including uploading to the ADB website ▪ Monitor the EMP implementation, as required, and conduct due diligence as part of project reviews ▪ Provide assistance to PMU and POE, if required, in carrying out its responsibilities and for building capacity for safeguard compliance ▪ Ensure that IAs conduct the required consultations with project affected groups and local NGOs, and that the EA discloses relevant environment information in an appropriate form, manner, and language(s) accessible to those being consulted
Contractors	▪ Participate in training delivered by PMU and POE and based on site specific conditions, prepare CEMP for each site ▪ Implement the CEMP as part of the works ▪ Prepare monthly progress reports which include CEMP implementation, accident report, grievances and measures undertaken to address any non-compliance issues identified by the PMU or NES. This will include any grievances made and actions taken to resolve the grievance ▪ Handling end-of-life used lithium-ion batteries to transport to manufacturer.
NES	▪ Administration and enforcement of the Environment Act 2003 and its regulations as it pertains to the project Identify whether permits (with or without conditions) required for subprojects ▪ Review IEE and other documentation required

	▪ Assist in monitoring

8. CONSULTATION AND INFORMATION DISCLOSURE

61. As required by the SPS and Public Communications Policy 2011 of the ADB, communities and stakeholders are to be consulted as part of project preparation and implementation and that relevant project information is disclosed publically. Consultations will be undertaken as part of the environmental and social assessments as well as for preparation of social safeguard documentation such as resettlement plans. The safeguards documents will record the consultations including date, locations and number of participants (by male and female) for all meetings, main issues raised and response to those issues or concerns.

62. All environmental documents are subject to public disclosure, and therefore will be made available to the public. This EARF and project IEEs will be disclosed on ADB's website upon receipt. The EA through IAs will ensure that meaningful public consultations, particularly with project affected persons', if any, are undertaken. A consultation plan will be prepared and agreed by EA during the detailed design stage.

63. The EMPs will include a GRM so that any concerns raised during construction or operation can be addressed.

64. Disclosure of environmental and social safeguards documents procedures of the ADB require that (i) IAs ensure that all environmental assessment documentation, including the environmental assessments (or due diligence) and monitoring reports, are properly and systematically kept as part of the project-specific record; (ii) all environmental documents are subject to public disclosure, and therefore may be made available to public, on request; and (iii) the IAs will consult the public, particularly the project affected persons.

65. Moreover, disclosure of relevant environment safeguards documents will be in an appropriate form, manner, and language and at an accessible location to be understandable to the affected people and local stakeholders.

9. GRIEVANCE REDRESS MECHANISM

66. In order to receive and facilitate the resolution of affected peoples' concerns, complaints, and grievances about the project's environmental and social safeguards performance a GRM is proposed for the project. When and where the need arises, this mechanism will be used for addressing any complaints that may arise during the construction and operation of the project. The grievance mechanism is scaled to the risks and adverse impacts of the project. It addresses 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 affected people at no costs and without retribution. The mechanism is not impeding access to the Cook Islands' judicial or administrative remedies. EA through IAs will appropriately inform the affected people about the mechanism before commencement of any civil works.

67. The following seven-step mechanism is proposed for grievance redress of environmental and social matters in construction and operation of various project components uses existing island/village administrative structures (affected persons/organizations/village groups), any of which can be complainants.

68. The PMU will have a designated staff member to address all potential complaints from the public for both construction and operation phases of the project. Any complaint will be recorded and investigated by the PMU working with the construction and operations managers (as appropriate) of the individual project components. A complaints register will be maintained which will show the details and nature of the complaint, the complainant, the date and actions taken as a result of the investigation. It will also cross-reference any noncompliance report and/or corrective action report or other relevant documentation.

69. When construction starts, a sign will be erected at all sites providing the public with updated project information and summarizing the grievance redress mechanism process including contact person details at the PMU. All corrective actions and complaints responses carried out on site will be reported back to the PMU. The PMU will include the complaints register and corrective actions/responses in its progress reports to the ADB.

70. In the whole process, national agencies (NES for environment related grievances and NICC/Ministry of Justice for social/resettlement related grievances) will be always available to public complaints and advice on the PMU's performance for grievance redress.

71. On receipt of a complaint in any form (in person, telephone, written) the PMU complaints officer will log the details in a complaints register. PMU will forward complaint to the contractor/construction manager/operations manager (as appropriate) within 48 hours. The contractor or managers will respond to the PMU within 1 week with advice on corrective actions taken or put in train. PMU will review and find solution to the problem in consultation with village or traditional chief and relevant local agencies. Then PMU will report back to the village/traditional chief and affected persons within a week time. If the complainant is dissatisfied with the outcome, or have received no advice in the allotted time period, he or she can take grievance to Island Council. Island Council will refer matter to the relevant national agencies (NES, CICC, MOJ). National agency refers to an internal committee and reports back to AP/village or traditional chief about outcome. If unresolved or at any time if complainants is not satisfied, he or she can take the matter to appropriate court. Both successfully addressed complaints and non-responsive issues will be reported to the ADB by the PMU.

72. Table 4 presents the steps and corresponding time frame for proposed grievance redress mechanism.

Table 4: Grievance Redress Process

Stage	Process	Duration
1	Affected Person (AP)/village elected or traditional chief takes grievance to PMU	Any time
2	PMU review and find solution to the problem in consultation with village or traditional chief and relevant agencies	2 weeks
3	PMU reports back to village/traditional chief/AP	1 week
If unresolved		
4	AP/village or traditional chief take grievance to Island Council	Within 2 weeks of receipt of decision in step 3
5	Island Council refers matter to relevant agency (NES/CICC/MOJ)	2 weeks
6	National agency refers to an internal committee	4 weeks
7	National agency reports back to AP/village or traditional chief	1 week
If unresolved or at any stage if AP is not satisfied		
AP/village or traditional chief can take the matter to appropriate court		As per judicial system

10. MONITORING AND REPORTING

1. Monitoring

73. An integral part of environmental protection is ensuring compliance with the approved EMP and periodic monitoring of the condition of the immediate environment to ensure corrective actions required are implemented as quickly as possible and to determine any occurrence of undesirable changes as a result of the project during construction and operation phases. The monitoring program will be conducted on two levels (i) compliance monitoring and (ii) baseline and conduct of monitoring to determine the extent of variations and changes in the levels of pollutants in the environment and other parameters and indicators considering the implementation or operation of the project.

74. Throughout implementation of the project, the government and ADB will monitor the implementation progress and impacts of the project. Overall, the EMP will be implemented by the executing agency through project implementing agencies. In consultation with executing agency and ADB, the implementing agencies will establish a system for preparing quarterly reports on safeguards performance monitoring, issues resolution, and corrective action plans.

75. An EMP will be part of the overall project monitoring and supervision, and will be implemented by the POE with oversight from the IAs. POE will be responsible for supporting the PMU to update the EMP following the design phase.

76. The updated EMP will be approved by EA and compliance with it will be monitored by IAs. Progress on the preparation and implementation of an EMP will be included in the periodic project progress reports. Specific monitoring activities defined in the IEE and EMP will be carried out by engineering, procurement and construction (EPC) contractor and supervised by POE and monitored by implementing agencies. The executing agency will submit semi-annual environmental monitoring reports on EMP implementation for ADB's review. In general, the overall extent of monitoring activities, including their scope and periodicity, should be commensurate with the project's risks and impacts. The implementing agencies with the support from POE will be required to implement safeguard measures and relevant safeguard plans, as provided in the project agreement. Complaints and problems from affected people /communities will be monitored and resolved in accordance with grievance redress mechanism proposed for this project.

77. Each subproject EMP (in the IEE) will detail an environmental monitoring plan outlining parameters and frequency of monitoring for that site and works.

78. Monitoring will relate to compliance with construction contracts (including CEMP measures and provisions), the state and health of the nearby environmental resources, and the effectiveness of mitigation measures and complaints. Monthly progress reporting will include a summary of the environmental monitoring report submitted to the IA on a monthly basis and to ADB semi-annually. Table 5 below provides the key tasks for environmental monitoring that will be incorporated into the EMP.

TABLE 5: KEY TASKS FOR ENVIRONMENTAL MONITORING

Environmental Monitoring Tasks	Implementation Responsibility	Implementation Schedule
Design Phase		
Consultation about subprojects with NES, determination of permit requirements and monitoring of permitting (as required) Disclosure of IEEs	IAs, PMU, POE	Prior to construction
Audit project bidding documents to ensure IEE and EMP included in bids and environmental criteria are included in evaluation	IAs, PMU and ADB	Prior to issue of bidding documents
Construction Phase		
Training and briefing of contractor's management with regards to all IEE and EMP requirements	IAs, PMU, POE (env. expert) Contractor	First training prior to preparation of CEMP, refresher courses as required
Monitor the performance of environmental training by POE and briefings and of the environmental awareness of contractors staff, tool box talks and & refresher courses. Contractor to report on CEMP implementation in Monthly Reports	IAs, PMU, POE (env. expert) Contractor	Ongoing, prior to and during implementation of works and operation
Regular (monthly) monitoring and reporting (quarterly) of contractor's compliance with CEMP and statutory environmental requirements	IAs, PMU, POE (env. expert) Contractor	Continuous throughout construction period
Regular (monthly) monitoring and reporting (quarterly) of complaints and responses or environmental mitigation measures	IAs, PMU, POE (env. expert)	Continuous throughout construction period
Monitor adjustments to the CEMP for unexpected impacts and the thorough implementation of detailed CEMP	IAs, PMU, POE (env. expert) Contractor	During all phases of the subprojects
Operation and Maintenance Phase		
Observations during routine maintenance inspections of facilities. Inspections will include monitoring implementation of operational mitigation measures versus environmental criteria specified in EMP for operational impacts	IAs	As per agreed inspection schedules
Post construction monitoring at any sites where complaints about air/noise/water quality from works in construction phase	IAs	Monthly up to 3 months after completion of construction or until air/noise, water quality meets baseline conditions
Handling end-of-life used lithium-ion batteries to transport to manufacturer.	IAs, Contractor	Incorporate contractor's obligation to handle end-of-life used lithium-ion batteries in the turn-key contract.

2. Reporting

79. Contractors will report on construction progress on a monthly basis, the monthly reports will include a section on implementation of the CEMP and other health and safety provisions as required. Quarterly progress reports (QPR) to be prepared by IAs and POE will summarize the contractor's monthly reports and also include the monitoring of contractor compliance with EMP undertaken through spot checks and sites visits by POE. Safeguards monitoring reports will be prepared on a semi-annual basis (every six months) by the POE and submitted to EA, PSC, NES and ADB. All safeguards monitoring reports will be disclosed as per ADB policies.

80. The IAs and PMU will be the primary entity responsible for reporting progress of the project to the EA and ADB.

81. The reporting will be as per the following schedule:

- A monthly report prepared during construction by the contractor reporting on progress of CEMP activities, issues and corrective actions;
- The QPR (every three months) prepared by the IAs and PMU. The QPR will include a section on safeguards activities and CEMP compliance for each subproject and will summarize the monthly reports submitted by the contractor and any actions or citations made by the POE;
- A semi-annual safeguards monitoring report (prepared every six months) by the PMU, submitted to ADB and disclosed; and
- The project completion report will include a section on safeguards implementation and make recommendations as required for modifications to the processes set out in the EARF and EMP procedures based on the review undertaken at the end of the project The safeguards section will be prepared by the PMU three months prior to the end of the project.

3. Budget

82. The budget needed for the environmental management and monitoring of the project will be incorporated into the overall costs. Implementation of mitigation measures will be included in the Bill of Quantities (BOQ) as a line item for preparation of the CEMP and a provisional sum or monthly line item to cover costs of implementation of CEMP. Monitoring will include CEMP compliance which will be undertaken by PMU and therefore included in day-to-day activities and overall budget, specific baseline and follow-up monitoring will be required for two environmental parameters – noise and air quality – and Table 6 provides the estimate of costs for environmental management and monitoring across the six sites (three core sub-projects and three non-core sub-projects) during the project. The preliminary estimated cost is US$126,000.

Table 6: Estimated Costs for Environmental Safeguards Implementation

Environmental Features	Aspect to be Monitored	Time and Frequency of Monitoring	Monitoring Cost (US$)
Construction			
Noise	Noise levels in dB(A)	At the start of concerned activities. At least 3 times during construction period	3000*3 *6
Air	Emission of dust and particulate matter	At the start of concerned activities. At least 3 times during construction period	4000*3*6
Physical works progress	As specified in contractors' CEMP	Project site Monthly	BOQ
Occupational Health and Safety	As specified in project OHS plan prepared by contractor	Project site Weekly	BOQ
TOTAL			**126,000**
Operation			
Occupational Health and Safety	As specified in project OHS plan	Project site As required linked to maintenance activities	Part of O&M cost

APPENDIX 1: OUTLINE OF AN ENVIRONMENTAL ASSESSMENT REPORT

This outline is based on SPS Safeguard Requirements 1. An environmental assessment report is required for all environment category A and B projects. Its level of detail and comprehensiveness is commensurate with the significance of potential environmental impacts and risks. A typical report contains the following major elements, and an IEE may have a narrower scope depending on the nature of the project. The substantive aspects of this outline will guide the preparation of environmental impact assessment reports, although not necessarily in the order shown.

A. Executive Summary

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

B. Policy, Legal, and Administrative Framework

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

C. Description of the Project

This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project’s layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data)

This section describes relevant physical, biological, and socioeconomic 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.

E. 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, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media, and physical cultural resources 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.

F. 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.

G. 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.

H. 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 performance.

I. 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 impacts (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 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, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and (c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan; and (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.

J. Conclusion and Recommendation

This section provides the conclusions drawn from the assessment and provides recommendations.