Republic of Marshall Islands

Sustainable Energy Development Project (SEDeP)

Environmental and Social Management Plan

Public Disclosure Authorized

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Quality Information

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Acronyms and Abbreviations

AP	Affected Persons
BESS	Battery Energy Storage System
CdTe	Cadmium Telluride
CoP	Code of Practice
DIDA	Division of International Development Assistance
DSM	Demand Side Management
EE	Energy Efficiency
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, Construction
EPD	Energy planning department
EEZ	Exclusive Economic Zone
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
GBV	Gender Based Violence
GoRMI	Government of Republic of Marshall Island
GRM	Grievance Redress Mechanism
IDA	International Development Association
IEE	Initial Environmental Examinations
IOM	International Organisation for Migration
JICA	Japan International Cooperation Agency
KADA	Kwajalein Atoll Development Authority
KALGOV	Kwajalein Atoll Local Government
KAJUR	Kwajalein Atoll Joint Utility Resources Inc
LED	Light Emitting Diode
MEC	Majuro Energy Company
MICS	Marshall Island Conservation Society
MIMA	Marshall Islands Mayors Association
MIPA	Marshall Island Port Authority
MoF/DIDA	Ministry of Finance/Division for International Development Assistance
MOU	Memorandum of Understanding
MOWP	Method of Works Plan
MRD	Ministry of Resources and Development
MWSC	Majuro Water and Sewage Company
NEP	National Energy Policy
NEPA	National Environmental Protection Agency
NEPA	National Environmental Management Authority
NGO	Non-Governmental Organisation
O&M	Operation and Maintenance
OHS	Operational Health and Safety
PCR	Physical Cultural Resources
PIU	Project Implementation Unit

PMU	Project Management Unit
PREP	Pacific Resilience Project
PSC	Project Steering Committee
PV	Photovoltaic
RAP	Resettlement Action Plan
RE	Renewable Energy
RMI	Republic of the Marshall Islands
RPF	Resettlement Policy Framework
SECP	Stakeholder Engagement and Consultation Plan
SEDeP	Sustainable Energy Development Project
SOP	Standard Operating Procedures
SSM	Supply Side Management
SWMP	Solid Waste Management Plan
TA	Technical Assistance
TMP	Traffic Management Plan
TOR	Terms of Reference
TT	Task Team
WB	World Bank
WUTMI	Women United Together Marshall Islands

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Executive Summary

Scope of ESMP

This Environmental and Social Management Plan (ESMP) for the Sustainable Energy Development Project (SEDeP) of the Republic of the Marshall Islands (RMI) has been prepared by an independent consultant on behalf of the Division of International Development Assistance (DIDA) of the Ministry of Finance, Go RMI.

The ESMP provides the set of mitigation, monitoring, and institutional measures to be taken during the implementation and operation of the SEDeP to avoid or eliminate adverse environmental and social impacts, offset them or reduce them to acceptable levels. The ESMP also includes the actions needed to implement these measures.

It is the responsibility of the Project Implementation Unit under the Marshalls Energy Company, Inc. (MEC), to ensure that the SEDeP ESMP is fully integrated into the Project. The ESMP shall form part of any bid documentation for physical works, and it shall be the PIU's responsibility to ensure that the technical requirements and data sheets of Project bid documentation is subject to review against this ESMP to ensure that all appropriate safeguard measures are captured at the bid stage.

Project Summary

Currently, more than 90 percent of energy provision in RMI is dependent on expensive imported fuels making it the costliest sector of nations economy.

In Majuro, MEC operates an ageing power station with four out of seven generators currently in operation. Since the introduction of prepaid electricity meters in 2010, and following the loss of one major customer, there has been a steady decrease in the demand for electricity. There are also several solar PV systems in Majuro feeding into the distribution network. The network itself is over 30 years old and in need of significant reinvestment and modernisation, additionally the distribution network was not designed to accommodate any power generation from renewable energy (RE) systems.

On Ebeye, KAJUR has a generation capacity sufficient to meet Ebeye's population demands. There are four high-speed generators however the engines are run down and would need to be replaced as part of any new generation project implemented on the island. There is currently no solar PV or any other RE on Ebeye.

The SEDeP, funded by the World Bank, has been developed to contribute to the long-term sustainability of the RMI energy supply and to support a shift away from diesel power generation to renewable energy (RE). The following table summarising all RE activities being financed by the project with more details provided below regarding specific investments.

Energy Investments	Supply and installation of several solar PV systems, a Battery Energy Storage System (BESS) and grid-management equipment. Install solar PV arrays on Majuro. Diesel genset(s) in Ebeye and Majuro.
Promotion of energy efficiency	A program for MEC and KAJUR will be designed and implemented to provide recommendations to achieve loss reduction. A program to enhance efficient use of energy including awareness campaigns and training. Supply and installation of selected EE investments. Development of policies and regulations for energy efficiency
Technical Assistance, Capacity Building and Project Management	A program of activities designed to enhance the capacity of MEC, KAJUR and EPD will be carried out. Support the preparation of studies for the subsequent phases of the Project, including preparation of safeguards instruments for RE projects for Ebeye and the Outer Islands (Wotje, Jaluit, Rongrong and Santo). Prepare mechanism for maintenance fund and support training of MEC and/or KAJUR on the O&M strategies. Support and strengthen MEC´s capacity for project management and implementation, coordination, monitoring and evaluation, and reporting through the establishment of a PIU in MEC.

Solar Array Systems in Majuro: A detailed assessment of potential sites able to host the solar panel arrays has identified 9 locations as being suitable, with total installed capacity of about 4.13MW. The final locations of the solar panel arrays have not yet been confirmed however, several primary candidate sites have been identified. These include:

Water Reservoir: The proposed design for the water reservoir entails solar arrays being mounted above the water. This option is attractive as it provides multiple benefits such as reducing evaporation of fresh water, reducing light dependent algae growth and not requiring large areas of land to host the array.

Building Roofs: Installation of panels on the roofs of government buildings is an efficient way to increase solar PV surface area while minimizing the need for land and minimising impacts on privately owned buildings.

Basketball Courts, Open Hospital Spaces and Car Parks: Installation of solar arrays above basketball courts, car parks and other green areas is included in the identified list.

Diesel Generators: The KAJUR power station on Ebeye is proposed to get one, possibly, two new generators installed on the existing footprints to improve fuel efficiency and help accommodate future planned solar installations. On Majuro one or more diesel generators may be replaced and network connections may be improved or upgraded.

Energy Efficient Investments: The SEDeP is proposing to finance the supply and installation of energy efficiency investments. This could include investments such as the replacement of old equipment with more efficient and/or higher capacity equipment, streetlight replacement with LED, light bulbs, replacement of incandescent lightbulbs or energy efficient equipment in selected public buildings.

Design of Future Renewable Energy Efficient Investments: The SEDeP is financing the studies for potential future Ebeye and Outer Island (Wotje, Jaluit, Rongrong and Santo) RE projects. These studies will include the design, the environmental and social impact assessment studies, land due diligence assessment and preparation of safeguards instruments.

Legal Framework and Safeguard Policies

SEDeP proposed activities potentially trigger the following World Bank safeguard policies: OP4.01 Environmental Assessment, OP4.04 Natural Habitats, OP4.37 Safety of Dams, OP4.11 Physical and Cultural Resources and OP4.12 Involuntary Resettlement. Corresponding laws, regulations and policies of the RMI, particularly the National Environmental Protection Act 1984, EIA Regulations 1994, Solid Waste Regulation 1989 and Public Water Supply Regulation 1994 also come in to play.

The Resettlement Policy Framework for SEDeP details the legal framework for the management of land in the RMI.

The management of social and environmental impacts of all SEDeP project activities will comply with the requirements of the above RMI laws and regulations, the triggered World Bank policies and the Resettlement Policy Framework.

Stakeholder Engagement and Consultation

The SEDeP has a plan for engaging and consulting with stakeholders for the duration of project implementation. As part of this plan, several consultation meetings have already been held during the development phase of this project and a series of recommendations and measures have been incorporated into the project to address concerns raised during the consultations. These measures include:

- Only government owned buildings (plus Coop School) are targeted for installation of solar PV arrays.
- To deal with the disposal of hazardous or bulky waste, a Solid Waste Management Plan will be developed by the Contractors. Additionally, the requirements of the Solid Waste Management Plan will be adapted into a Code of Practice for Solid Waste Management in the renewable energy sector and implemented for all future projects on Ebeye and the Outer Islands.
- A Resettlement Policy Framework has been developed for the SEDeP as part of the required safeguard instrumentations. The RPF governs due diligence of land ownership and also governs voluntary or involuntary acquisition of lands or assets to ensure that any affected persons are properly consulted and compensated before project works commence.
- The SEDeP provides for the preparation of an escrow account/sinking funds mechanism and support training of MEC and/or KAJUR on operational and maintenance strategies.
- Engineers are required to consider cyclonic events in the design of installations.
- Engineers are required to conduct a thorough assessment of solar PV technologies and select those most appropriate for installation over the water reservoir taking into account any

potential impacts on the water quality and the treatment and monitoring procedures of MWSC.

- All imported project staff will abide by RMI immigration policy and provide all required documentation, including health checks. Overseas workers will undergo cultural familiarisation induction upon arrival and sign a code of conduct applicable for the duration of their contract.
- All project staff will undergo training by local services providers identified by the MEC PIU on prevention of HIV/AID and GBV.
- The Contractor will develop a Code of Conduct (to be approved by PIU) for all workers (local and overseas) to sign detailing the expected behaviours of Project staff, ESHS requirements, Cultural respect, OHS requirements, Community Health and Safety considerations

Environmental and Social Impacts

The SEDeP has the potential to create a variety of impacts through the implementation of the various subprojects and components. These potential impacts can be either positive or negative depending on the receptors involved and the activity. The impact of this project on the physical, biological and social environment has been assessed to determine likelihood and identify effective mitigation measures. The potential impacts are summarised in the table below in relation to the related project activity:

Project Activity	Potential Impacts	
Solar PV Investments on Majuro	Environmental	• Coastal erosion and reef damage associated with sand dredging for concrete production • Water pollution from concrete production waste water • Biosecurity risks from imported aggregate • Loss of vegetation through regular tree trimming for rooftop installations • Reduced access to reservoir floor for maintenance • Biodiversity impacts from loss of open spac in vicinity of reservoir. • Risk to integrity of reservoir structure from fixed shore-based installations and/or in-reservoir floating structures. • Broken solar panels leading to possible contamination of water reservoir from chemical elements within solar panels
	Social	• Limited access to recreation and car park spaces during installation • Impact associated with overseas workers such as increased risk of HIV • Increased risk of GBV associated with increased incomes in households • Increased public shade areas following installation
Diesel GenSet Installation	Environmental	• Potential waste legacy from decommissioned equipment • Hazardous waste from old oil and fuel • Ongoing accumulation of used oil during the operation of the new GenSet
Energy Efficiency Activities	Environmental	• Solid waste generated from replacement of old equipment and appliances. Waste can cause increased pressure on landfills and cause contamination to the soil from leaching.
	Social	• LED lighting can impact human health and sleep patterns

Energy Policy		• Ongoing indirect impacts on waste stream from e-waste, appliances, light bulbs, etc
Design of future projects	Environmental	• Potential need for scarce land resources • Modification of reef flat environments and habitats • Increased solid waste generation
	Social	• Influx of labour into Ebeye relying on already limited resources and services • Influx of labour leading to increased risks of spread of communicable diseases and other adverse social impacts

Overall the environmental and social impacts are expected to be minimal, in most cases site specific, and with measures available to ensure their effective mitigation and/or reversal.

Environmental and Social Management Measures

To address the potential impacts associated with the SEDeP activities, a series of detailed Environmental and Social Management Plan tables have been developed. Within each of these plans measures are in place to manage all identified impacts. Many of these measures are applicable to all project impacts and these include meeting all national permitting obligations; the integration of all ESMP requirements into bid documents and contracts; the development of a Solid Waste Management Plan; cultural familiarisation training for overseas project staff; training for all project staff in awareness and prevention of HIV transmission and GBV; detailed requirements for management of laydown areas; biosecurity measures, and; OHS requirements for all project works. In addition to these general and project wide measures, there are some site specific and activity specific measures that are also required. These specific measures are briefly summarised below by project activity:

Project Activity	Environmental or Social Management Measures (Design, Construction and Operational Phases)
Solar PV Installations	• Conduct a bird survey of the reservoir to identify the species and habitat features of the pond. Conduct an impact assessment and consider mitigation in design. • Submit an application to the Environmental Protection Authority for installation of a PV system above the water reservoir. • Include the assessment of structural integrity of the reservoir in the Design Engineer contract. • Design Consultant to undertake thorough review of effectiveness of current treatment of water and monitoring program by MWSC prior to reticulation for public consumption and identify any recommendations • The project design will take into account the latest technical development of solar panel technology and any testing associated with rainwater harvesting from solar panels • Design engineers in consultation with MEC and EPA shall design a set of mitigation measures and response to any emergencies. • All sourced sand and aggregate will be imported from an offshore source. Imported aggregates must meet GoRMI Biosecurity requirements. • Hazardous wastes such as damaged solar panels and batteries that contain heavy metals shall be collected and stored prior to disposal offshore at a licensed facility as per the requirements of the Solid Waste Management Plan. • The Contractor will provide a 10ft container and a roofed structure over the container in a location determined by MEC for the storage of hazardous waste

	Concrete will be prepared on bunded and covered hard stand surface of laydown areas. • All waste water and slurry from concrete production will be collected and treated • No trees will be trimmed or removed without the permission of the PIU and the land owners. Removal of trees will be avoided unless absolutely necessary for achieving Project objectives. Agreement from the owner shall be given, and any compensation agreed to, prior to trees being trimmed or removed. • Any solar panels or batteries removed from the array for disposal will first be collected and stored in the covered 10ft container provided by the Contractor. • For final disposal, the MEC will ensure hazardous items are shipped offshore to a facility licensed to handle hazardous waste. • MEC shall undertake at least weekly monitoring of the condition of the individual solar panels to detect any damage. Damaged solar panels shall be immediately removed from the array to prevent particulate entering the water reservoir. MEC to advise Environmental Protection Agency (EPA) of any damage likely to have caused solar panel particulate to have entered the water reservoir. • MEC to comply with any requests made of them from EPA in relation to the EPA ongoing water quality monitoring program. • Should additional or extraordinary monitoring be required, this is to be funded by MEC • Routine tree trimming will be carried out with the permission of tree owners.
GenSet Installation	• Ensure, through design of spill containment at the genset and / or within the building, that 100 percent of fuel and oil held within the generators can be contained and collected for removal within the footprint of the building. All Project staff will be trained on this plan and attendance will be recorded. • Hazardous wastes such as old oil and fuel shall be collected and stored in self bunded containers prior to disposal offshore at a licensed facility as per the requirements of the Solid Waste Management Plan. • Oil and fuels will be drained from the old genset with a drip pan in place to catch any drips or minor spills • All removed parts will be contained and stored in a watertight container to prevent leaching of residual oils or fuel • For final disposal, the KAJUR will ensure hazardous items are shipped offshore to a facility licensed to handle hazardous waste. • Ensure that all manufacture recommendations for maintenance of generator are implemented to maintain efficiency and reduce risk of failure.
EE Investment	• Hazardous wastes such as discarded incandescent bulbs shall be collected and stored in water tight containers prior to disposal offshore at a licensed facility as per the requirements of the Solid Waste Management Plan. • Difficult waste such as appliances and building cladding shall be stored in the secure fenced and covered area. • Should any Asbestos Containing Material be uncovered while working on building insulation, the Contractor will develop an Asbestos Management Plan for review, approval and implementation. • Ensure that all manufacture recommendations for maintenance of energy efficient appliances are implemented to maintain efficiency and reduce risk of failure.

ESMP Implementation

The agencies with important responsibilities for ESMP and RPF implementation, monitoring and reporting are NEPA, MOF/DIDA, MEC and KAJUR. Details of the responsibilities are summarised below

A Project Steering Committee (PSC) will be established and comprise representatives of the MoF, Ministry of Resources and Development (represented by EPD), as well as MEC, KAJUR and the Kwajalein Atoll Development Authority (KADA), and others, as needed. The PSC will provide oversight and strategic guidance for the project implementation.

A Project Implementation Unit (PIU) will be established within MEC and will include a Project Manager, a Project Accountant, and if needed, a Procurement Specialist. The DIDA Safeguards Specialist will cover SEDeP safeguards responsibilities, including:

- Monitoring of the Contractor as per the requirements of the ESMP Monitoring Plan for compliance with the ESMP
- Managing the review process for all safeguard elements up to formal approval
- Providing safeguards screening and provide safeguards advice during the preparation and implementation of all subprojects.
- Updating the ESMP and RPF as necessary to reflect project changes. This includes the SWMP, Codes of Practice and Mitigation Tables.
- Applying for all RMIEPA approvals and permits.
- Supporting PIU to enable effective citizen engagement into the project and providing meaningful input and direction into community consultations for projects
- Conducting capacity gap assessments of implementing agencies (MEC and KAJUR) and develop capacity building tools and materials.
- Assisting MEC and KAJUR to integrate safeguards into their Standard Operating Procedures

The Project Manager will be responsible for overall project coordination and technical guidance and will support the procurement of various packages and studies. Technical staff will be recruited as necessary to support the implementation of technical advisory components. The Project Manager will report to the CEO of MEC and to the Project Steering Committee. The MoF will be responsible for processing project disbursement requests.

Safeguard Financing

An estimated budget for safeguards is USD$392,000 for SEDeP activities. MOF/DIDA will ensure this budget is approved and available to support safeguards implementation. This budget covers the cost of consultants, stakeholder engagement, engagement of part time safeguard specialist, institutional training, HIV/GBV training, disclosure of safeguards instruments, monitoring, reporting and GRM related costs.

1 Introduction

The Republic of the Marshall Islands (RMI) is one of the world's smallest, most isolated and vulnerable nations with a high reliance on expensive imported fuel to generate energy. The RMI, led by the Ministry of Resources and Development (MRD) adopted its National Energy Policy (NEP) in 2009 (reviewed in 2015). The NEP is managed through the Energy Planning Division (EPD) and was developed with the vision of "improved quality of life for the people of the Marshall Islands through clean, reliable, affordable, accessible, environmentally appropriate and sustainable energy services".

The Government of Republic of Marshall Island's (GoRMI) formally requested the Bank´s support in advancing its NEP objectives of i) increasing the use of RE to at least 20 percent by 2020 while reducing by 20 percent its greenhouse gas emissions; and ii) reducing subsidies to the sector by lowering the operating costs (i.e. by reducing the share of expensive imported fuels in its generation matrix and by increasing its energy sector utilities´ efficiency).

The Banks preliminary analysis determined that for the RMI to reach its targets in 2020 and 2050, centralized storage and control systems for renewable energy (RE) would be needed on Majuro and Ebeye with mini grids also being installed in outer islands. To achieve this the GoRMI is using a phased approach to implementation over a period of 5-7 years. As part of this phased approach, the Bank is funding several components through this Sustainable Energy Development Project (SEDeP). Section 2 discusses these components in detail.

1.1 ESMP Purpose and Scope

Project screening based on field investigations, stakeholder consultation and a review of potential options confirms an assessment of Category B for the Project. It finds that potential impacts are less than significant, site specific, mostly reversible and that a range of potential measures for mitigation can be readily designed in the majority of cases.

To support the implementation of Category B projects such as the SEDeP (where the project and any likely sub-project impacts are identifiable and not foreseen to involve serious impacts) it is a requirement to produce an Environmental and Social Management Plan (ESMP). Therefore, this ESMP has been produced to ensure the integration of environmental and social stewardship into the project as required by RMI's relevant laws and regulations and the Environmental and Social Safeguards Policies of the Bank.

The ESMP provides the set of mitigations, monitoring, and institutional measures to be taken during the implementation and operation of the SEDeP to eliminate adverse environmental and social impacts, offset them or reduce them to acceptable levels. The ESMP also includes the actions needed to implement these measures.

Specifically, this ESMP includes the following components:

Consultations: A summary of consultation to date, and further measures are detailed to ensure adequate ongoing consultations are held and affected people especially are involved in discussing how they are affected and the range of measures for reducing identified impacts.

Mitigation: The ESMP identifies feasible and cost-effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective or sufficient.

Monitoring: The ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to identified impact and mitigation measure. For all monitoring requirements, the technical parameters are defined along with appropriate responsibilities and reporting procedures.

Grievance Redress Mechanism: A mechanism for receiving and addressing all grievances and complaints related to the Project is set out in the ESMP. It seeks to resolve all complaints as quickly as possible to the satisfaction of the aggrieved party.

Implementation Arrangements, Schedule and Costs: The ESMP includes a description of implementation arrangements, including the roles and responsibilities of the Project Management Unit, Implementing Agencies and Project consultants. The ESMP also builds scheduling of measures into its planning including phasing and coordination with overall Project implementation plans. Where appropriate, capital and recurrent costs estimates and sources of funds for implementation of the ESMP have been estimated.

Capacity Development and Training: The ESMP identifies any gaps in institutional capacity and recommends measures and costs to address them.

1.2 Integration of ESMP

It is the responsibility of the Project Implementation Unit under the Majuro Energy Company (MEC), to ensure that the SEDeP ESMP is fully integrated into the Project. The ESMP shall form part of any bid documentation for physical works, and it shall be the PIU's responsibility to ensure that the technical requirements and data sheets of Project bid documentation is subject to review against this ESMP to ensure that all appropriate safeguard measures are captured at the bid stage.

It is further the responsibility of the PIU to ensure that this ESMP is considered in review of any Terms of Reference for Technical Assistance developed for the Project. The safeguard requirements for any design or supervision of the Project will be fully integrated into TOR to ensure that all safeguard responsibilities allocated within the ESMP are realized at the tender stage.

In this way, the ESMP will be fully integrated within the Project so that the required measures will be fully appreciated by all responsible parties and successful implementation will be achieved.

1.3 Disclosure

As part of the requirements of RMI law and World Bank policy, the ESMP is to be publicly disclosed by Division of International Development Assistance (DIDA) as the agency responsible for project preparation. DIDA will ensure the ESMP Executive Summary is translated into Marshallese prior to disclosure in hard copy and online. A newspaper advertisement will alert the public to the disclosure of the instruments Likewise, DIDA and MEC will ensure that several copies of all prepared safeguard instruments are available locally at the DIDA office, MEC office and KAJUR office, easily accessible to affected groups and local NGOs.

The ESMP is a dynamic document and will be reviewed, updated and approved as necessary throughout the implementation of the Project. For each approved updated version of this ESMP, the PIU will be responsible for disclosure through the above channels.

2 Project Description

2.1 Background and Rationale

The Government of Republic of the Marshall Islands' (GoRMI) formally requested the Bank's support in advancing its energy sector objectives of (i) increasing the use of RE to at least 20 percent by 2020 while reducing by 20 percent its greenhouse gas emissions; and (ii) reducing subsidies to the sector by lowering the operating costs (i.e. by reducing the share of expensive imported fuels in its generation matrix and by increasing its energy sector utilities efficiency). In that context, the World Bank commissioned a pre-feasibility study to conduct the dependency on imported fuels. The recommendations of the Report are based on a technical mission to the country, a review of available studies in the energy sector and a review of a proposal from a US company – Solar City – submitted to the GoRMI for the development of a solar project on Ebeye and three outer islands.

The study made by Solar City forms the basis of a US$11 million financial request (non-concessional funding at 1% interest rate) submitted by the GoRMI to the Abu Dhabi Fund for Development (ADFD) via IRENA (Decision expected early in 2019). The Options Report proposes three options for the development of RE in Majuro, Ebeye and the outer islands. To undertake all three options concurrently would be extremely expensive for RMI, therefore the Government is planning a phased approach to implement the three options over a period of 5 – 7 years to achieve the RE goal as proposed.

The SEDeP, funded by the World Bank, forms part of that phased implementation and, through a series of components, is to finance the supply and installation of integrated PV solutions in Majuro; supply and install a new GenSet for Ebeye; develop an energy loss reduction program for MEC and KAJUR; supply and installation of energy efficient investments in RMI; develop policies and regulations for EE integration across RMI; prepare studies for the next phase of the RMI Options Report and build capacity within MEC for project management.

SEDeP will contribute to RMI's National Energy Policy (NEP) adopted in September 2009 and reviewed in 2015. The NEP's vision is 'improved quality of life for the people of the Marshall Islands through clean, reliable, affordable, accessible, environmentally appropriate and sustainable energy services'. It has the following broad goals –

i. strengthen financial, policy and legislative frameworks for the energy sector;
ii. supply 100 percent of urban households with electricity by 2015;
iii. provide 95 percent of rural outer atoll households with off-grid electricity by 2015;
iv. provide access to modern forms of cooking to 90 percent of all households by 2020;
v. make households and businesses 50 percent more energy efficient and government buildings 75 percent more energy efficient by 2020;
vi. achieve a 20 percent efficiency improvement in transport sector fuel use by 2020;
vii. reduce supply side energy losses from MEC by 20 percent by 2017; and
viii. provide 20 percent of power generation through indigenous renewable resources by 2020.

The NEP also identified four priority outcomes that are (i) improved enabling frameworks for reducing dependence on imported fossil fuel; (ii) all Marshallese have equitable access to modern energy services; (iii) smarter uses of energy in households, businesses, government, transport sector and power utilities; and (iv) reliable, sustainable and affordable energy supply.

SEDeP is thus well aligned with the strategic direction and frameworks that identify needs and priorities to respond to the effects of climate change and natural hazards identified by GoRMI, and the World Bank. SEDeP also contributes to strengthening RMI's economic resilience to external shocks, given its dependence on imported fossil fuel.

2.2 Current Conditions

The Marshalls Energy Company (MEC), a vertically integrated state-owned utility, oversees electric power generation and distribution in Majuro and has been committed by the EPD for the installation, operation and maintenance (O&M) of renewable energy (RE) installations in remote areas. MEC also imports and distributes petroleum products and is hierarchically under the Ministry of Public Works.

In Ebeye, the Kwajalein Atoll Joint Utility Resource (KAJUR) is responsible for providing power, water, sewer and potable water for the atoll. KAJUR is operated as a subsidiary of MEC, under the direction of MEC Chief Executive Officer (CEO). The company has its own separate power system and facilities. More than 90 percent of energy provision in RMI is dependent on imported fuels, and the rest comes from biomass and solar. Biomass energy in the country is produced from waste materials, coconut stalks and copra (coconuts oil), and used for cooking and water heating in households.
There are approximately 3,000 standalone Photovoltaic (PV) Solar Home Systems (SHS) in the Outer Islands and some small grid connected solar PVs in Majuro (described below). In 2014, estimated RMI's rates of access to electricity were 90 percent, desegregated to 81 percent in rural area, and 94 percent in urban. The rate of electrification in Majuro atoll is 93 percent and 97 percent in Ebeye[1], however, propane and petroleum are still broadly used for cooking.

Majuro electricity system. MEC operates two diesel power stations (located adjacent to one another) on Majuro. The utility has four generators in operation, two decommissioned and one that is awaiting rebuilt after a minor fire. The diesel power station is ageing and has been plagued with problems including a major fire that permanently damaged two generators. Loads have decreased over the last decade, mainly due to tariff increases, the introduction of prepayment meters and the loss of one large-scale customers (a major fisheries company) in Majuro. Since the first prepayment meters were installed in 2010, there has been a steady decrease in electricity demand averaging around 1.8 percent annually, consistent with the energy saving properties of prepayment meters.

There are also several grid-connected PV systems installed in Majuro, including a 600kW MASDAR system, located near the airport, a 209kW Japan International Cooperation Agency (JICA) system on the hospital roof, a 111kW at the College of Marshall Islands (privately owned system), a 55kW at the University of South Pacific (USP) campus and several small privately owned grid-connected PV systems (5=6kW each).[2] MEC's distribution network is aged (over 30 years old), and in need of significant reinvestment and modernization, and was not designed to accommodate any distributed generation from intermittent renewable resources (i.e. solar). Preliminary findings of an analysis conducted by JICA under its project on the formulation of a self-sufficient energy supply system reveal that the current system can accommodate no more than 890kW of PV-grid connected energy

[1] JICA. Marshall Islands Project on the Formulation of a Self-Sufficient Energy Supply System Final Report. January 2015.

[2] MEC 2016 Power Report.

without advanced control or storage. As the current amount on the grid is approximately 1 MW,[3] it is not recommended that any more grid-connected PV be installed without storage or advanced control. The report also states that upgrades to the diesel generation units are needed.

Ebeye electricity system. KAJUR has a generation capacity sufficient to meet Ebeye's population demand. The power station houses four high-speed generators and the last major upgrade of the diesel generating plant was carried out in 2012. The engines are rundown and would need to be replaced as part of any new generation project implemented in island. The last upgrade of the existing power distribution system was carried out in 2004/2005. During this upgrade, most community areas had their all high voltage overhead transmission lines replaced with the underground cables and all pole mounted transformers replaced with the cubicle type units mounted on the concrete plinths on the ground. KAJUR is technically and financially weaker compared to MEC on which it relies for important O&M aspects.

There is currently no solar PV or any other RE on Ebeye, but JICA has planned a 600kW grid-connected PV system to be located on land behind the power station. The installation will also include a new generator control system to allow automatic operation.

2.3 SEDeP Activity Areas Overview

The following investment areas have been identified and form the basis for the SEDeP. They are discussed in more detail in the sections below.

Table A: SEDeP Activity Area Overview

Energy Investments	Renewable energy investments will finance the supply and installation of up to 4.5 solar power-generation capacity, a Battery Energy Storage System (BESS) and grid-management equipment to increase the contribution of RE in RMI´s generation system and to reduce diesel generation in Majuro. The component will include assistance in O&M and capacity building for at least 2 years. SEDeP will finance the install solar PV arrays on Majuro, including a preliminary design and cost, preparation of bidding documents and supervision of the engineering, procurement and construction (EPC) contractor. SEDeP will finance diesel genset(s) for KAJUR´s power plant in Ebeye and MEC's power plant in Majuro.
Promotion of energy efficiency	This Project component will address issues related to supply side management (SSM). A loss reduction program for MEC and KAJUR will be designed and implemented. This will be prepared by external consultants to provide recommendations to achieve loss reduction in the two utilities. SEDeP will support a program of activities designed to enhance efficient use of energy. The program could include supply and installation of selected EE investments, such as enhanced insulation in

	replacement of inefficient lighting or appliances in said buildings; this component will also support information awareness campaigns, workshops, training, and education on DSM and EE. The development of policies and regulations for energy efficiency will be supported, as well as the development of standards and labeling for EE including phasing out inefficient incandescent bulbs, and more stringent standards for appliances. Activities aimed at raising consumer awareness on EE and related capacity-building activities and training will also be supported.
Technical Assistance, Capacity Building and Project Management	A program of activities designed to enhance the capacity of MEC, KAJUR and EPD will be carried out. These activities could include technical operation, procurement, financial management, environmental and social management, monitoring, evaluation, and reporting. This component will also support a study to assert EPD's role in the sector, defines its needs as one of the key actors and further provide means for EPD to undertake a few studies essential to the energy sector development as well as potential support for staffing. This sub-component will support the preparation of studies for the subsequent phases of the Project, including the design (up to the preparation of bidding documents) and safeguards studies and preparation of safeguards instruments for RE projects for Ebeye and the Outer Islands (Wotje, Jaluit, Rongrong and Santo). Set up of O&M (or Sinking Fund) Fund to maintain generation equipment is critical to ensure its sustainability, especially in the Pacific region. This sub-component will prepare the escrow account/sinking funds mechanism and support training of MEC and/or KAJUR on the O&M strategies. This sub component will support and strengthen MEC´s capacity for project management and implementation, coordination, monitoring and evaluation, and reporting. It will support the establishment of a PIU in MEC including the recruitment of a Project Manager, procurement, financial management, social and environmental safeguards capacity as needed. It could also include an energy specialist to support EPD on the technical supervision of relevant studies. Provision of technical assistance to support mainstreaming of gender dimensions in the Project will also be financed under this sub-component. The project's incremental operating costs will also be financed through this component as well as office equipment and Project audits.

2.4 Solar PV Investments on Majuro

2.4.1 Proposed Solar Options on Majuro

A detailed assessment of potential sites able to host the solar panel arrays by DIDA has identified 9 locations as being suitable to install PV power plants, with total installed capacity of about 4.13MW.

Table B: Potential Sites for PV Arrays

Site	Estimated Capacity (kW)
Water Reservoir	2,236
Airport Parking	513.5
School Building Roof	123.5
Nitijela Building Roof	182
ICC Roof	266.5
ECC Roof	208
Hospital Playground	455
Basketball Field	97.5
Public Parking	45.5
Total	**4,127.5**

The final locations of the solar panel arrays will be confirmed during a detailed design study during project implementation. The ESMP covers all sites.

2.4.1.1 Water Reservoir

The water reservoir is an primary candidate for the following reasons (i) multipurpose: would serve both MWSC and MEC generation purposes in a situation of limited land availability; (ii) water conservation: would reduce evaporation currently experienced by MWSC; (iii) size: concentrates half of the potential sites total capacity; (iv) location: avoids anticipated potential distribution constraints; thanks to its size and relative proximity with MEC's existing thermal generation facilities, a power distribution feeder can easily be erected to convey the generated energy from the reservoir site to the power plant.

However, co-operation and co-maintenance considerations between MEC and MWSC should not be neglected, in addition to the fact that the reservoir is the major source of freshwater for the 28,000 inhabitants of Majuro.

The technology and technical solutions to be applied to the proposed solar PV plant at the reservoir will ultimately be determined during implementation at the time of EPC contract awarding. Nevertheless, the Bank has conducted a thorough due diligence to ensure that this solution is viable and would not negatively impact MWSC's day-to-day operations and maintenance needs. At this stage, the technical assessment study identified two solutions likely to be applied:

i. ***The Rigid Steel Bracket Solution***: the photovoltaic modules will be laid above the water pool and supported with rigid steel brackets composed of H-type steel as the main bearing components. Connection between the photovoltaic modules and H-type steel will be made with Z-type steel or C-type steel, and each photovoltaic module will be supported with 2 pieces of Z-steel or C-type steel underneath.
ii. ***The Flexible Support Solution***: Flexible photovoltaic support eliminates the impact of photovoltaic cell module to daily operation of the impounding reservoir, which solved the problem of long span, and can also meet the requirement of wind load resistance. The flexible foundation solution is a patented technology owned by a company in Zhejiang

Province in China and currently has been applied in domestic projects such as sewage treatment plants, etc., and the first demonstration project with this solution was completed in Zhejiang Province in 2015.

Both solutions are suitable for the photovoltaic modules at the reservoir. The rigid steel bracket solution uses a lot of steel, needs two columns to be set on the pool bottom which will affect normal operation of the reservoir during construction, but it has simple and well-proven structural form, extensive engineering application and high reliability. The flexible support solution can reduce steel consumption, but because use of steel wire ropes, corrosion is likely to occur in the hypersaline environment in the later stage. Currently, there are only a few projects having employed the flexible support solution, only one company in China has the ability to independently undertake the design and construction of this solution, and there may also arise the issue regarding intellectual property right protection. Therefore, at this stage, and pending further consideration during implementation, it is the rigid steel bracket solution that would be recommended if the reservoir makes it to the final list of project sites. Finally, the proposed technical solution will not negatively impact on the operation of the existing PV arrays located on the left bank of the reservoir.

2.4.1.2 Building Roofs

Installation of panels on the roofs of buildings is an efficient way to increase solar PV surface area while minimizing the need for land. During the detailed design phase during Project implementation, the structural integrity of the proposed buildings will need to be assessed for their suitability to act as host for a solar array. Included in this assessment will be an assessment of resilience to cyclonic events.

Despite being government controlled or owned, access to targeted rooftops and open space must nevertheless be arranged through the official channels. While there is no formal protocol in place for this, it is precedence based and is therefore included in the SEDeP consultation plan to ensure that occupants and managers of the spaces are given the opportunities to guide logistics of installation.

For some targeted space managed by public corporations, the corporation has legal authority to allow improvements and developments on their facilities and properties including activities promoted by SEDeP.

2.4.1.3 Basketball Courts, Hospital Open Space and Car Parks

Installation of solar arrays above basketball courts, car parks and other green areas is included in the above list. During the detailed design phase, the proposed solution will also include consideration for foundation design of the array structure and the design should be sufficient to withstand cyclone events.

2.4.2 Land Acquisition

All sites are leased by the Government of RMI and there will be no involuntary land acquisition. No sites have squatters. The SEDeP RPF discusses in detail the arrangements for confirming access to Government-leased land.

2.4.3 Ancillary Works

It is expected that there will be ancillary works associated with the installation of the solar PV systems on Majuro. The final scope of these works will be confirmed during the detailed design phase, but it is expected to include the following:

Battery Storage Systems, Network and Grid Management Uprades: Depending on the outcome of the preliminary design and network efficiency and performance requirements for the integration of solar generation into the network. Battery storage will be at the MEC power plant. The network upgrades may include replacing or upgrading electrical distribution cables on existing poles and no new land will be required.

Aggregate Supply: Concrete will be required for the foundations of all solar PV installation options on Majuro except roof top. Feasibility studies[4] of the potential host location have identified that concrete will be required for foundations of arrays at the water reservoir, the hospital car park and the airport car park. However, it is also likely that concrete foundations will be required for other installation sites such as any greenfield spaces. At this stage in the project development, it is not confirmed how much concrete will be needed, however it can be expected that concrete will be needed for foundations at the reservoir, the carparks and any greenfield installations. It is also expected that these foundations will need to be strong enough to support the structures during typhoons.

Exact designs and volumes are unknown at this stage but sand materials will be needed by the Contractor to produce the concrete.

The supply of aggregates in the RMI is limited. The most common methods of aggregate extraction are beach mining, nearshore dredging and reef quarrying. All of these aggregate extraction methods been identified as potentially environmentally unsustainable and contributing factors to coastal erosion.[5] As a general rule, all aggregates for World Bank Projects must be imported

Laydown Site: A laydown site (or sites) will be required for the storage of construction materials needed for the installation of the various solar PV systems on Majuro. It is expected that the construction works associated with the installations will be relatively minor and limited to the preparation of concrete foundations, however storage of all imported solar PV array equipment will need to be catered for along with all other machinery and equipment necessary for installations. It is possible that lay down areas may move depending on active Project sites. The MEC is responsible for identifying government land to be used by the Contractor as temporary laydown areas.

Haulage Routes: As all materials, equipment and machinery will be imported to RMI for these works, it can be expected that haulage routes will need to be defined for each project site for all components. All imported items will need to be transported from the main port to the Contractors laydown areas. At this stage, the volume of imported items and the locations of the laydown area are considered to be low and unlikely to be a significant aspect of the project. It is expected that

[4] Feasibility Study Report for Solar Power & Microgrid Project in Majuro, Marshall Islands. Changjiang Institute of Survey, Planning Design and Research, July 2017
[5] Smith, R. & Collen, J., 2004, Sand and gravel resources of Majuro Atoll, Marhsall Islands. SOPAC Technical Report 360. South Pacific Applied Geoscience Commission, Suva, Fiji. 126pp.

haulage truck will be used to move all materials and equipment and that this will take place on the public road network.

2.4.4 Solar PV Design and Implementation Process

A feasibility study will conclude technical and financial feasibility of options and provide recommendations to the PMU.

In consultation with stakeholders, the PMU will make decision on the location(s) and total MW of investments, based on the technical feasibility, safeguards and costs.

Detailed design and bid documents will be prepared on the selected investment(s). At the same time, the ESMP will be updated to reflect any new or intensified impacts as a result of the detailed design.

Preliminary design and bid documents will be prepared on the selected investment(s). At the same time, the ESMP will be updated to reflect any new or intensified impacts as a result of the preliminary design.

The successful Contractor will complete the design, install all equipment and complete all civil works. The Main Contractor / Panel Supplier is likely to be from overseas and are likely to have a small workforce of technicians and labourers (10 -15 people). The civil works subcontractor may be local or international and may have a mix of local and overseas workers (maximum of 20 at any one time on the project). There is likely to be some temporary opportunities for local laborers.

2.5 Diesel Generators

On Ebeye, the existing KAJUR existing generators are leaking oil onto the concrete floor in the powerhouse and leaked waste oil is also observed in the compound, on concrete and soiled surfaces around and underneath the waste oil storage tanks, creating a highly hazardous and unsafe situation. An estimated 45 – 50 gal of waste oil is extracted from three operating gensets during maintenance operations every 250 hours of operation.

Several storage tanks – some are or near full – receive manually transferred waste oil as they are extracted during maintenance. The observed ground contamination points to improper extraction and transfer of waste oil from the generators to storage tanks, and to tankers for shipping to Majuro.

The KAJUR power station on Ebeye is proposed to have one, possibly two, new generators installed on the existing footprints to improve fuel consumption, system reliability and help to accommodate future planned grid solar capacity.

On Majuro, one or more diesel generators may be replaced and network connections may be improved or upgraded, depending on the recommendation of the preliminary design and the ability of the network to support the solar generation investments.

2.6 Energy Efficiency

2.6.1 Supply Side Management & Demand Side Management

To identify areas of energy loss and to develop a program to address this, a loss reduction study will be undertaken across MEC and KAJUR. Independent consultants will be commissioned to carry out

the study and develop a plan for loss reduction activities at the supply side management (SSM) of energy provision.

To support the development of energy efficient practices from the consumers, a demand side management (DSM) program will be developed. This program will hope to provide trainings and workshops for utilities on DSM and energy efficiency, additionally, information awareness campaigns and education will be developed to target consumers.

2.6.2 Energy Efficiency Investments

Based on the above studies, the SEDeP is proposing to finance the supply and installation of energy efficiency investments. This program could include investments such as the replacement of old equipment with more efficient and / or higher capacity equipment, streetlight replacement with LED light bulbs, replacement of incandescent lightbulbs or energy efficient equipment in selected public buildings.

2.7 Energy Efficiency Policy

To support the SSM work described above, policies and regulations will be developed for energy efficiency. As well as this, the development of standards and labelling for energy efficiency, possibly including phasing out inefficient incandescent bulbs, and applying more stringent standards for imported appliances.

2.8 Design of Future Renewable Energy Investments in Ebeye and Outer Islands

While the SEDeP is not current financing any renewal energy investments in Ebeye and the Outer Islands, it is financing the preparation of studies for the subsequent phases of renewable energy investment in RMI. These studies will include the design (up to the preparation of bidding documents) for RE projects for Ebeye and the Outer Islands (Wotje, Jaluit, Rongrong and Santo). It will also include the environmental and social impact assessment studies, land due diligence assessment and preparation of safeguards instruments.

3 Policy, Legal and Administration Framework

3.1 Environmental Legislation

3.1.1 National Environmental Protection Act 1984

The National Environmental Protection Authority (NEPA), established under the National Environmental Protection Act (NEPA) 1984, is the governing body for environmental protection in the RMI. The primary purpose of the Authority is to preserve and improve the quality of the environment of the RMI, and to that end, have the following objectives:

(a) to study the impact of human activity including redistribution, cultural change, exploitation of resources and technological advances on the environment;
(b) to restore and maintain the quality of the environment;
(c) to use all practicable means including financial and technical assistance to foster and promote the general welfare of the people by creating conditions under which mankind and nature can co-exist in productive harmony;
(d) to improve and coordinate consistently with other essential considerations of National policy, governmental plans, functions, and programs and resources to as to prevent, as far as practicable, any degradation or impairment of the environment;
(e) to regulate individual and collective human activity in such manner as will ensure to the people safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
(f) to attain the widest possible range of beneficial uses of the environment without degradation or impairment thereof and other undesirable consequences to the health and safety of the people; and
(g) to preserve important historical, cultural and natural aspects of the nation's culture and heritage, maintaining at the same time an environment which support the multiplicity and variety of individual choice.[P. L. 1984-3 1,s 19.]

The NEPA Act 1984 is supported and further elaborated in a set of 8 regulations for protection of surface and marine waters, and air quality, and managing of potential impacts from earth works, sanitation systems, waste and new infrastructure development. The Act, and these regulations along with the Coast Conservation Act 2008, provides the framework for the protection of resources and environmentally sustainable development in RMI. The eight (8) regulations are –

- Earthmoving Regulation 1988 (with amendments in 1994 and 1998);
- Solid Waste Regulations 1989
- Toilet Facilities and Sewage Disposal Regulation 1990
- Marine Water Quality Regulation1992
- Public Water Supply Regulation 1994
- Environmental Impact Assessment Regulation 1994
- Ozone Layer Protection Regulation 2004Pesticides and Persistent Organic Pollutants Regulation 2004.
- Sustainable Development Regulation – this is currently in draft and will replace the Earthmoving Regulation once it comes into force.

The three regulations of specific relevance to SEDeP are the EIA, the Solid Waste and the Public Water Supply regulations. These are discussed below.

<u>Environmental Impact Assessment Regulation 1994</u>

The Environmental Impact Assessment (EIA) Regulation (Section 21, NEPA) is the central environmental planning legislation. Its aim is to ensure that environmental concerns are given appropriate consideration in decision making for all new infrastructure projects. The EIA regulation requires a preliminary proposal for every development activity, and applies a two-step assessment process to determine the level of assessment required. Step 1 is an initial evaluation to determine if the activity has the potential for significant effect on the environment; the preliminary proposal is an initial evaluation to determine whether an activity or action has significant environmental effect. Step 2 is an EIA for proposals assessed to have potential significant impact which will be reviewed and form the basis of an approved or not approved decision. The EIA process requires extensive and inclusive consultations with all stakeholders. In preparing the EIA, the proponent shall follow the format and content, as detailed in Part IV of the regulation, unless otherwise directed by the Authority. The proponent shall remain subject to regulatory and permitting requirements pursuant to NEPA, Coast Conservation Act, and the Historic Preservation Act and Tourism Act 1991.

Solid Waste Regulation 1989

The purpose of these regulations is to establish minimum standards governing the design, construction, operation and maintenance of solid waste storage, collection and disposal systems. As all waste will be exported from the RMI, the Regulations shall only be applicable to the collection and storage of the solid waste while in the RMI. The Regulations cover the management of bulky waste such as appliances, tree branches or other oversize waste such as interior building cladding.
The Regulations also define hazardous waste as any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are nondegradable, or persistent in nature, or because they can be lethal, or because they may otherwise cause or tend to cause detrimental cumulative effects. The Regulations list the general requirements for the storage of solid waste as well as detailing the type of containers that may be used to store solid waste. The Regulations also govern the handling of hazardous waste within the RMI.

Public Water Supply Regulation 1994

The purpose of the regulations is to establish certain minimum standards and requirements to be necessary for the public health and safety and to ensure that public water supply systems are protected against contamination an pollution and do not constitute a health hazard.

The regulations state that no person shall cause or allow the construction of or change to any public water supply without approval of final drawings and specifications. All work performed on a public water supply shall be in accordance with accepted engineering practices.

Any pipe, solder flux or fitting in a public water system or any building connected to a public water system shall be lead free. Flux and solder may not contain more than 0.2% lead. Pipe and fittings may not contain more than 8% lead.

The Authority shall review a notice of intent to construct or modify a public water supply system for completeness within 60 calendar days from receipt and shall either:

i) Fully or conditionally approve the notice for the preparation of formal plans and specifications for the proposed facility

ii) Request additional information
iii) Deny the proposal

3.2 Land Legislation

The Resettlement Policy Framework for SEDeP details the legal framework for the management of land in the RMI.

3.3 International Conventions and Treaties

RMI is a signatory to a number of international conventions and treaties. Those of particular relevance to SEDeP are (i) UN Framework Convention on Climate Change; (ii) UN Convention on Biological Diversity (iii) UN Barbados Program of Action and Mauritius Strategy; (iv) the Montreal Protocol, including the Kigali Amendment signed by RMI in 2016.

3.4 World Bank Safeguard Policies

Screening based on field investigations, stakeholder consultations and a review of potential options for implementation confirms an assessment of Category B for the Project. It finds that potential impacts are less significant, site specific, mostly reversible and that a range of potential measures for mitigation can be readily designed in the majority of cases.

The following Safeguard Policies are potentially triggered as a result of the Project, requiring the Borrower to prepare this ESMP and the Resettlement Policy Framework to address all requirements of these policies.

3.4.1 OP4.01 Environmental Assessment

The purpose of Environmental Assessment is to help ensure the environmental and social soundness and sustainability of investment projects, and to support the integration of environmental and social aspects of projects into the decision making process. The policy defines procedures to screen and assess potential impacts and mitigation, prepare safeguard instruments, ensure public consultation and transparency and that there are implementation and supervision of commitments relating to findings and recommendations of the environmental assessment.

This ESMP is an integral part of compliance with this policy. All activities proposed for funding and implementation under the Project are subject to the provisions and stipulations within this document. This includes the physical investments (solar and diesel) and associated facilities, the advice provided under Technical Assistance, the management of environmental and social risks relating to energy efficiency initiatives, and in the design of the future renewable energy projects.

3.4.2 OP 4.04 Natural Habitats

The conservation of natural habitats is essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions. The Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs.

For Components 1 and 2 of SEDeP, the PV installations proposed for the airport freshwater reservoir, roof tops of public buildings and facilities and structures over car parks and open space in Majuro, will not affect any natural habitats. The replacement generators will occupy the old genset footprints and will not affect any natural habitats. However ancillary activities may have direct and indirect

impacts; aggregate mining for concrete production and waste management on the atolls have the potential to impact local reef and marine benthic ecosystems.

The policy is also relevant for the preparation of future projects. While the SEDeP is not funding the physical investments, it is funding the design of technology (including location and ancillary activities) and the preparation of the associated safeguard instruments. This policy is relevant to this aspect of the works as the Ebeye solar PV systems may require disturbances to the foreshore which may have natural habitat. Stand-alone PV systems proposed for outer islands will require land for PV arrays and possibly for ancillary infrastructure such as ship to shore facilities or access tracks. Some natural habitats may be affected and the ESMP will include measures to avoid or mitigate the damage or loss of sensitive habitats.

Limited land for contractor's use (laydown areas) may be required temporarily and land selection will avoid existing natural habitats. The ESMP will guide contractors' activities accordingly.

3.4.3 OP 4.37 Safety of Dams

This policy is considered triggered given the possible use of the water reservoir for PV installation, since the project relies on an existing reservoir structure. This policy is also triggered because this Project is dependent on an existing dam structure with derived risks [albeit very low] to this investment. Any potential risk of damage to the reservoir and leaks or spill threatens the drinking water supply from Majuro's only public reservoir. The safety of the existing reservoir and the risks to this project, and the potential risk of impacts to the integrity of the reservoir structure will be assessed by qualified experts and appropriate safety measures, if required, will be addressed through project engineering design and will include any remediation required to the reservoir structures. Under OP 4.37

> *10 Necessary additional dam safety measures or remedial work may be financed under the proposed project.*
>
> *11. When the owner of the existing dam or DUC is an entity other than the borrower, the borrower enters into agreements or arrangements providing for the measures set out in OP 4.37 to be undertaken by the owner.*

For SEDeP, it is recommended that there is an MOU developed between MWSC and MEC.

The Environmental and Social Management Plan will be updated once the detailed design has been completed and the dam assessment completed. It will include any mitigation measures or emergency measures for any social or environmental risks, in accordance with OP/BP 4.01, *Environmental Assessment*.

3.4.4 OP 4.11 Physical Cultural Resources

The policy seeks to preserve physical cultural resources and avoid their destruction or damage. It encompasses resources of archaeological, paleontological, historical, architectural and religious (including grave yards and burial sites), aesthetic, or other cultural significance.

The environmental assessment has confirmed there are no PCR issues for the Majuro solar investment options and diesel generator replacements. The sites are all within urban areas and heavily modified from decades of earlier development.

There is a possibility that PCR may be identified during the ESIA/ESMP studies for renewable energy investments in the outer islands and Ebeye including graves and World War II relics. Should PCR be discovered during these studies, then the sites will be avoided, or if that is not possible, the ESMP will include appropriate mitigation measures.

3.4.5 OP 4.12 Involuntary Resettlement

There will be no involuntary land acquisition. Compulsory acquisition of land in RMI, although legally possible, is very difficult and not supported by the cultural norms of land tenure. All projects will either be located on Government-leased land or leases (or other legal forms of agreement) will be obtained from the private land owners. The SEDeP Resettlement Policy Framework sets out arrangements for the voluntary agreement of access to and use of land for project purposes. It also sets out protocols for the management of all involuntary resettlement impacts that may be generated. These are very unlikely, but would relate to relocation or damage to shelter, loss of assets or access to assets, and or loss of income sources or means of livelihood for tenants or squatters who have no choice.

4 Environmental and Social Conditions

This section provides information on the physical, biological and social elements of the environment within the Project's scope. The environments described in this section span the full physical and social influence area of the Project. The influence area is considered to include Project sites such as installation sites, laydown areas, ports and haulage routes.

4.1 Location and Setting

Majuro is home to the capital and also the largest city of the RMI, Delap-Uliga-Djarrit (D-U-D). It is also a large coral atoll of 64 islands in the southern end of the Ratak Chain It forms the legislative district of the Ratak Chain of the RMI. The atoll has a land area of 9.7km^2 and encloses a lagoon of 295 km^2. As with other atolls in the RMI, Majuro consists of narrow land masses.

Ebeye is the most populous island of Kwajalein Atoll as well as the center for Marshallese culture located in the center of the Ralik Chain. The land mass of Ebeye is 80 acres and it is the fifth most densely populated island in the world.

It is estimated that Majuro generates about 7.2 tons of residential waste per day and 13.2 tons of commercial waste per day. The main dump site at Jable- Batkan has exceeded it's design capacity. In 2014 it was estimated that about 56,600m3 of waste is stored at that dump site, which is prone to flooding and does not have leachate control, contributing to the pollution of the surrounding marine environment.[6]

Ebeye landfill is lacking in several areas and the landfill located at the north end of the island poses health, safety and environmental concerns.[7]

4.2 Physical Environment

4.2.1 Climate

The Climate of RMI is tropical throughout the year and is divided into two predominant seasons: a wet season from May to November and a dry season from December to April. Rainfall averages 300-380mm per month with October and November the wettest and December to April the driest. Average rainfall increases from the north to the south: the northern atolls receive less than 1,250mm annually and are very dry in the dry season, while atolls close to the equator in the south receive more than 2,500mm of rain each year[8]. Majuro itself is recorded as receiving an average of 3,200mm of rain per year while Ebeye has an average recording of 2,500mm per year[9].

The Intertropical Convergence Zone brings rainfall to the RMI throughout the year. Rainfall is also sometimes influenced by the West Pacific Monsoon, which brings wetter conditions when it is active over the country. Many Pacific typhoons begin as tropical storms in the RMI region and grow stronger as they move westwards.

[6] https://www.adb.org/sites/default/files/publication/42669/solid-waste-management-marshall-islands.pdf, Accessed Sept 2017
[7] https://www.usma.edu/cnrcd/CNRCD_Library/Ebeye%20Report.pdf Accessed Sept 2017
[8] Current and Future Climate of the Marshall Islands, Pacific Climate Change Science Program, 2011
[9] WMO Climate Normals for Majuro, PI 1961-1990, NOAA 2015

Typhoons, droughts and storm waves are the main extreme events that impact the RMI. Typhoons affect the country late in the typhoon season, between September and November. They are usually weak when they pass through the region but are more intense in El Nino years.

Droughts generally occur in the first four to six month of the year following an El Nino when the rainfall can be reduced as much as 80%.

Across the RMI the average temperatures is relatively constant year round, averaging between 25°C and 30°C for Majuro and Ebeye across the year. Changes in temperature from season to season are relatively small (around 1°C) and strongly tied to changes in ocean temperature.

4.2.2 Geology

Coral atolls are remnants of volcanic islands characterized by narrow islands ringing a shallow lagoon. The atolls of the RMI are formed of low lying islands with an average elevation of less than 4m above sea level.

Majuro consists of a series of islets connected by causeways on the south rim to form an almost continuous land mass. The atoll is elongated in shape and extends approximately 40k east to west. At the western end of Majuro atoll about 40km from the airport by road, is the highest elevation point on the atoll, estimated at less than 3m above sea level.

Kawajalein atoll, home of Ebeye island, is one of the world's largest coral atolls. Comprising of 97 narrow islands and islets, it surrounds one of the largest lagoons in the world. The average height above sea water for all of the islands in this atoll is about 1.8m.

4.2.3 Natural Hazards & Climate Change

The RMI have a low vulnerability to tsunami, earthquakes and landslides and a medium vulnerability to typhoons and droughts, and a high vulnerability to coastal flooding.[10]

RMI declared a state of disaster in 2013 and 2016 due to prolonged drought which impacted over 6,000 people. In early March 2014, king tides inundated Majuro Atoll and some of the outer islands with 1,730 people affected and 940 displaced. The inundation affected housing infrastructure and contaminated water supplies, agriculture and food crops.[4]

Pacific typhoons generally develop to the east of the RMI, but it is sometime subject to the full brunt of a typhoon, particularly in the northern atolls. Historically, the storms impact the atolls about once every four to seven years, although since 2014 there have been three major cyclones. Much more common are minor storms of the easterly wave type, especially from March to April and October to November. [11]

The Pacific Climate Change Science Program (PCCSP) has undertaken extensive climate prediction modelling of the entire Pacific region and has made detailed predictions about the likely climate change scenario for the RMI for 2030 and 2090. The models predict that both air and sea temperatures will continue to increase in the range of 0.4-1 C by 2030. The models also predict that, associated with this increase in air temperature, there will be an increase in the number of hot days and a decrease in the period of cooler weather. Almost all of the global climate models project an increase in average annual and seasonal rainfall over the course of the 21st century. Wet season increases are particularly due to the expected intensification of the West Pacific Monsoon and the Intertropical Convergence Zone. Model projections show extreme rainfall days are likely to occur

[10] http://www.unocha.org/pacific/country-profiles/marshall-islands, United Nations Office for the Coordination of Humanitarian Effort, accessed September 2017
[11] http://www.rmiembassyus.org/index.php/about/marshall-islands/geography, accessed September 2017

more often and linked to this, droughts are expected to become less frequent through the century. With regard to cyclonic activity, the RMI is in a region where projections tend to show a decrease in cyclone frequency by the late 21st century and a decrease in the proportion of more intense storms.

Under the PCCSP modelling, sea levels will continue to rise in the RMI and in 2030 under a high emission scenario, this rise in sea level is projected to be in the range of 30-160mm. The sea level change combined with natural year to year changes will increase the impact of storm surges and coastal flooding.

4.3 Biological Environment

4.3.1 Terrestrial Environment

The current proposed Project sites are within urbanized and altered terrestrial environments and the associated vegetation is dominated by grass and sporadic trees. Urban environments such as those in downtown Majuro and Ebeye are often characterized by a large proportion of traditional vegetation such as breadfruit, pandanus and some other food crops to a lesser degree. On Majuro and Ebeye there is low floral biodiversity but often high numbers of introduced species.
Some of the potential project sites may have large shade giving or food bearing trees in the immediate vicinity.

Lizards, insects and domesticated animals are the most common fauna at these sites, with migratory birds also being frequently spotted using the water reserve as a stopover.

There is one endemic species of bird in the RMI, the Ratak Imperial Pigeon (*Ducula Oceanica Ratakensis*, local name: Mule) which is found in the urbanised areas of Majuro. The Mule perches and feeds on breadfruit and papaya tress throughout its range. A 2010 conservation project managed by the Marshall Islands Conservation Society and funded by the Critical Ecosystem Partnership Fund (CEPF) undertook a planting program for papaya and breadfruit which has resulted in increased Mule population from 16 individuals during a 2008 count, to 83 individuals as of July 2009.

Migratory birds are documented as using the freshwater reservoir, along with other freshwater lakes within the RMI atolls, as a stopover during their migrations. While it is known that these birds are not nesting at this location, it has not yet been possible to determine the species, abundance, time or year or length of visit.

4.3.2 Marine Environment

The RMI is formed of coral atolls and as such are characterized by calmer sea conditions on the lagoon side shores and larger swells and rougher condition on the ocean side shore. The RMI coral reef is home to over 800 species of fish, 1,600 species of mollusks and more than 250 species of coral. While the current identified proposed Project sites do not fall directly within the marine environment, the Project will require aggregates in the form of sand for concrete production.

A major concern for both GoRMI and the general public is mining on the reef and lagoon shorelines, contributing to rapid erosion, especially in various parts of Majuro and Ebeye. Moreover, the sand and gravel aggregates in these areas are non-renewable and there is increasing awareness that the mining of these resources is at present unsustainable.[12]

[12] http://www.sprep.org/Marshall-Islands/marshall-islands-pein, Pacific Environmental Information Network, accessed via SPREP September 2017

The destruction of coral reefs is more pronounced adjacent to the urban centers as there is increasing demand for housing and infrastructure development. Primarily on Majuro and Ebeye, sand and gravel for construction is extracted by dredging from the lagoon intertidal and nearshore zones. This has heavily impacted the adjacent reefs. For instance, with suction dredging, the displaced sands and sediments are carried by ocean currents and deposited on reefs, leading to coral death.

4.4 Socio-Economic Environment

Government assistance from the United States of American is the mainstay of the RMI economy. Agricultural production, primarily subsistence, is concentrated on small farms, the most important commercial crops being coconut and breadfruit. Small scale industry is limited to tuna processing, handicrafts and copra. Tourism is a growing sector and it is hoped that this is the countries best option for growing future income. The islands have few natural resources, and imports far exceed exports.

With limited export and domestic production opportunities, public administration and social services constitute the largest share of the economy – approximately 45 percent of GDP. The fisheries sector comprises around 10 percent of GDP, while manufacturing makes up less than 2 percent. Copra and fisheries are the most significant exports, while the country is almost completely reliant on imports for food, fuel, and other basic needs. With substantial constraints to export-led growth, the Marshall Islands is heavily dependent on aid and other fiscal transfers. Foreign aid funds a very large public sector that dominates the economy.

The Marshall Islands' reliance on expensive imported fuel will continue to impose severe fiscal challenges, with effects felt throughout the economy, if not properly addressed. RMI currently spends a significant amount (between US$2-3 million annually) of the aggregate sectoral grants that the nation receives in imported fuel making energy the costliest sector of its fragile economy. The proposed project is expected to contribute to the long-term sustainability of energy supply in the country by supporting a shift from diesel power generation to renewable energy (RE) and to place the RMI on a sustainable, climate resilient development pathway.

The population of the RMI is estimated at 53,066[13] in 2016 of which the two largest urban centers, Majuro and Ebeye, have populations of 28,000 and 9,614, respectively. The islet of Ebeye has the highest population density in the Pacific (among the highest in the World), with the overall population living on the 0.31 km^2 area of the island, resulting in a population density of 31,013 persons per km^2. Majuro and Ebeye are the two main urban centers of the RMI and are home to nearly 75% of the total population.

Teenage pregnancy, domestic violence, non-communicable diseases (from diet and lifestyle issues) and human trafficking are critical social issues for Marshallese. NGO's note there is a well-established sex worker industry in Majuro and Ebeye. Decision making is still largely influenced by the land owners under traditional and cultural norms, and civic engagement in community issues is low.

4.5 Outer Islands – Wotje, Jaluit and Rongrong

The outer islands are atoll environments, with steady or declining populations. Wotje has 860 people, Jaluit has 1780 people and Rongrong (an island in the Majuro atoll) has 60 people. All three

[13] 2011 RMI Census

have high schools and while only two have government services. All three islands already have diesel mini-grids providing electricity.

5 Stakeholder Engagement

Stakeholders will require engagement across the SEDeP, for physical investments, policy development, energy efficiency initiatives and other aspects.

During the detailed planning phase for solar PV installations, diesel gensets, and outer island hybrid systems, stakeholder engagement is essential to the review of detailed designs, the selection of mitigation options for identified social and environmental impacts and the prioritisation of investments for funding and implementation scheduling. It is important that the affected communities – including women and vulnerable groups – are given the opportunity through consultations to be made aware of the proposed activities, and to comment and contribute to the project design. MEC will be responsible for ensuring meaningful consultations for all components of SEDeP.

5.1 Stakeholder Identification

A stakeholder is defined as a person or group who has an interest in a particular decision or activity relating to SEDeP, either as an individual or as a representative of a group. This includes people who can influence a decision, or can influence actions, as well as those affected by it.

For the SEDeP, stakeholder groups will vary between Majuro, Ebeye and outer islands (for future projects), policy development, energy efficiency etc. Stakeholders for project sites have been and will continue to be identified on a continuing basis by:

- Identifying the various categories of parties who may be affected by or interested in the project; and
- Identifying specific individuals or organisations within each of these categories taking into account:
    - The expected area of influence of the project, that is the geographic area over which it may cause impacts (both positive and negative) over its lifetime, and therefore the localities within which people and businesses could be affected;
    - The nature of the impacts that could arise and therefore the types of government bodies, NGOs, academic and research institutes and other bodies who may have an interest in these issues.

5.2 Stakeholder Groups

Stakeholder groups applicable to SEDeP are listed and described below.

5.2.1 National Government Authorities

National authorities are defined as those agencies of the GoRMI who have the power to regulate or influence the Project in terms of granting permits or other approvals for the Project, and monitoring and enforcing compliance with GoRMI law throughout the project implementation cycle. It is important to continue a productive dialogue with these national authorities throughout project implementation.

National Environmental Protection Authority (NEPA)

Under the MECC, the NEPA has the mandate to preserve and improve the quality of the environment. In 1987 the Authority was combined with the National Environmental Sanitation

office. The EPA operates as a government funded statutory authority with ties to the Ministry of Health and Environment. Serving today as the nation's primary agency for environmental protection, the RMIEPA's duties encompass the areas of nature conservation, waste disposal, public sanitation, public and marine water quality monitoring and environmental education. The NEPA also oversee the environmental and drinking water permitting that is relevant to SEDeP.

Lands Registration Authority

As part of the land due diligence for any future project under SEDeP, the Resettlement Policy Framework covers consultations with the Lands Registration Authority.

Ministry of Internal Affairs

This Ministry manages land leases for Government purposes on behalf of the Government of RMI. This Ministry will assist in the identification of government land and arranging leases.

5.2.2 Managers of Targeted Spaces in Majuro for PV Investments

Majuro Water and Sewer Company (MWSC): MWSC is the company providing the water & sewer services to the residents of Majuro Atoll and are responsible for the operations and maintenance of the freshwater reservoir.

Marshall Island Port Authority (MIPA): MIPA manages the Amata Kabua International Airport in Majuro, including the car park.

Ministry of Health: For the spare land on the hospital site, this ministry is a stakeholder.

Ministry of Education: For targeted spaces on school roofs, this ministry should be consulted.

5.2.3 Local Governance

Malgov is the local government agency responsible for public spaces and some public buildings on Majuro.

Kalgov: Is the local government agency responsible for public spaces and public buildings on Ebeye.

The Outer Islands are each led by their own local governance structure. Each of the local governments is led by a Mayor and jointly governed by the Local Government Council.

At the national level, the Office of Local Government Affairs falls under the Ministry of Cultural and Internal Affairs is responsible for coordinating with the Local Governments.

5.2.4 Affected Communities and Individuals

This group will include all people who may be directly or indirectly affected by the SEDeP investments at Majuro and Ebeye and for future projects prepared under this project (Ebeye and Outer Islands). It will include communities located adjacent to the installation sites, along the haul routes, users of targeted recreational spaces and car parks in Majuro, and building occupiers.

At this point in the works, the affected communities adjacent to the solar and diesel installation sites can be identified at all targeted spaces, however, the associated facilities for these investments, and the locations of future projects, are not yet confirmed therefore those communities have also yet to be identified.

5.2.5 Civil Societies and NGOs

This group includes smaller groups in society who may have an interest in the SEDeP and its social and environmental aspects.

Marshall Islands Conservation Society: The MICS has run a conservation project regarding increasing the habitat for the endemic Ratak Imperial Pigeon on Majuro.

Women United Together Marshall Islands (WUTMI) is a women's based NGO and has strong presence in the outer islands. They are active in promoting resilience, including renewable energy and energy efficiency.

Marshall Islands Mayors' Association (MIMA) is a NGO including all of local government mayors. This NGO would be strongly placed to support SEDeP implementation.

College of Marshall Islands (Environmental faculty).

International Organisation for Migration (IOM)

5.2.6 Land owners

All land is privately owned and land owners hold a large amount of influence over development projects, since land is scarce on all of the atolls. Land owners are very important stakeholders for any new infrastructure.

5.2.7 Public

The public will be stakeholders in the development and implementation of demand side energy efficiency and energy policy development.

5.3 Stakeholder Engagement and Consultation Program (SECP)

The SECP needs to be updated and refined throughout the lifecycle of the Project. During this process the focus and scope of the SECP will change to reflect the varying stages of project implementation and to encompass any changes to project design. The implementation plan is included in Table 4.

5.3.1 Engagement Mediums

Table 3 below lists the recommended engagement mediums that are appropriate for SECP activities proposed as part of the implementation plan components in Section 5.3.3. Because of the myriad of activities and different stakeholders needs at different times, a wide range of communications methods and mediums are proposed.

Table C: Recommended engagement mediums

Medium	Description
Stakeholder Meetings	
Structured Agenda	This agenda is developed based on project component under consultation and the stage of its implementation. Putting a focused agenda together will ensure that key strategic

	and risk items can be discussed with important decision-makers and influencers in an effort to mitigate risk proactively.
Focus Group Meetings	The aim of a focus group is to pull together stakeholders with the same interest into a single meeting to discuss issues. Meetings usually have a very specific objective which is aligned with the expectations and interest of the stakeholder's present.
Forum	A forum is established with specific set objectives and would comprise of a specific group of stakeholders who would need to ensure that actions are taken and monitored.
Community based consultations	These consultations are focused to identify and discuss stakeholder concerns or to provide feedback using detailed information. These consultations should, wherever feasible, be held within the community environment.
Written / visual communications	
ESMP Executive Summary	This needs to be a short and concise document providing jargon-free information describing the project actions, the potential social and environmental impacts, the need for the project and the contact details for the project team.
Notice boards	Notice boards (community, and work site entrances) are a good tool to use for communication of up-to-date project information such as timing and duration of works, upcoming consultations, project progress and other relevant project information.
Maps	Maps are effective when placing into context well known locations, linear and single site developments, change of fixed locations for developments, location options for developments and anticipated distances between developments or well-known locations.
Letters	Formal method of communication usually intended to convey very specific messages. Alternatively, it is used as a formal method for request of information.
Emails	Using emails for in-country stakeholders can pose a challenge because of limited internet access due to insufficient telecommunications and/or supporting IT infrastructure. NGOs and most of the Government Ministries do have access to email which can be utilised for communications, but arranging of formal community consultations is best arranged through other methods of communication.
Newspapers /adverts	Newspapers are usually best suited for formal announcements or to reach a wide spectrum of stakeholders quickly. It is however very important that the message content is carefully compiled since it is a one-way communication medium and can quickly cause misunderstanding or confusion if not clearly written.
Media	
Radio	Radio is a good medium to stimulate awareness and prepare stakeholders for larger events or refined communication to take place. This would be appropriate for Majuro but not for Ebeye (as there is no radio on island).
Other	
MEC	MEC PIU will be the 'familiar faces' of the project and will, for many stakeholders at the community level, represent the most direct channel to the project.

Telephone	Use of the telephone / mobile phone is still regarded as the preferred method for communication because of accessibility and speed. Having a discussion over a phone in order to ensure mutual understanding between two parties is quicker and easier compared to sending an email, waiting for reply.

The mode of consultation will vary according to the subproject and the participants, but in all cases will promote participation by ensuring that the venue is accessible, the timing convenient and the manner of conduct of the consultation socially and culturally appropriate. Consultations will be announced to give sufficient notice for participants to prepare and provide input to project design.

5.3.2 Key Messages

Key messages will need to be developed as each component is prepared in more detail during implementation. For the physical investments planned for Majuro and Ebeye, the key messages should be developed around the following and confirmed once the project details are confirmed:

Majuro Solar and Network Upgrade Key Messages:

- Solar is part of a renewable energy vision for Majuro / Marshall Islands. It is 'home grown', unlike diesel, so we are more resilient to fuel prices and delivery.
- Battery storage will help to capture solar energy for use at any time of day.
- The supply of electricity to your business / home shouldn't change – you probably won't notice any difference, but it may become more reliable.
- What will happen to my electricity tariff? The tariff is unlikely to change, although it may not increase as much in the future. Even though sunlight is free, the MEC still has to pay for operations and maintenance of equipment and the network. The fuel cost savings will mean the Government will pay fewer subsidies and will have more money to spend on other essential services.
- MEC is prioritising government land and buildings and the design will allow the existing land uses to continue, to avoid taking up valuable land. There will be no relocation of people or businesses because of this project.
- The installation of panels should take a couple of months. There may be some construction noise and some more traffic during this time if you live or work near the site. There won't be a large workforce required.
- Any local job opportunities will be advertised by the Contractor or MEC.

Diesel on Ebeye Key Messages:

- The project will replace existing equipment which will improve reliability of electricity supply.
- The supply of electricity to your business / home shouldn't change – you probably won't notice any difference.

5.3.3 Implementation Plan

The Implementation Plan (Table 4) for the SEDeP lifecycle constitutes the following components:

Activity: the various operational consultation activities that will be undertaken as part of the SECP

Objective: the target that each activity needs to reach

Stakeholder: the various stakeholders to be targeted during implementation of the SECP activity; and

Medium: the method by which the engagement or consultation will be done

Some elements of the implementation plan have yet to be confirmed. As project details develop, this SECP and implementation plan shall be updated by the Safeguards Advisor to reflect the current project status and timeframes.

Table D: Stakeholder Engagement and Consultation Implementation Plan

No	SEDeP Activity	Timetable	Objective	Stakeholders	Medium
A: Physical Investments (Solar, Diesel, Network Upgrades)					
A1	Feasibility, decision on the sites / technologies and preliminary designs	From Project effectiveness through to tendering.	Bring stakeholders along with the decision making around the site and type of investments. Discuss potential impacts and mitigation measures. Key messages	All identified	Structured Agenda One-on-One Consultations Public meetings Emails and letters
A2	Disclosure of updates to the ESMP	Prior to tendering Prior to works starting	To disclose ESMP	All identified	Newspaper Website
			Advise stakeholders of preliminary designs and updated mitigation and management plan.	Communities Site occupants (State owned enterprises. Government agencies) Site users (if different from above)	One-on-one consultations Executive Summary

No	SEDeP Activity	Timetable	Objective	Stakeholders	Medium
A3	Detailed design	Once Contractor is on board and prior to works starting	Keep stakeholders involved in any design updates. Public announcements	Government agencies, site occupants, site users	Emails, One-on-one consultations Newspaper and websites
A5	Commencement of Works	Week before commencement of works.	To advise all stakeholders of commencement of civil works.	All identified stakeholders Site occupants (State owned enterprises. Government agencies)	Newspaper Email
			To reconfirm ongoing consultation, feedback and GRM processes	Community Site occupants (State owned enterprises. Government agencies)	Community Notice Boards Building Notice Boards Website
B: Energy Efficiency Activities and Policies					
B1	Development of activities, policies etc.	Once consultants are engaged and assisting EPD and MEC Throughout duration, as required.	Seek input from stakeholders in Energy Sector to define issues	(Govt agencies, local government, large energy users, NGOs)	Meetings emails
		During drafting	Public consultation and awareness raising	Public	Newspaper Website
B2	Implementation of activities, programs, policies etc.	Drafting of solid waste plans or other safeguards instruments	Disclosure of instruments	All identified	Emails Newspaper Website
		Project implementation	Awareness raising Encouragement to participate Progress reporting	All identified	Newspaper Website Meetings Emails

No	SEDeP Activity	Timetable	Objective	Stakeholders	Medium
C: Development of Future Energy Generation Options					
C1	Feasibility, decision on the sites / technologies and preliminary designs Preparation of land due diligence, ESIA and ESMP	During project screening and feasibility phase Prior to final designs and bid document preparation	Understand stakeholder base to determine key messages and engagement mediums Undertake initial consultation on proposed project concepts Bring stakeholders along with the decision making around the site and type of investments. Discuss potential impacts and mitigation measures. Key messages	All identified	Structured Agenda One-on-One Consultations Public meetings Emails and letters
C2	Preparation of A/RAP	During feasibility phase prior to finalizing preliminary design	Detailed surveys and consultations with affected persons.	Affected persons	One-on-One consultations
C2	Disclosure of ESIA, ESMP and A/RAP (if required)	Prior to finalizing tender documents	To disclose ESMP	All identified	Newspaper Website Meetings

5.3.4 Resources and Responsibilities

The implementation of the SECP will be the overall responsibility of the SEDeP PIU, with support from the DIDA Safeguards Specialist as required. There are several facets to the works that are covered within this plan with MEC and KAJUR being the common denominator across the works as such, it is important that MEC and KAJUR are represented at each of the one-one-on consultations by a nominated staff member.

The DIDA Safeguards Specialist who will take the lead role in the implementation of the SECP. The PIU will be responsible for arranging and facilitating the meetings as it appropriate with their in-depth knowledge of the natural, social and traditional environments within RMI. The PIU will

also be the focal point for all stakeholder queries and contacts in relation to the implementation of the SECP or the GRM.

It is also the responsibility of the PIU to ensure that gender balance is achieved throughout the implementation of the SECP and the Safeguard Specialist will make culturally appropriate recommendations on strategies to achieve this such as separate meetings for males and females, or targeting female input through women's groups.

5.4 Public Consultations to Date

A series of public consultation meetings were held on 31st July 2017 with the aim of providing meaningful consultation with stakeholder groups and to provide an opportunity for all parties to provide input into the Project. The meetings targeting three groups of stakeholders: (a) Government agencies, authorities and SOEs in Majuro and Ebeye; (b) NGOs, non-governmental institutions and civil society groups; (c) donor agencies, especially those with experience and involvement in RMI's renewable energy sector.

The consultations for the various groups took place according to the following schedule:

Stakeholder group	Date and time
1. Relevant Government agencies, SOEs, donors	• 31 July, 2017; 10am MOF Conference Room
2. NGOs, civil society and local community at Majuro	• 31 July, 2017; 2:00pm MOF Conference Room

The following is a summary of the questions and issues raised during the consultation process.

5.4.1.1 Consultation 1: Relevant Government agencies, SOEs and donors

1. One of the targeted schools for possible roof-top installations is a private school co-funded by Go RMI, the Majuro Co-operative School. All other buildings assessed on the recommendation of MOF-DIDA are government or public owned.
2. In response to discussions over the issue of the cumulative impact of the project on the issue of accumulated waste oil in both MEC and KAJUR's compound, the JICA representative informed the consultation that JICA is funding a feasibility study for ways of reusing waste lubricant oils. The feasibility team is currently in RMI and have visited MEC and KAJUR's facilities to assess their facilities and capacities, and to collect used oil samples for testing. The JICA representative invited the Safeguards Specialist to meet with the JICA Feasibility Team before their return.[14]
3. A participant from KAJUR asked if there are resettlement impacts, and if so, how are these handled? Will the Project ensure that compensation owed are settled and paid out and not ignored? In response, it was explained that a resettlement action plan (RAP) will be prepared if there are resettlement impacts and all compensation and entitlements identified in the RAP will

[14] This meeting took place on the 1 August, 2017 at the JICA Office. Present were Sam Sesega - Safeguards Specialist, Mr Nobuaki Matsui – JICA Resident Representative, and six members of the Feasibility Study Team.

be paid out. Moreover, the Project will not start until WB is satisfied, based on the RAP Implementation report to be prepared and submitted by Government of RMI, that all entitlements have been fully paid to the rightful people.

4. There was clarification of the term resettlement which one participant misunderstood to mean there will be relocation of affected people. It was explained that the term is much broader and also refer to losses and or damage to assets, and that if people needed to be relocated temporarily from their homes, the Project will be responsible for their relocation including all costs associated with it.
5. Why is Ebeye not included in targeted areas for the replacement of incandescent streetlight bulbs with LED bulbs? The Ebeye participant noted that safety at night is an important issue for their densely populated atoll.
6. Ongoing operation and maintenance costs need to be properly calculated and considered.
7. In Ebeye, with the installation of R.O. units, the energy need and consumption is expected to be increased. The need for Renewable Energy Project in Ebeye is strong.
8. Donor coordination needs to be further strengthened to ensure complementary between approaches and investments.
9. Ministry of Public Works has been working with BECA (consulting firm) to design and construct public buildings with a specific consideration that solar PVs installation can be accommodated in the future.
10. Ministry of Public Works commented that the proposed flexible support structure for the solar PVs on water reservoir should be designed to withstand high wind speed. Typhoon is not very common in the RMI but the designing firm/consultant should also consider the impacts of typhoon.
11. MWSC requested that the technical feasibility study once finalized should be shared with stakeholders.

5.4.1.2 Consultation 2: NGOs, civil society and local community at Majuro

1. A few participants recalled there were whirlwinds in Delap that affected roof buildings in this location, and it's a regular occurrence in this area. Would this not have any impact on the proposed roof-top installations for schools in Delap?
2. Contrary to ESMF narrative that work opportunities from the Project for local people are likely to favour men over women, WUTMI Executive Director noted that the ESMF should not assume so, and that equal job opportunity should be offered to both genders.
3. Would the quality of drinking water in the reservoir be adversely affected by sunlight passing through PV panels?
4. CMI research on possible location of PV panels on reefs would be damaging to reef ecosystem.
5. WUTMI Executive Director also advised that should there be a sizeable number of foreign workers involved, proper orientation of workers regarding the local culture and traditions should be conducted. WUTMI also offered their services to conduct orientation.

6. Multiple NGO representatives have shared the similar comments on the operation and maintenance costs, including the necessary policy, the institutional mechanism, and the sinking funds management capacity to ensure 1) saving from RE investment is contributed to the future O&M and 2) the GRMI is committed to financially support the future O&M costs. O&M should be both MEC and GRMI's shared responsibility.
7. In addition to the RE facilities maintenance, the hosting building/structure maintenance needs to be included in the O&M plan.
8. The usage of batteries has significant environmental impacts and practical recycling plan needs to be looked into.
9. Gender needs to be addressed, including gender-based violence from local workers.

In response to these consultations, and as part of safeguarding requirements, the following measures are adopted in this ESMP:

- Only government owned buildings (plus Co-op School) are targeted for installation of solar PV arrays.
- To deal with the disposal of hazardous or bulky waste, a Solid Waste Management Plan based around the concepts set out in Annex D of this ESMP will be developed by the Contractors. Additionally, the elements of the Solid Waste Management Plan will be adapted into a Code of Practice for Solid Waste Management in the renewable energy sector and implemented for all future projects on Ebeye and the Outer Islands.
- A Resettlement Policy Framework has been developed for the SEDeP as part of the required safeguard instrumentations. The RPF governs due diligence of land ownership and also governs voluntary or involuntary acquisition of lands or assets to ensure that any affected persons are properly consulted and compensated before project works commence.
- The SEDeP provides for the preparation of an escrow account/sinking funds mechanism and support training of MEC and/or KAJUR on operational and maintenance strategies.
- Engineers are required to consider cyclonic events in the design of installations.
- Engineers are required to conduct a thorough assessment of solar PV technologies and select those most appropriate for installation over the water reservoir taking into account any potential impacts on the water quality and the treatment and monitoring procedures of MWSC.
- All imported project staff will abide by RMI immigration policy and provide all required documentation, including health checks. Overseas workers will undergo cultural familiarisation induction upon arrival and sign a code of conduct applicable for the duration of their contract.
- All project staff will undergo training by local services providers identified by the MEC PIU on prevention of HIV/AID and GBV.
- The Contractor will develop a Code of Conduct (to be approved by PIU) for all workers (local and overseas) to sign detailing the expected behaviours of Project staff, ESHS requirements, Cultural respect, OHS requirements, Community Health and Safety considerations

5.5 Grievance Redress Mechanism

A grievance redress mechanism (GRM) is presented below to uphold the project's social and environmental safeguards performance. The purpose of the GRM is to record and address any

complaints that may arise during the implementation phase of the project and/or any future operational issues that have the potential to be designed out during implementation phase. It should address concerns and complaints promptly and transparently with no impacts (cost, discrimination) for any reports made by project affected people (APs). The GRM works within existing legal and cultural frameworks, providing an additional opportunity to resolve grievances at the local, project level.

The key objectives of the GRM are:

- Record, categorize and prioritize the grievances;
- Settle the grievances via consultation with all stakeholders (and inform those stakeholders of the solutions);
- Forward any unresolved cases to the relevant authority.

As the GRM works within existing legal and cultural frameworks, it is recognized that the GRM will comprise community level, project level and RMI judiciary level redress mechanisms. The details of each of those components are described as follows.

5.5.1 Final Draft ESMP

The Final Draft ESMP was distributed to EPA, MPW and MEC for final comment / review 18-22 September 2017.

5.5.2 Community Level Grievances

Community level grievances are most likely with the proposed outer islands RE investments where the use of privately owned land is a possibility. Issues related to land ownership, boundaries and access rights and loss of assets and livelihoods should be expected and planned for. At the same time, project activities in Majuro and Ebeye, albeit on government land, may also generate community level grievances as a result of construction impacts.

Local communities in RMI have existing traditional and cultural grievance redress mechanisms. Consequently, to the extent possible, disputes at the community level may be best resolved using these mechanisms, without the involvement of the contractor(s), and or Government representatives at local and national level. Such types of disputes include differences between households over land, or boundaries, even on issues triggered indirectly by the Project such as employment, behaviour of imported workers etc.

These mechanisms will involve the landowners, which under Marshall Island's law mean principally the *Iroij*, *Alap*, and *Senior Dri Jerbal* who command considerable respect and influence among local communities.

Where issues caused by the project are raised and resolved through these existing community level grievance redress mechanisms, it is important that these are captured by the MEC PIU, which is responsible for recording all complaints/outcomes, and to provide assistance, as required for their resolution.

5.5.3 Project Grievance Redress Mechanism

The following GRM shall be put in place for all SEDeP sub-projects to register, address and resolve complaints and grievances raised by communities during implementation of the Project. Contractors are required to adhere to this formal process.

Complaints may be submitted in person, via telephone, electronically, in letter or through a representative of the above community level process to the PIU. All complaints must be formally registered in the MECs complaint register. Should the complaint be received by the Contractor's Site Supervisor directly, they will endeavour to resolve it immediately and submit notification of the complaints and resolution to MEC for entry into the complaints register. For all grievances across all sub-projects and components of the SEDeP the MEC is responsible for ensuring that, on receipt of each complaint, the date, time, name and contact details of the complainant, and the nature of the complaint are recorded in the Complaints Register.

Should the complainant remain unsatisfied with the response of the Contractor's Site Supervisor, the complaint will be referred to the PIU Project Manager located in MEC for activities in Majuro, or to the KAJUR GM for activities in Ebeye.

Specifically:

1. The PM and Safeguards Specialist will take earnest action to resolve complaints at the earliest time possible. It would be desirable that the aggrieved party is consulted and be informed of the course of action being taken, and when a result may be expected. Reporting back to the complainant will be undertaken within a period of two weeks from the date that the complaint was received.
2. If the MEC PM is unable to resolve the complaint to the satisfaction of the aggrieved party, the complaint will then be referred by the MEC PM to the Project Steering Committee. The PSC will be required to address the concern within 1 month.
3. Should measures taken by the Project Steering Committee fail to satisfy the complainant, the aggrieved party is free to take his/her grievance to the RMI Court, and the Court's decision will be final. Similar, the traditional landowner's decision on land related matter is final. The complainant may still exercise his/her right to take the matter to court.
4. To ensure broad public awareness of the grievance mechanism, the Project shall erect appropriate signage at all works sites with up-to-date project information and summarizing the GRM process, including contact details of the relevant Contact Person. Public information bulletins websites and other public information will also include this information. Anyone shall be able to lodge a complaint and the methods (forms, in person, telephone, forms written in Marshallese) should not inhibit the lodgement of any complaint.
5. The Complaints Register will be maintained by the PIU Project Manager, who will log the: i) details and nature of the complaint ii) the complainant name and their contact details iii) date iv) corrective actions taken in response to the complaint. This information will be included in MEC's progress reports to the Bank.

5.5.4 RMI Judiciary Level Grievance Redress Mechanism

The project level process will not impede affected persons access to the RMI legal system. At any time, the complainant may take the matter to the appropriate legal or judicial authority as per the laws of the Republic of the Marshall Islands.

6 Environmental and Social Impacts

The SEDeP has the potential to create a variety of impacts through the implementation of the various subprojects and components. These potential impacts can be either positive or negative depending on the receptors involved and the activity. The impact of this project on the physical, biological and social environment has been assessed to determine likelihood and identify effective mitigation measures.

There are site-specific and component specific impacts which have been identified and the significant impacts requiring specific mitigation are discussed below.

All impacts below are presented under the associated impact generating activity.

6.1 Solar PV Investments on Majuro

The following potential environmental and social impacts have been identified in relation to activities under component 1 which provides for the installation of solar PV array systems in a variety of potential locations including freshwater reservoir, airport and hospital carpark, building roofs and public recreation spaces in Majuro.

6.2 Environmental Impacts During Construction Phase

6.2.1 Concrete Production

Sediment suspended during sand dredging activities often settles on nearby coral colonies causing coral death. Additionally, the sand within the Majuro lagoon is non-renewable therefore removal of sand, even under permitted conditions, is contributing the rapid coastal erosion problems facing Majuro.[15]

Another environmental impact associate with concrete production is water pollution. Waste water and slurry from concrete production will have a high pH level making it alkaline and contains chromium. Highly alkaline water can result in the death of marine organisms should it enter the marine environment. There are also impacts associated with concrete waste water leaching into the groundwater and causing contamination.

6.2.2 Importation of Equipment and Materials

Solar panels and all associated structures and equipment will need to be imported into RMI. Additionally, sand/aggregate will be imported for the concrete works. If imported consignments are not properly treated and/or washed before shipping, there is the risk of introducing non-native and potentially invasive plants, animals and disease. The introduction of harmful species or diseases to small island nations such as the RMI, which have naturally low levels of biodiversity, can be devastating to the local ecosystems, flora and fauna.

Invasive marine organisms can also be introduced to the marine environment by unregulated discharge of cargo ship ballast water.

6.2.3 Installation in open spaces and roof tops

Rooftop PV and open space installations, depending on location and scale, may result in (i) the regular trimming and pruning or felling of valuable trees and (ii) some loss of visual aesthetics.

[15] http://www.sprep.org/Marshall-Islands/marshall-islands-pein, Pacific Environmental Information Network. Accessed Sept 2017 via SPREP

The small scale of open-space and rooftop PV installations envisaged for SEDeP will cause insignificant or negligible negative impacts.

All potential sites assessed for potential PV investments under SEDeP, except for airport parking space, will not require any loss of trees including contractors' staging areas and other space needs. In the case of the airport, existing palm trees in the airport parking area are integral to the airport landscape design, contributing to its visual aesthetics as well as providing parking shade. The PV installations proposed for the airport parking area will require the erection of raised platforms on which will mount PV panels, at the same time providing shaded parking space. To the extent possible, standing palms should be avoided wherever possible. Where avoidance is not possible, transplanting palms out of harms' way is a feasible option.

6.2.4 Social Impacts During Construction Phase

6.2.4.1 Installation in Public Spaces

During construction, it can be expected that there will be some pedestrian and traffic management required at the ground level installations sites. Should public recreation areas be used as installation site, it can be expected that the recreational use of these areas would be limited to some degree and therefore cause an impact to the recreational public. Traffic management in carparks during installation may mean temporary reduced access to parking areas which may have an impact on local traffic movements and increased instances of parking on roadsides. These impacts are expected to be short term and will cease completely once installation is complete.

6.2.4.2 Haulage of Materials and Equipment

Should the haulage route pass through residential communities or past other sensitive social receptors (schools, hospitals, churches, etc) the increased level of noise, dust and vibration is likely to impact on the quality of their daily activities. This impact will be short term and will cease completely once haulage is completed.

There is also the possibility of damage to the existing road surface associated with haulage of heavy loads. Damages to road surfaces can cause a traffic hazard and can also lead to a faster rate of overall road surface degradation in the long term. At the haulage route is unknown at this stage, the existing road surface condition cannot be assessed.

While not yet quantified, it is expected that these impacts will be negligible.

6.2.4.3 HIV/AIDs and Gender Based Violence

Impacts are associated with personnel recruited from outside the local community such as increased instances of HIV/AIDs. Additionally, the Contractor and/or Consultants accepts that gender based violence (GBV) might occur as an unintended consequence of increased income through employment and / or foreign workers taking advantage of locals. As such the contractor will responsibility for implementing actions to prevent instances of HIV/AIDs and GBV. As part of the Marshall Islands visa application process for foreign workers, they are required to submit HIV tests and visas will be denied to HIV positive applicants, as part of an existing Government health initiative. Training for workers can be provided by local NGOs (WUTMI or IOM).

6.2.5 Environmental Impacts During Operational Phase

6.2.5.1 Installation Over Reservoir

In general, on-the-water PV installations generate positive environmental impacts over the course of their design life. Most widely cited benefits are (i) reduced drinking water loss from evaporation (ii) reduced algae growth with reduced sunlight penetration to reservoir floor, thereby reducing cost of reservoir maintenance, and improving water quality (iii) does not require large areas of land to be allocated for permanent housing of arrays which is particularly important in a small island country like RMI.

There are potential negative impacts also associated with this type of installation. Consultations for this report found concerns by MWSC about the practical challenges associated with access to the reservoir floor for regular maintenance once PV modules are in place, fixed or floated. Maintenance involves the removal of algae growth, sludge and sediments by vacuuming and net-trawling. It is hoped that the reduction in algal growth that is associated with the shade giving benefits of the water will help to reduce this impact.

There are also potential implications for the integrity of the reservoir superstructure if a fixed array design is used on the floor of the reservoir. Should cracks or leaks occur due to superstructure damage, there is a possibility that the freshwater could leak from the reservoir thereby reducing the amount of drinking water available to the Majuro population. Adequate technical design and targeting SOPs will greatly reduce the likelihood of this impact and form a requirement of this ESMP.

Cadmium Telluride (CdTe) is a commonly used material in thin film solar panel modules. It is a black crystalline powder that does not occur naturally in the environment. The compound is inflammable, exhibits low water solubility and is toxic if ingested. In relation to solar panels, the CdTe is safe while encapsulated in the module, but if the panel is damaged and exposed to water, the CdTe will contaminate the water. There is very little scientific information on the impact of CdTe leaching into drinking water resources as this is a relatively new technology with a 25-30 year lifespan.[11]

Other types of solar panel include silicon based panels which contain lead. Test have shown that lead leaching potential of approximately 4 grams of lead per kilowatt installed to approximately 23 grams of cadmium per kilowatt installed for CdTe panels. Additionally, cadmium is considered to be more toxic than lead.[16] It is important to note that these statistics are not presented in relation to water quality, they are presented to provide comparative context.

Leaching from damaged solar panels is possible after disposal and contamination of ground water resources is possible at landfill site. No disposal of waste will occur in RMI for SEDeP, however damaged or end-of-life panel may be stored prior to shipment resulting a potential for leachate materials to enter the Majuro ground water system if incorrectly stored.

Occupation of the reservoir with panels will reduce the habitat for migratory birds that are known to use the reservoir. The scale of impacts will depend on the final design and further work on the species and the significance of the habitat will be required as part of the preliminary design process. This impact may be avoided or mitigated if MWSC completes their plan to build additional reservoirs next to the existing facility, concurrently with this project.

[16] https://www.energymatters.com.au/renewable-news/em1469/ accessed Sept 2017

6.2.6 Social Impacts During Operational Phase

6.2.6.1 Installation in Public Spaces

Proposed installation solutions for public spaces such as car parks provide for raised structures to house the arrays. This will also have the added benefit of providing areas of shade for the public and under which to park cars, recreate, etc.

There are no direct beneficiaries, but all consumers connected to the grid will benefit from more reliable energy generation.

6.2.6.2 Battery Management and End of Life Management

Batteries will be collected for offshore recycling by MEC, using MEC's existing system that is supported by the EPA.

6.3 Diesel Genset Installation

6.3.1 Environmental Impacts During Installation Phase

6.3.1.1 Disposal of Equipment

The old, removed generators have the potential to create a waste legacy for the project if not properly disposed of.

Once removed, the old generator will contain hazardous substances such as oil and fuel which has the potential to cause contamination if it is not properly drained and stored prior to export.

6.4 Cumulative Impacts

The volume of used oil extracted from replaced and new generators to be funded under the SEDeP is minimal. However, they will add to the mounting volume of used oil accumulating nationwide in Majuro, Ebeye and other islands, with no clear option for reuse, recycling and or safe disposal. A similar situation faces solid waste management with the increasing proliferation of scrap metal, derelict vehicle and machine bodies – including old gensets and power engine bodies. Capacity building measures as part of SEDeP will look to help alleviate this problem.

6.5 Energy Efficiency Activities

Consultants, EPD and MEC shall consider the safeguards issues related to the implementation of energy efficiency programmes during the studies. The benefits will be greater efficiency in the network deferring further investments in energy generation and minimising the wastage of diesel fuel.

6.5.1 Environmental Impacts

6.5.1.1 Installation of EE Investments

SEDeP includes the potential supply and installation of energy efficient investments such as light bulbs, appliances and building insulation. As such, these activities will create a yet unknown volume of solid waste. Because of the lack of recycling or sanitary landfills in the Marshall Islands the indirect impacts of these initiatives will be the dumping and inappropriate disposal of equipment and leaching of metals and other pollutants into the soil and marine environment and expose the public to hazardous waste.

Each programme must have an associated waste management plan / protocol to ensure all waste is recycled or disposed off island. These waste management plans must adhere to the SEDeP Code of Practice for Solid Waste Management and EPA requirements.

6.5.1.2 Ongoing Replacement of Equipment

Any GoRMI EE policies and regulations developed as part of SEDeP, as well as the loss reduction study and program for MEC and KAJUR are expected to result in the replacement of parts as part of recommended upgrades and regular maintenance leading to waste generation. Waste created as part of these developments have the potential to impact negatively on the current landfills and connected environments.

Each programme must have an associated waste management plan / protocol to ensure all waste is recycled or disposed off island. These waste management plans must adhere to the SEDeP Code of Practice for Solid Waste Management and EPA requirements.

6.5.2 Social Impacts

6.5.2.1 LED Lighting and Human Health

As part of EE investments, SEDeP plans to replace incandescent street lights with LED bulbs will improve energy efficiency, reduce energy consumption and decrease the use of fossil fuels. Improved public safety at night is an expected social benefit. However, experiences in developed countries are raising concerns about the risk to human health of LED streetlights. The first is discomfort and glare. Because LED light is so concentrated and has high blue content, it can cause severe glare, resulting in pupillary constriction in the eyes. Blue light scatters more in the human eye than the longer wavelengths of yellow and red, and sufficient levels can damage the retina. This can cause problems seeing clearly for safe driving or walking at night.

Secondly, there is impact on the human circadian rhythm, which involves the physiological processes that control the daily cycle of sleep and wake, hunger, activity levels, body temperature, melatonin level in the blood, and many other physiological traits that comprise the endogenous circadian rhythm. Disruption of this rhythm is known to increase the risk of developing health conditions such as obesity, diabetes and breast cancer.

6.6 Energy Policy

Development of policy could have indirect environmental and social impacts on the waste stream from e-waste, appliances, light bulbs etc. There may be social inequities with the impacts on consumers. These issues can be addressed as part of policy dialogue and development.

As part of the TOR for policy development the PIU will ensure that safeguards are integrated into the work plan and outputs.

6.7 Design of future energy generation projects

6.7.1 Environmental and Social Impact Screening - Ebeye

As these future projects have yet to be identified, the screening and scoping processes of safeguard documentation development will be needed to assess potential project impacts.

Initial screening has been undertaken as follows:

Site Selection and land availability and land acquisition: Land on Ebeye is very scarce. Innovations for solar locations will be required, similar to Majuro. Technical options identified in early studies include the reef flats and adjacent islets. The waste landfill, land reclamation, roof tops and shelters

may also be options. All land is privately owned and site selection will require negotiation with the land owners. Reef flat options and land reclamations will also require land owner approvals.

Reef flat options for solar will modify the environment with structures and shade. Earthworks for installation purposes will create sedimentation. Land reclamation will remove and modify foreshore environments. The habitat impacts are screened as minor to moderate as the foreshore environment at Ebeye is highly modified and water quality is poor. The impacts on coastal protection are considered moderate and mitigation against any increased erosion or inundation will need to be factored into the design and costs. Laydown areas and ship-to-shore facilities will also need to be identified and could have other impacts on the foreshore or land areas.

Labour workforce: Ebeye is experiencing a large increase in development projects. It is already a very densely populated island, with all food imported and fresh water supplies from desalination. Accommodation and food providers are likely to be overwhelmed with an influx of labour. Workers camps / barracks may be required due to the lack of local options. This project may have cumulative impacts with other projects such as coastal protection works, school building projects, water and sanitation upgrade projects and other infrastructure investments that are in the pipeline. Health services are very basic and are unlikely to cope with additional workers.

The demand for sex workers may increase as a result of imported labour, and the incidences of communicable diseases, gender-based violence and other forms of harassment could also increase, if the workforce is not well managed and trained.

Physical Cultural Resources: According to the RMI PREP project ESMF and site visits to Ebeye, cemeteries and World War II relics have already been identified but there are no cultural or spiritual sites on Ebeye or nearby islets. The risk of impact is minor but will be addressed in the ESIA process.

Disposal of installation waste, old equipment and end of life batteries: Similar to the Component 1 activities, all waste will need to be exported for safe disposal or recycling as there is no secure landfilling on Ebeye

Aggregates: There is no identified location for the sustainable sourcing of sand at Ebeye. All aggregates will need to be imported.

6.7.2 Environmental and Social Impact Screening – Outer Islands

The investments will have small footprints and will add to the existing diesel infrastructure. With good community consultations and engagement all risks should be avoided through the site selection and design. The potential risks identified through initial screening are as follows:

Site Selection and land availability and land acquisition: Land will require leasing from land owners. Government leased land will be prioritized. There is a risk that no agreement will be made with land owners. There is a small risk that modifications to ship to shore facilities may be required to transport equipment to site.

Indirect impact on boat links to outer islands": The targeted outer islands of Jaluit, Wotje and Rongrong's rely on the MEC chartered boat that delivers fuel on a regular basis for existing outer island generators, for inter-island travel to and from Majuro. This boat service also allows the two-way flow of goods and supplies including food, medicine and other livelihood essentials. Thus, while the intended result of SEDeP is reduced reliance on diesel generators through the use of stand-alone PV mini-grids, an unintended consequence is the reduced frequency and regularity of boat trips required to freight fuel and the possible reduction of a critical lifeline for outer island populations.

Jaluit and Rongrong have secondary level boarding schools serving nearby atolls and are also heavily dependent on the frequency of boat trips.

Labour workforce: A small workforce will be required and the risks of disruption to the communities is low if the contractor adheres to the Workers Code of Conduct mentioned elsewhere in the ESMP and can be adapted for small, remote villages. Issues such as ensuring workers are self-sufficient in freshwater, food supplies and healthcare will be important to ensure there isn't unnecessary impacts on locals.

Disposal of old equipment and end of life batteries: Similar to the Component 1 activities, all waste will need to be exported for safe disposal or recycling as there is no secure landfilling on outer islands.

7 Environmental and Social Management Measures

7.1 Management Plans

Annex A, B and C contain the required Management Plans for solar PV installations, genset installations and energy efficient investments. The Management Plans for each activity area include details of the mitigation measures required, the responsible entity and the applicable project phase.

Supervision Plans are also provided for each SEDeP physical investment type. Supervision plans are divided into three sections: (i) one-off pre-construction checklist; (ii) weekly checklist for the physical implementation or construction phase; and, (iii) supervision checklist for the operational phase of the investment.

The MEC PIU Safeguard Specialist is responsible for the overall responsibility for safeguards supervision. MEC and KAJUR is responsible for incorporating the operational phase supervision requirements into their SOP for O&M.

7.2 Solid Waste Management

Annex D contains the stipulated requirements for a Solid Waste Management Plans which are required for all physical works contracts and energy efficiency programmes (any activities that will generate waste). The SWMP requirements set that at a minimum:

i. No RMI landfills are to be used for any waste. All waste is to be recycled or disposed of offshore at a permitted facility.
ii. No dumping of any waste in RMI.
iii. Compliance with Waigani Convention and any other relevant international conventions for export of hazardous and non-hazardous waste.
iv. Identify and utilise suitable local recycling and reuse options.
v. Damaged solar panels and used batteries will be stored in a 10ft container (provided by Contractor) and a roofed structure over the containers in a location to be determined by MEC.
vi. Hazardous wastes such as old oil and fuel shall be collected and stored in self bunded containers. Containers shall be stored in a bunded covered area prior to collection at MEC for overseas recycling.
vii. Hazardous wastes such as discarded incandescent bulbs shall be collected and stored in water tight containers. Containers shall be stored in bunded covered area prior to export for recycling or disposal.
viii. Difficult waste such as appliances and building cladding shall be stored in a secure fenced and covered area.

In addition to this, it is a requirement that best practices are implemented through the SWMP. These include:

i. Segregation of waste
ii. Secure storage for waste
iii. Adopting the waste hierarchy: (i) avoid; (ii) reduce; (iii) reuse; (iv) recycle
iv. Collaborating with other sectors, waste generators and government initiatives for cumulative benefits

v. Build capacity and sustainability within the energy sector in the approach to waste management through SEDeP implementation.

The MEC PIU Safeguards Specialist will use these instructions as a basis for the development of the SEDeP Code of Practice for Solid Waste Management. Once developed, this Code of Practice will become a requirement for all SEDeP Projects in Ebeye and Outer Islands and will be contained within their safeguard instruments.

7.3 Technical Assistance and Capacity Development

7.3.1 Loss Management Study

The loss management study shall assess and, where necessary, make recommendations for the improvement of the SEDeP Code of Practice for Waste Management in relation to energy efficiency and loss management practices. Where recommendations are approved, the consultant will update the Codes of Practice for review and approval.

The TOR for the loss management study will required the consultant to comply with the ESMP and the WB policy for waste management issues, EE training and EE consumer awareness activities.

The loss management study will incorporate the requirements of the SEDeP Codes of Practice for Waste Management where appropriate.

7.3.2 Policy and Program Development

Any development of these items through SEDeP will follow the citizen engagement, gender and safeguards policies ensuring that all affected parties are engaged in the process of development and that broader impacts on gender, environment, etc. are considered.

7.3.3 Raising Consumer Awareness and Capacity Building for EE

As part of the loss management report, the consultant shall develop a series of materials and awareness raising events aimed at the general public for raising consumer awareness on energy efficiency.

The loss management consultant shall also design and conduct a training program on energy efficiency and develop strategies for raising consumer awareness.

7.3.4 O&E Capacity Development

The TOR for the SEPD Safeguard Specialist shall include the requirement to conduct a capacity gap assessment for environmental and social safeguard operational management within MEC, KAJUR and EPD.

Based on the outcome of the capacity gap assessment, the SEPD Safeguard Specialist will develop and support the delivery of a program of activities specifically targeting safeguards management of renewable energy and energy efficiency.

One program which is expected to be implemented as part of the capacity development is the encouragement of MEC, KAJUR and EPD to adopt the SEDeP Code of Practice for Solid Waste Management as a SOP for all Energy Generation and Energy Efficiency programs across the sector.

7.3.5 Safeguard instruments for RE projects in Ebeye and Outer Islands

The preparation of safeguards instruments for future SEDeP projects have been screened and the required safeguard instruments along with potential environmental and social impacts have been identified.

A draft TOR has been developed (Annex E) which provides a basis for development of the safeguard documentation including all environmental and social assessments, stakeholder consultations, land due diligence, document preparation, etc. The SEDeP RPF provides methods for identifying and

confirming land ownership and securing land leases, and residual involuntary resettlement, if any.

The final design and bid documents for generation projects must reflect the safeguard aspects of the project as identified by the Safeguards Consultants in the screening and scoping phases and as prescribed in the final safeguard instruments.

The draft TOR for preparation of future SEDeP safeguard instruments will be updated and finalised once the scope of the proposed projects is known, during Project implementation.

The safeguard instruments will take into account the social context of the outer islands and Ebeye and include any measures appropriate to safeguard against HIV/AID transmission, GBV, CAE, gender based discrimination, negative impact of influx of any labour.

The SEDeP Codes of Conduct for Solid Waste Management developed by the MEC PIU Safeguards Specialist will be a required element of these safeguard instruments.

8 Roles & Responsibility

The agencies with important responsibilities for ESMP and RPF implementation, monitoring and reporting are NEPA, MOF/DIDA, MEC and KAJUR. Details of the roles assigned to various agencies / organizations are summarised below –

8.1 Project Steering Committee

A Project Steering Committee (PSC) will be established and comprise representatives of the MoF, Ministry of Resources and Development (represented by EPD), as well as MEC, KAJUR and the Kwajalein Atoll Development Authority (KADA), and others, as needed. The PSC will provide oversight and strategic guidance for the project implementation. The Chair of the PSC will be defined at a later stage by the GoRMI.

The Project Steering Committee is directly involved in the Grievance Redress Mechanism, to resolve grievances that will be referred to it by the Project Manager.

8.2 MOF/DIDA

- Employs the Safeguards Advisor to assist the MEC PIU

8.3 Safeguards Specialist and Project Implementation Unit under MEC

A Project Implementation Unit (PIU) will be established within MEC and will include a Project Manager, a Project Accountant, and if needed, a Procurement Specialist. The DIDA Safeguards Specialist will cover SEDeP safeguards responsibilities, which including:

- Monitoring of the Contractor as per the requirements of the ESMP Monitoring Plan for compliance with the ESMP
- Provide support to the PIU regarding instances of Contractor non-compliance and GRM responses
- Integrate ESMP into TORs and bid documentation for all suppliers and contractors
- Managing the review process for all safeguard elements up to formal approval
- Providing safeguards screening and provide safeguards advice during the preparation and implementation of all subprojects.
- Developing a SEDeP Codes of Practice for Solid Waste Management based on the SWMP requirements of this ESMP.
- Updating the ESMP and RPF as necessary to reflect project changes. This includes the SWMP, Codes of Practice and Mitigation Tables.
- Applying for all NEPA approvals and permits.
- Supporting PIU to enable effective citizen engagement into the project and provide meaningful input and direction into community consultations for projects
- Providing monthly reporting to the PIU Project Manager on all aspects of safeguards compliance of the projects including results of scheduled reporting, any instances of non-compliance, any environmental incidents and any GRM submission/responses.
- Conduct capacity gap assessments of implementing agencies (MEC and KAJUR) and develop capacity building tools and materials.
- Provide training to contractors and MEC/KAJUR

- Assist MEC and KAJUR to integrate safeguards into their Standard Operating Procedures
- Prepare TORs for safeguards specialists to undertake environmental assessments, land due diligence and prepare safeguards instruments for future projects (Component 3) and otherwise as required.
- Manage the outputs of the external safeguards specialists and liaise with World Bank safeguards specialists for clearance of instruments.
- Manage the GRM.
- Manage stakeholder engagement and consultation.
- Facilitate the SWMP

The Project Manager will be responsible for overall project coordination and technical guidance and will support the procurement of various packages and studies. Technical staff will be recruited as necessary to support the implementation of technical advisory components. The Project Manager will be responsible for ensuring that the requirements of safeguard policy OP4.37 Safety of Dams is included in the TOR for the Design Consultant and that any required remedial measures will be budgeted for and included in the final design. The Project Manager will report to the CEO of MEC and to the Project Steering Committee. The MoF will be responsible for processing project disbursement requests.

8.4 Design Consultants

The design consultant will be employed by MEC as the Owners Engineer. It is the Design Consultant's responsibility to:

- Comply with this ESMP in the development of feasible options, detailed designs, bid documents and other advice to the PIU.
- Avoid impacts where possible in site selection and design.

8.5 Technical Advisors / Consultants

All technical advisors are required to comply with the ESMP in terms of the work methodologies and outputs. They are encouraged to work with the PIU to ensure adequate citizen and stakeholder engagement in their work programme.

8.6 Contractors

It is the Contractors responsibility to:

- Prepare and have cleared by the appropriate project supervising body any implementation plans required for the contract under this ESMP
- Carry out contracted works in accordance with this ESMP and any required implementation plans
- Conduct daily and weekly safeguard inspections to ensure compliance with this ESMP and report the results to the contracts supervising body
- Provide meaningful input to any consultations required for the project
- Report all environmental and OHS incidents to the PIU for any action
- Respond to any reports of non-compliance within the directed timeframe

9 Capacity Development & Training

9.1 Capacity Development

MEC has no inhouse safeguards specialists, therefore the safeguards position in the PIU will be filled by the engagement of the DIDA Safeguards Specialist on a part time basis for the full duration of the Project.

As part of the Safeguards Specialist role, under component 3.1, they will undertake a safeguards capacity gap assessment within MEC and KAJUR [taking account of the findings of a recent ADB review of operational capability in MEC – TOR and outputs to be provided by MEC] with the goal of supporting the operationalisation of safeguards into their standard operating procedures (SOP). This includes, in full consultation with key stakeholders, developing the outline of a Waste Management Code of Practice for the Renewable Energy Sector in this ESMP into a functional Code of Practice to be adopted by MEC and KAJUR with the long-term goal of national implementation of this sector-based code of practice.

They will contribute to capacity building of NEPA through the technical support and advisory role delivered during the preparation and implementation of subprojects, the review of safeguards instruments, and in ESMP monitoring and reporting.

Experienced environmental and social consultants will be employed to prepare safeguards instruments under Component 3 for the preparation of future renewable energy investments, since the PIU will not have these skills in-house.

Other short term consultants may be engaged from time to time to perform specific tasks including, as necessary, the preparation of safeguards instruments for subprojects, monitoring and evaluation, external monitoring of RAP implementation.

9.2 Training

The PIU Safeguards Specialist consultant shall have the skills and expertise to train and mentor local counter-part staff and others.

Areas recommended for MOF/DIDA, MEC and NEPA training include the following –

- World Bank's Safeguards Policies, in particular those triggered and relevant to the Project;
- Roles and responsibilities of different key agencies in safeguards implementation.
- How to effectively review WB safeguards instruments and to integrate the ESMP and RPF into project management and implementation.
- Detailed measurement surveys of losses for RAP preparation and entitlement calculation;

Training in the above areas is recommended to be held within three (3) months of project effectiveness.

On-going support will be provided by the World Bank Task Team for the duration of the project including during environmental and social screening of subprojects and review of prepared safeguards instruments.

10 Budget

The following is an approximate budget for implementing the EMSP, based on the tables in Annexes A, B, C and Section 7. These items are over and above those considered to be covered by normal operations.

Table 8: Indicative Budget for ESMP Implementation

Budget Item	Detail	Cost Estimate (USD)
Component 1, 2 and 3		
Stakeholder consultations	Catering, venue hire, media, materials, travel and accommodation, translation and interpretation services, etc.	10,000
Consultant costs	For preparation of safeguards instruments for future investments in Ebeye and Outer Islands.	100,000
Engagement of part time Safeguards Specialist (shared with PREP Phase 2)	Fees, operating costs, office support and maintenance, communication etc.	250,000
Institutional Training	Venue, stationery, refreshments, training materials	10,000
HIV/GBV Training	Costs of training by local organisations	5,000
Disclosure of safeguards instruments	Translation, report production, distribution	4,000
Monitoring and reporting	Travel and accommodation costs in Ebeye and Outer Islands; report production costs (non-staff costs);	8,000
GRM related costs	Personnel, communication, transportation, office support costs	5,000
	Estimated Total Budget	**392,000**

Annex A: Solar PV Installations Management Plan

Solar PV Installation Design Phase Mitigation Plan

Environmental or social impact	Majuro Pre-Construction Mitigation Actions	Costs	Responsible	Start	End
General / all impacts	• The ESMP shall be included in the TOR for the Design Engineer. • Feasibility and detailed design studies to be informed by the ESMP. All impacts shall be avoided where possible through site selection, prioritistion of sites and technologies, consultation, and array design.	Minor	Design Consultant MEC PIU	Feasibility Study	Tender Preparation
General / all impacts	• The ESMP will be included in the Contractors / Suppliers specification and contract. • Specific mitigation measures for the contractor / supplier shall be highlighted in the general conditions.	Minor, included in tendering costs	MEC PIU	Tender preparation	Award of tender.
General / all impacts	• Submit Initial Environmental Examinations (IEE) Assessments to the GM RMI EPA in accordance with the Environment Impact Regulation of the RMI EPA 1984. • Obtain permits from RMI NEPA prior to construction as required under EIA Regulation and Earthmoving Regulation.	Minor	MEC Safeguards Specialist	Design phase	Prior to construction starting
Installation of array over reservoir	• Conduct a bird survey of the reservoir to identify the species and habitat features of the pond. Conduct an impact assessment and consider mitigation in design. • Submit an application to the Environmental Protection Authority for installation of a PV system above the water reservoir in accordance with the Public Water Supply Regulations of the National Environmental Protection Act. • Application will include Engineers Water Reservoir Protection Plan and design plans. • Consultations with MEC maintenance staff during design process to allow input in relation to access to water reservoir for cleaning. • Include the assessment of structural integrity of the reservoir in the Design Engineer contract in accordance with OP4.37 Safety of Dams. • Ensure the scope of works for remedial measures are included in the PV installation contract documents, or as a separate contract. Ensure supply specifications avoid inappropriate PV technologies • Design Consultant to undertake thorough review of effectiveness of current treatment of water by MWSC prior to reticulation for public consumption and identify any recommendations • Design Consultant to undertake thorough assessment of the current water quality monitoring program by MWSC and make recommendations.	Moderate. Already scoped in existing TOR for Design Engineer and Safeguards Advisor. If works are required, then the costs could be moderate to major but would be factored into the solar project costs.	MEC PIU Design Engineer Safeguards Advisor	Tendering for Design Consultant	Prior to construction starting.

Environmental or social impact	Majuro Pre-Construction Mitigation Actions	Costs	Responsible	Start	End
Siting and accessing targeted solar array locations	• Avoid impacts on private land and assets by locating solar PV arrays on government leased land. • Review and confirm leases prior to construction. • Consultations will be carried out with identified organisations or agencies that manage any targeted spaces for cooperation and logistical support with planned works.	Minor	MEC Design Consultant	Design phase	Prior to construction starting
Health and Safety	• The tender shall be prepared in accordance with the health and safety guidelines in the IFC / World Bank Environment, Health and Safety Guidelines for Occupational Health and Safety.	Minor, included in tendering costs	MEC	Tender preparation	Award of tender.
Waste Management	• The Contractor shall develop a Solid Waste Management Plan in accordance with the guidelines included in Annex D of the ESMP. • All Project staff will be trained on this plan and attendance will be recorded.	Minor, part of standard practices	Contractor	Design phase	Prior to Construction Starting
Public Water Supply Protection	• The Design Engineer shall develop a Water Reservoir Protection Plan for construction and operational phases of the project. The plan shall incorporate design engineers plan for emergency response. • The project design will take into account the latest technical development of solar panel technology and any testing associated with rainwater harvesting from solar panels • All Project staff will be trained on this plan and attendance will be recorded.	Minor, part of standard practices	Design Consultant Contractor	Design Phase	Prior to construction starting
Water Reservoir Failure	• Design engineers in consultation with MEC and EPA shall design a set of mitigation measures and response to any emergencies.	Minor	MEC/Engineer	Design Phase	Prior to construction starting
Traffic Management	• The Contractor shall develop, as part of the MOWP, a Traffic Management Plan. The TMP shall also include requirements that are in accordance with the stipulations of this ESMP	Minor, part of standard practices	Contractor	Design Phase	Prior to construction starting
Spill Response	• The Contractor will have a spill response plan in place to account for all potential instances. • All Project staff will be trained on this plan and attendance will be recorded.	Minor, part of standard practices	Contractor	Design Phase	Prior to Construction Starting
	•				

Environmental or social impact	Majuro Pre-Construction Mitigation Actions	Costs	Responsible	Start	End
Recruitment of overseas workers	• All imported project staff will abide by RMI immigration policy and provide all required documentation, including health checks. Overseas workers will undergo cultural familiarisation induction upon arrival and sign a code of conduct applicable for the duration of their contract. • Overseas workers will have the technical skills and experience for solar PV array installation.	Minor, part of standard practices	Contractor	Upon recruitment	Prior to construction starting
HIV/AIDs & GBV Training	• All project staff will undergo training by local services providers identified by the MEC PIU on prevention of HIV/AID and GBV. • Attendance will be recorded. • The Contractor will develop a Code of Conduct (to be approved by PIU) for all workers (local and overseas) to sign detailing the expected behaviours of Project staff, ESHS requirements, Cultural respect, OHS requirements, Community Health and Safety considerations	Minor, part of BoQ	Contractor and MEC	Design phase	Prior to construction starting
Sourcing of aggregate	• All sourced sand and aggregate will be imported from an offshore source. The identified source must be compliant with OHSAS 18000, have an existing permit for extraction and have been operational for at least 12 months prior to award of contract. • Imported aggregates must meet GoRMI Biosecurity requirements.	Minor, part of BoQ	Contractor and MEC	Design phase	Prior to construction starting

Solar PV Installation Construction Phase Mitigation Plan

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Non-toxic solid wastes (metal, packing, etc.)	• Solid Waste Management Plan will be fully implemented. • Metal, cardboard and plastic will be recycled, where local facilities exist. • Waste that cannot be recycled will be collected and securely stored prior to offshore disposal at a licensed facility.	Moderate but included in tender preparation	Contractor / supplier	In the beginning of construction	After completion of construction
Hazardous wastes	• Hazardous wastes such as damaged solar panels and batteries that contain heavy metals shall be collected and stored prior to disposal offshore at a licensed facility as per the requirements of the Solid Waste Management Plan. • The Contractor will provide a 10ft container and a roofed structure over the container in a location determined by MEC for the storage of hazardous waste	Moderate but included in tender preparation	Contractor / Supplier	In the beginning of construction	After completion of construction

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Importation of aggregate	• All imported aggregate will be subject to customs and quarantine clearance by GoRMI. • Additional treatment of aggregate will be undertaken should this be required by the GoRMI. • Ballast water from any cargo vessel chartered by the Contractor will be exchanged in the open ocean prior to arrival in RMI EEZ	Minor, part of standard practices	Contractor and MEC	Prior to aggregate shipment	Upon clearance of aggregate
Importation of equipment and materials	• All imported equipment and materials will be subject to customs and quarantine clearance by GoRMI • Additional treatment or cargo will be undertaken should this be required by the GoRMI • Ballast water from any cargo vessel chartered by the Contractor will be exchanged in the open ocean prior to arrival in RMI EEZ	Minor, part of standard practices	Contractor	Prior to shipment	Upon clearance of shipment
Concrete waste water and slurry	• No concrete will be prepared within the water catchment area of the water reservoir • Concrete will be prepared on bunded and covered hard stand surface of laydown areas. • All waste water from concrete production will be collected and treated to lower the pH and allow particulates to settle out before being recycled for construction purposes. • Treated and tested waste water may be discharged for absorption into the ground. Discharge will be at a rate to allow absorption without causing surface flooding. • Slurry from concrete production will be collected and treated. Treatment can vary depending on viscosity of slurry but can include the same measures described for treating concrete waste water, or can be by facilitating the solidification of the slurry to form a gel which can be stored and disposed of according to the Solid Waste Management Plan. • Solid and cured concrete waste is considered safe to be reused by the community or the GoRMI for infrastructure maintenance. • The Contractor's will have a spill response plan in place to manage accidental spills or leakages of concrete waste water or slurry.	Minor, part of standard practices	Contractor	Start of construction	Completion of construction

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Lay down areas	• Laydown areas will be sited on government owned land. • Areas will be securely fenced. • Bunded and covered areas will be installed for the storage and handling of hazardous materials and/or substances, the wash down of machinery, the preparation of concrete and the prefabrication of solar arrays. • Run off from these bunded areas will be collected, treated and tested before being either reused for construction purposes or allowed to discharge into the ground, away from the marine environment. Discharge will be at a rate to allow absorption without causing surface flooding • Stock piles of sand shall not be more than 2m high, shall be bunded at the base using sandbags or similar to prevent sediment laden run off and erosion of stock piled materials. • Segregated storage for solid waste will be provided. This area will be clearly marked and designed to ensure that as waste is secure. • Worker inductions will include a tour of the laydown area and required practices from workers. • Spill response kits will be available and workers trained in their use. • Ensure unhindered public access to recreational park bordering the water reserve on the airport side.	Minor, part of standard practices	Contractor	Start of construction	End of construction
Tree trimming or removal	• No trees will be trimmed or removed without the permission of the PIU and the land owners. • Removal of trees will be avoided unless absolutely necessary for achieving Project objectives. • Agreement from the owner shall be given, and any compensation agreed to, prior to trees being trimmed or removed. • Whenever possible, land owners and occupiers should be allowed to benefit from cut vegetation for firewood and other uses. • For any removal of trees, the Project will ensure that three specimens per one removed tree of each species are planted as a replacement. This may be in addition to the requirements of the RPF. • Should it be required, the standing palm trees at the airport car park will be moved to an alternative location. • No trees will be trimmed unless absolutely necessary for achieving Project objectives.	Minor as no tree removal outside of the airport is anticipated	Contractor and IA	Design phase	Completion of construction

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Haulage of materials and Equipment	• Implement the TMP. • Haulage will be by existing roads only. • Where appropriate employ traffic control measures on the road to prevent traffic accidents. The workers shall have the relevant training and safety equipment. • Hours of haulage shall be regulated to avoid peak time traffic and night hours. • Speed controls shall be in place when passing through residential areas or past sensitive social receptors. • All vehicles will be well maintained and operated by experienced and licensed drivers. • Spill kits will be available on the vehicles and drivers will be trained in their use. • Any damage to road surface will be reported immediately to PIU.	Minor, part of standard practices	Contractor	Start of construction	End of construction
Access to public areas during construction	• Identify key user groups. • Conduct consultation with user groups to advice of planned disruptions to access. • Ensure working area is securely fenced during construction. • Display notifications of predicted duration of disturbance of access and contact details for GRM	Minor, part of standard practices	Contractor, MEC	Start of construction	End of construction
Health and Safety	• All work shall be in accordance with the World Bank /IFC Environment, Health and Safety Guidelines for Occupational Health and Safety. • Contractors shall prepare a Health and Safety Plan which will include a risk register and safe work method statements. • All workers will be provided with hard hats, hearing protection, high visibility jackets and covered boots. • Workers involved in panel installation and handling will be provided with suitable gloves, such as leather gloves with padding in the palm and finger areas. • Buoyance aids or life jackets to be available and stored close to the area of over water works. All workers to be aware of their location and trained in their use. Training attendance should be recorded.	Minor, part of standard practices	Contractor	Start of construction	End of construction

Solar PV Installation Operational Phase Mitigation Plan

Environmental or social impact	Operation Mitigation Actions	Costs	Responsible	Start	End

Environmental or social impact	Operation Mitigation Actions	Costs	Responsible	Start	End
Disposal of hazardous materials (broken/ decommissioned solar panels, batteries)	• SEDeP Solid Waste Management Code of Practice will be integrated into MEC SOP • Any solar panels or batteries removed from the array for disposal will first be collected and stored in the covered 10ft container provided by the Contractor. • For final disposal, the MEC will ensure hazardous items are shipped offshore to a facility licensed to handle hazardous waste.	Major for MEC – funding of offshore waste disposal will need to be secured	MEC	During operation	Continuous
Solar Panel inspections	• MEC shall undertake at least weekly monitoring of the condition of the individual solar panels to detect any damage. • Damaged solar panels shall be immediately removed from the array to prevent particulate entering the water reservoir. • MEC to advise Environmental Protection Agency (EPA) of any damage likely to have caused solar panel particulate to have entered the water reservoir. • Regular inspections to be carried out on solar array foundations by MEC and EPA staff. Any defects to the foundations must be immediately reported to the Authority and rectified.	Minor unless repair works are needed to array foundations.	MEC and EPA	During operation	Continuous
Emergencies, leaks catastrophic failures of water reservoir	• If necessary, following the review of structures and risk assessment, the appropriate EPA response plan, incorporating the design engineers recommended mitigation measures, will be immediately actioned	Major	EPA and MEC	During operation	Continuous
Water Quality Testing	• MEC to comply with any requests made of them from EPA in relation to the EPA ongoing water quality monitoring program. • Should additional or extraordinary monitoring be required, this is to be funded by MEC	Minor, part of existing monitoring	MEC, EPA	During operation	Continuous
Tree trimming	• Routine tree trimming will be carried out with the permission of tree owners.	Minor, part of O&M budget	MEC	During Operation	Periodic

Solar PV Installation Supervision Plan

Impact Area:	Management Measures:
Solar PV Installations: Pre-Construction Checklist	
Solid and hazardous waste	• Approved Solid Waste Management Plan in place • Waste collection at laydown area is secure, well signed and clean • Waste collection storage arrangements in place and compliant with approved SWMP
Public health and safety	• HIV/GBV/Code of Conduct training and acknowledgements have been conducted
Protection of Water Reservoir	• EPA permit for installation works is approved
Soil and water pollution	• Appropriate spill response plan in place
Occupational Health and Safety	• OHS Management Plan in place • All workers have undergone appropriate OHS training
Materials Supply	• All imported materials with appropriate biosecurity clearances
Laydown Area	• Laydown areas established on pre-approved sites • Water run off management systems in place

Impact Area:	Management Measures:
Solar PV Installations: Construction Weekly Supervision Checklist	
Solid and hazardous waste	• Approved Solid Waste Management Plan effectively implemented • Waste collection at laydown area is secure, well signed and clean • Hazardous waste is stored according to SWMP • Good housekeeping around project sites • All waste is disposed of offshore
Public health and safety	• Approved Traffic Management Plan is under effective implementation • Public signage of complaints procedure • Signs and fences restrict or direct pedestrians and public where appropriate.
Protection of Water Reservoir	• Solar panels are inspected for damage before installation • No damage to water reservoir structure
Soil and water pollution	• Appropriate spill response plan/kit in place for waste area • No visible spills on soil or uncovered ground • Drainage, water treatment and soakage systems clear and fit for purpose

Impact Area:	Management Measures:
Hazardous substances storage	• Substances stored in self-bunded vessels or within bund on impermeable surface • Spill kit complete and accessible • Spill training completed • No evidence of spills on the ground
Occupational Health and Safety	• Workers have access to, and using appropriate, PPE for the task. • All workers have undergone appropriate OHS training • Proper briefing of staff before undertaking work activities
Materials Supply	• All quarries licensed to supply materials • All imported materials with appropriate biosecurity clearances
Laydown Area	• Laydown areas established on pre-approved sites • Laydown areas dust levels managed efficiently • Traffic management plan correctly implemented at laydown site • Water run off management systems operating correctly • Dust management effectively implemented • PPE present and correctly used

Impact Area:	Management Measures:
Solar PV Installations: Operations Supervision Checklist	
Solid and hazardous waste	• Solid Waste Management Code of Practice Integrated into SOPs • Hazardous waste collected and stored in provided facility • Hazardous waste transported offshore for disposal in licensed facility
Protection of Water Reservoir	• Engineers recommended emergency mitigations and response integrated into Water Reservoirs and MEC SOP • No broken or damaged solar panels in array

Annex B: Genset Installation Management Plan

Genset Installation Design Phase Mitigation Plan

Environmental or social impact	Majuro Pre-Construction Mitigation Actions	Costs	Responsible	Start	End
General / all impacts	• The ESMP shall be included in the TOR for the Design Engineer. • Feasibility and detailed design studies to be informed by the ESMP. All impacts shall be avoided where possible through site selection, prioritistion of sites and technologies, consultation, and array design.	Minor	Design Consultant MEC PIU	Feasibility Study	Tender Preparation
General / all impacts	• The ESMP will be included in the Contractors / Suppliers specification and contract. • Specific mitigation measures for the contractor / supplier shall be highlighted in the general conditions.	Minor, included in tendering costs	MEC	Tender preparation	Award of tender.
General / all impacts	• Apply for and secure permits to construct / install gensets, under the appropriate national legislation (NEPA Act 1984 Section 123). • Submit an Initial Environmental Assessment to the General Manager of the RMI NEPA in accordance with the RMI NEPA Act 1984.	Minor	MEC	Design phase	Prior to construction starting
Reduction in air quality due to emissions from gensets	• Apply for and secure permits to construct / install gensets, under the appropriate national legislation (NEPA Act 1984 Section 123) • Provide a specification for the gensets that are consistent with the requirements of the NEPA Act 1984 and the IFC / World Bank Environment, Health and Safety Guidelines for Air Emissions and Ambient Air Quality	Minor	MEC	Design phase	Prior to construction starting
Health and Safety	• The tender shall be prepared in accordance with the health and safety guidelines in the IFC / World Bank Environment, Health and Safety Guidelines for Occupational Health and Safety.	Minor, included in tendering costs	MEC	Tender preparation	Award of tender.
Waste Management	• The Contractor shall develop a Solid Waste Management Plan in accordance with the requirements included in Annex D of the ESMP. • All Project staff will be trained on this plan and attendance will be recorded.	Minor, part of standard practices	Contractor	Design phase	Prior to Construction Starting
Spill Response	• The Contractor will have a spill response plan in place to account for all potential instances. • Ensure, through design of spill containment at the genset and / or within the building, that 100 percent of fuel and oil held within the generators can be contained and collected for removal within the footprint of the building. • All Project staff will be trained on this plan and attendance will be recorded.	Minor, part of standard practices	Contractor	Design Phase	Prior to Construction Starting

Environmental or social impact	Majuro Pre-Construction Mitigation Actions	Costs	Responsible	Start	End
General / all impacts	• The ESMP shall be included in the TOR for the Design Engineer. • Feasibility and detailed design studies to be informed by the ESMP. All impacts shall be avoided where possible through site selection, prioritistion of sites and technologies, consultation, and array design.	Minor	Design Consultant MEC PIU	Feasibility Study	Tender Preparation
Recruitment of overseas workers	• All imported project staff will abide by RMI immigration policy and provide all required documentation, including health checks. Overseas workers will undergo cultural familiarisation induction upon arrival and sign a code of conduct applicable for the duration of their contract. • Overseas workers will have the technical skills and experience for solar PV array installation.	Minor, part of standard practices	Contractor	Upon recruitment	Prior to construction starting
HIV/AIDs & GBV Training	• All project staff will undergo training provided by local services providers advised by MEC PIU on prevention of HIV/AID and GBV. • Attendance will be recorded. • The Contractor will develop a Code of Conduct (to be approved by PIU) for all workers (local and overseas) to sign detailing the expected behaviours of Project staff, ESHS requirements, Cultural respect, OHS requirements, Community Health and Safety considerations	Minor, part of BoQ	Contractor and MEC	Design phase	Prior to construction starting

Genset Installation Construction Phase Mitigation Plan

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Non-toxic solid wastes (metal, packing, etc.)	• Solid Waste Management Plan will be fully implemented. • Metal, cardboard and plastic will be recycled, where local facilities exist. • Waste that cannot be recycled will be collected and securely stored prior to offshore disposal at a licensed facility.	Moderate but included in tender preparation	Contractor / supplier	In the beginning of construction	After completion of construction
Hazardous wastes	• Hazardous wastes such as old oil and fuel shall be collected and stored in self bunded containers prior to disposal offshore at a licensed facility as per the requirements of the Solid Waste Management Plan. • All hazardous waste will be exported under the terms of the Waigani Convention. • Containers shall be stored in a bunded covered area prior to export for disposal.	Moderate but included in tender preparation	Contractor / Supplier	In the beginning of construction	After completion of construction

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Removal and disposal of old genset	• Spill response kit will be available at work site and all workers will be trained on its use • Oil and fuels will be drained from the old genset with a drip pan in place to catch any drips or minor spills • All removed parts will be contained and stored in a watertight container to prevent leaching of residual oils or fuel • All waste will be removed and disposed of offshore as per the requirements of the SWMP				
Oil spills or leaks prior and during construction / installation	• Oil sorbents will be kept on-site to contain spills, and staff shall be trained in spills procedures. • Any contaminated soils because of construction activities will be removed by and stored prior to disposal offshore at a licensed facility. Records to be kept of the amount of material, contaminants, and destination of the waste material.				
Soil and water contamination	• Oil / diesel containment devices such as bunds and separators will be constructed as per tender documents.	Moderate, included in construction contract.	Contractor / Supplier	Prior to the beginning of construction	At completion of construction
Importation of equipment and materials	• All imported equipment and materials will be subject to customs and quarantine clearance by GoRMI • Additional treatment or cargo will be undertaken should this be required by the GoRMI • Ballast water from any cargo vessel chartered by the Contractor will be exchanged in the open ocean prior to arrival in RMI EEZ	Minor, part of standard practices	Contractor	Prior to shipment	Upon clearance of shipment

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Lay down areas	• Laydown areas will be sited on government owned land. • Areas will be securely fenced. • Bunded and covered areas will be installed for the storage and handling of hazardous materials and/or substances. • Run off from these bunded areas will be collected, treated and tested before being either reused for construction purposes or allowed to discharge into the ground water, away from the marine environment. Discharge will be at a rate to allow absorption without causing surface flooding • Segregated storage for solid waste will be provided. This area will be clearly marked and designed to ensure that as waste is secure. • Worker inductions will include a tour of the laydown area and required practices from workers. • Spill response kits will be available and workers trained in their use.	Minor, part of standard practices	Contractor	Start of construction	End of construction
Health and Safety	• All work shall be in accordance with the World Bank /IFC Environment, Health and Safety Guidelines for Occupational Health and Safety. • All workers will be provided with hard hats, hearing protection, high visibility jackets and covered boots. Workers involved in genset installation and handling will be provided with suitable PPE. • All construction workers will have site inductions by the State Utility on health and safety. • Appropriate health and safety signs such as “Danger”, “Entrance Prohibited”, etc. will be placed in proper places.	Minor, part of standard practices	Contractor	Start of construction	End of construction

Genset Installation Operational Phase Mitigation Plan

Environmental or social impact	Operation Mitigation Actions	Costs	Responsible	Start	End
Disposal of hazardous materials (oil/fuel)	• SEDeP Solid Waste Management Code of Practice will be integrated into KAJUR SOP • Any hazardous waste will first be collected and stored in self bunded containers in a bunded covered area. • For final disposal, the KAJUR will ensure hazardous items are shipped offshore to a facility licensed to handle hazardous waste.	Major for MEC – funding of offshore waste disposal will need to be secured	MEC	During operation	Continuous

Environmental or social impact	Operation Mitigation Actions	Costs	Responsible	Start	End
Genset Maintenance	• Ensure that all manufacture recommendations for maintenance of generator are implemented to maintain efficiency and reduce risk of failure.	Minor, part of existing monitoring	MEC, EPA	During operation	Continuous

Genset Installation Supervision Plan

Impact Area:	Management Measures:
Genset Installations: Pre-Construction Checklist	
Solid and hazardous waste	• Approved Solid Waste Management Plan in place • Waste collection at laydown area is established and secure
Public health and safety	• HIV/GBV/Code of Conduct training and acknowledgements have been conducted
Soil and water pollution	• Appropriate spill response plan in place
Occupational Health and Safety	• OHS Management Plan in place • All workers have undergone appropriate OHS training
Equipment Supply	• All imported materials have appropriate biosecurity clearances
Laydown Area	• Laydown areas established on pre-approved sites

Impact Area:	Management Measures:
Genset Installations: Weekly Construction Supervision Checklist	
Solid and hazardous waste	• Approved Solid Waste Management Plan effectively implemented • Waste collection at laydown area is secure, well signed and clean • Hazardous waste is stored according to SWMP • Good housekeeping around project sites • All waste is disposed of offshore
Public health and safety	• Signs and fences restrict or direct pedestrians and public where appropriate.
Soil and water pollution	• Appropriate spill response plan/kit in place for waste area • No visible spills on soil or uncovered ground
Hazardous substances storage	• Substances stored in self-bunded vessels or within bund on impermeable surface • Spill kit complete and accessible • Spill training completed • No evidence of spills on the ground
Occupational Health and Safety	• Workers have access to, and using appropriate, PPE for the task. • All workers have undergone appropriate OHS training • Proper briefing of staff before undertaking work activities
Equipment Supply	• All imported materials have appropriate biosecurity clearances
Laydown Area	• Laydown areas established on pre-approved sites • Water run off management systems operating correctly • PPE present and correctly used

Impact Area:	Management Measures:
Genset Installations: Operations Supervision Checklist	
Solid and hazardous waste	• Solid Waste Management Code of Practice Integrated into SOPs • Hazardous waste collected and stored in appropriate facility • Hazardous waste transported offshore for disposal in licensed facility
Air Quality	• Air quality monitoring requirements as per the requirement of the NEPA permit

Annex C Energy Efficiency Investment Management Plan

EE Investment Design Mitigation Plan

Activity Area	Majuro Pre-Construction Mitigation Actions	Costs	Responsible	Start	End
General / all impacts	• The ESMP will be included in the Contractors / Suppliers specification and contract. • Specific mitigation measures for the contractor / supplier shall be highlighted in the general conditions.	Minor, included in tendering costs	MEC	Tender preparation	Award of tender.
LED Impacts on Human Health	• LED light specification to minimise glare and circadian disruption. Specification considerations should include investigating the use of cooler LED colours in streetlighting in residential areas and direction and location of light spill to minimise disruption to circadian rhythm.	Minor, addressed in design	MEC Consultants	Project design	Project implementation
Health and Safety	• The tender shall be prepared in accordance with the health and safety guidelines in the IFC / World Bank Environment, Health and Safety Guidelines for Occupational Health and Safety.	Minor, included in tendering costs	MEC	Tender preparation	Award of tender.
Waste Management	• The PIU Safeguard Specialist shall develop SEDeP Codes of Practice for Solid Waste Management based on the SWMP requirements of this ESMP • All Project staff will be trained on these codes of practice and attendance will be recorded.	Minor, part of standard practices	Contractor	Design phase	Prior to Construction Starting
Recruitment of overseas workers	• All imported project staff will abide by RMI immigration policy and provide all required documentation, including health checks. • Overseas workers will undergo cultural familiarisation induction upon arrival and sign a code of conduct applicable for the duration of their contract. • Overseas workers will have the technical skills and experience required for works under this component.	Minor, part of standard practices	Contractor	Upon recruitment	Prior to construction starting
HIV/AIDs & GBV Training	• All project staff will undergo training by services providers identified by MEC PIU on prevention of HIV/AID and GBV. • Attendance will be recorded. • The Contractor will develop a Code of Conduct (to be approved by PIU) for all workers (local and overseas) to sign detailing the expected behaviours of Project staff, ESHS requirements, Cultural respect, OHS requirements, Community Health and Safety considerations	Minor, part of BoQ	Contractor and MEC	Design phase	Prior to construction starting

EE Investment Construction Phase Mitigation Plan

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Non-toxic solid wastes (metal, packing, etc.)	• SEDeP Code of Practice for Waste Management will be fully implemented. • Metal, cardboard and plastic will be recycled, where local facilities exist. • Waste that cannot be recycled will be collected and securely stored prior to offshore disposal at a licensed facility.	Moderate but included in tender preparation	Contractor / supplier	In the beginning of construction	After completion of construction
Hazardous and difficult waste	• SEDeP Code of Practice for Waste Management will be fully implemented • Hazardous wastes such as discarded incandescent bulbs shall be collected and stored in water tight containers prior to disposal offshore at a licensed facility as per the requirements of the Solid Waste Management Plan. • Difficult waste such as appliances and building cladding shall be stored in the secure fenced and covered area. • Should any Asbestos Containing Material be uncovered while working on building insulation, the Contractor will develop an Asbestos Management Plan for review, approval and implementation. • Containers shall be stored in a bunded covered area prior to export for disposal.	Moderate but included in tender preparation	Contractor / Supplier	In the beginning of construction	After completion of construction
Importation of equipment and materials	• All imported equipment and materials will be subject to customs and quarantine clearance by GoRMI • Additional treatment or cargo will be undertaken should this be required by the GoRMI • Ballast water from any cargo vessel chartered by the Contractor will be exchanged in the open ocean prior to arrival in RMI EEZ	Minor, part of standard practices	Contractor	Prior to shipment	Upon clearance of shipment
Lay down areas	• Laydown areas will be sited on government owned land. • Areas will be securely fenced. • Newly imported equipment for installation will be stored in a secure container on site. • Segregated storage for solid waste will be provided. This area will be clearly marked and designed to ensure that as waste is secure. • Worker inductions will include a tour of the laydown area and required practices from workers.	Minor, part of standard practices	Contractor	Start of construction	End of construction
Health and Safety	• All work shall be in accordance with the World Bank /IFC Environment, Health and Safety Guidelines for Occupational Health and Safety. • All workers will be provided with appropriate PPE for contract works.	Minor, part of standard practices	Contractor	Start of construction	End of construction

Environmental or social impact	Construction Mitigation Actions	Costs	Responsible	Start	End
Consumer Awareness	• The EPD supported by the consultant shall implement the consumer awareness program developed by the loss management consultant				

EE Investment Operational Phase Mitigation Plan

Environmental or social impact	Operation Mitigation Actions	Costs	Responsible	Start	End
Disposal of hazardous materials (light bulbs)	• SEDeP Solid Waste Management Code of Practice will applied • Any hazardous waste will first be collected and stored in water tight containers in the provided secure covered facility. • For final disposal, hazardous items will be shipped offshore to a facility licensed to handle hazardous waste.	Major for MEC – funding of offshore waste disposal will need to be secured	MEC	During operation	Continuous
Appliance Maintenance	• Ensure that all manufacture recommendations for maintenance of energy efficient appliances are implemented to maintain efficiency and reduce risk of failure.	Minor, part of existing monitoring	MEC, EPA	During operation	Continuous

EE Investment Supervision Plan

Impact Area:	Management Measures:
Energy Efficiency Installations: Pre-Construction Checklist	
Solid and hazardous waste	• SEDeP Codes of Practice (CoP) for Solid Waste Management are approved and in place • Fenced, secured and covered storage facility is in place for hazardous and difficult waste
Public health and safety	• HIV/GBV/Code of Conduct training and acknowledgements have been conducted
Occupational Health and Safety	• OHS Management Plan is in place. • All workers have undergone appropriate OHS training
Equipment Supply	• All imported materials have appropriate biosecurity clearances
Laydown Area	• Laydown areas established on pre-approved sites

Impact Area:	Management Measures:
Energy Efficiency Installations: Weekly Construction Supervision Checklist	
Solid and hazardous waste	• SEDeP Codes of Practice (CoP) for Solid Waste Management are applied efficiently • Waste collection at laydown area is secure, well signed and clean • Fenced, secured and covered storage facility is in place for hazardous and difficult waste • Old light bulbs and difficult waste is stored according to CoP • Good housekeeping around project sites • All waste is disposed of offshore
Public health and safety	• Public signage of complaints procedure.
Occupational Health and Safety	• Workers have access to, and using appropriate, PPE for the task. • All workers have undergone appropriate OHS training • Proper briefing of staff before undertaking work activities
Equipment Supply	• All imported materials have appropriate biosecurity clearances
Laydown Area	• PPE present and correctly used

Impact Area:	Management Measures:
Energy Efficiency Installations: Operations Supervision Checklist	
Solid and hazardous waste	• Solid Waste Management Code of Practice Integrated into SOPs • Hazardous waste collected and stored in provided facility • Hazardous waste transported offshore for disposal in licensed facility

Annex D: Solid Waste Code of Conduct Requirements

These requirements will form the basis for the development of the SEDeP Code of Practices for SEDeP Solid Waste Management. The key objectives of these requirements is to assist the PIU Safeguard Specialist to develop a sector based code of practice for waste management. The requirements for the Code of Practice are:

1. Compliance with GoRMI Solid Waste Management Regulations.
2. Satisfies the EHS requirements of the ESMP
3. Satisfies the EHS requirements of the World Bank
4. Meets the following minimum standards:

    ix. No RMI landfills are to be used for any waste. All waste is to be recycled or disposed of offshore at a permitted facility.
    x. No dumping of any waste in RMI
    xi. Compliance with Waigani Convention and any other relevant international conventions for export of hazardous and non-hazardous waste
    xii. Identify and utilise suitable local recycling and reuse options

5. Implements the usual good practice of solid waste management, including:
    vi. Segregation of waste
    vii. Secure storage for waste
    viii. Adopting the waste hierarchy: (i) avoid; (ii) reduce; (iii) reuse; (iv) recycle
    ix. Collaborating with other sectors, waste generators and government initiatives for cumulative benefits
    x. Build capacity and sustainability within the renewal energy sector in the approach to waste management through SEDeP implementation

When developing, and implementing the Code of Practice, the Safeguard Specialist will consider:

1. Waste streams: identify which waste streams are likely to be generated and estimate the approximate amounts of materials

    Undertake inventory of materials that can be reused, recycled or recovered from the project:

    - Specific types of materials: a full list of options is provided in the assessment table below
    - Amount of material expected
    - Possible contamination by hazardous materials like asbestos or lead: these materials will limit reuse/recycling options and require special disposal.

Waste and/or Recyclable Mater ials		**Destination**		
		Reuse and recycling		**Disposal**
Possible Materials Generated (Add or Delete as necessary)	Estimated Volume (m3) or Area (m2) or weight (t)	On-site (How will materials be reused and/or recycled on site)	Off-site (Specify the proposed destination and/or recycling facility)	Specify the off-island disposal site and the process for collection, storage and eventual disposal
Timber (specify type)				
Wood waste (e.g. MDF, plywood)				
Cardboard				
Ferrous materials (e.g. iron, steel)				
Nonferrous materials (e.g. copper wiring)				
Concrete				
Roofing tiles				
Ceramic tiles				
Gravel				
Gypsum board (e.g. drywall)				
Plaster				
Plumbing fixtures and fittings				
Carpet and underlay				
Stone				
Asphalt				
Glass				
Sand/fill				
Topsoil				
Green waste				
Asbestos				
Fluorescent light bulbs				
Hydrocarbons and fuel				

Damaged solar panels				
Batteries				
Plastics				
PVC				
Co-mingled recyclables (e.g. paper, cans, glass and plastic bottles, carboard, etc)				
General waste (e.g. food waste, contaminated food packaging, non-recyclable plastics)				
Mixed waste				

2. Collection and Storage: How and where will the difference waste streams be collected and stored prior to their disposal offshore. Detail the types of containers to be used and the storage areas that will be created for this waste. Differentiate between regular, bulk and hazardous waste. This must be compliant with the minimum standards detailed in the ESMP:

    a. Damaged solar panels and used batteries will be stored in a 10ft container (provided by Contractor) and a roofed structure over the containers in a location to be determined by MEC.

    b. Hazardous wastes such as old oil and fuel shall be collected and stored in self bunded containers. Containers shall be stored in a bunded covered area prior to export for disposal
    c. Hazardous wastes such as discarded incandescent bulbs shall be collected and stored in water tight containers. Containers shall be stored in bunded covered area prior to export for disposal.
    d. Difficult waste such as appliances and building cladding shall be stored in a secure fenced and covered area.

3. On-site: understand how the waste management system (housekeeping, sorting and storage) will work on-site, including bin placement and access.

    Determine storage requirements (separate bins or co-mingled), things to consider include:

    - Ease of use: ensure that containers are easily accessible by workers and that storage areas are clearly sign posted
    - Safety: ensure that the containers and storage can be managed safely, including limiting public access to the storage areas
    - Hazardous waste materials storage

- Aesthetics: ensure that the project sites and storage area appears orderly and will not raise concern from local residents or businesses – for example screening for dust and litter containment and daily collection of windblown material
- Establish a collection/delivery plan in collaboration with waste contractors for waste and recyclable materials generated on-site.

4. Clearly assign and communicate responsibilities: ensure those involved in the project are aware of their responsibilities in relation to the Codes of Practice.
5. Training: be clear about how the various elements of the Codes of Practice will be implemented.
6. Monitor: to ensure the plan is being implemented, monitor on-site as per the ESMP monitoring plan.

Annex E: Draft TOR for ESIA and Land Due Diligence for Renewable Energy Projects

DRAFT TERMS OF REFERENCE (TOR)

ENVIRONMENTAL and SOCIAL IMPACT ASSESSMENT, LAND DUE DILIGENCE

Republic of Marshall Islands (RMI) Sustainable Energy Development Project (SEDeP)

1. INTRODUCTION

This Terms of Reference (TOR) is for an individual consultant to provide specialist safeguard instrument development services and Land Due Diligence services to the SEDeP Implementation Unit (on behalf of the Government of RMI (GoRMI)) for the proposed SEDeP *sub-project to be inserted*.
The GoRMI is in the process of preparing the project with proposed financing from the World Bank.

The development of safeguard documentation must follow GoRMI laws and regulations and World Bank Safeguard Policies for a Category B project. The process shall include screening, scoping, defining baseline scenarios, predicting impacts, providing input into the options analysis and design process and developing management and monitoring plans to avoid, mitigate or remedy significant potential impacts and enhance benefits.

The consultant will prepare a Land Due Diligence Report and, if necessary, a Resettlement Action Plan or Abbreviated Resettlement Action Plan for land acquisition consistent with World Bank Safeguard Policy 4.12 Involuntary Resettlement and the Resettlement Policy Framework for SEDeP.

SEDeP PROJECT OVERVIEW

2. Project Description

INESRT UPDATED PROJECT DESCRIPTION BASED ON ESMP SECTION 2.1, 2.2, 2.3 and 2.4.

2.1 Scope of the Investments subject to ESIA and Land Acquisition

Under Component 3 the SEDeP the World Bank will support the preparation of studies for renewable energy projects, including the design (up to the preparation of bidding documents) for RE projects for Ebeye and the Outer Islands. The projects may be funded by the World Bank or other development partner, but will not be funded by the SEDeP. The appropriate safeguard instrument and Land Due Diligence assessment will cover proposed works at all identified sub projects. The scope will include *update once scope of project is known*.

The ESIA/ESMP and Land Due Diligence baseline studies and preliminary assessments shall cover all investment options at the early phase of the process and contribute to optimisation and decision-making on the preferred development solution for each island. The ESIA, ESMP, Land Due Diligence Report and Resettlement Action Plan (if required) shall focus on the final, proposed development solution.

2.2 Overview of Study Area

UPDATE ONCE PROJECT SITES ARE KNOWN

3. REGULATORY AND POLICY FRAMEWORK

3.1 ESIA and ESMP

The ESIA/ESMP process and documentation should meet both GoRMI laws and regulations and World Bank Safeguard Policies.

The National Environmental Protection Authority (NEPA), established under the National Environmental Protection Act (NEPA) 1984, is the governing body for environmental protection in the RMI.

The NEPA Act 1984 is supported and further elaborated in a set of 8 regulations for protection of surface and marine waters, and air quality, and managing of potential impacts from earth works, sanitation systems, waste and new infrastructure development. The Act, and these regulations along with the Coast Conservation Act 2008, provides the framework for the protection of resources and environmentally sustainable development in RMI. The eight (8) regulations are –

- Earthmoving Regulation 1988 (with amendments in 1994 and 1998);
- Solid Waste Regulations 1989
- Toilet Facilities and Sewage Disposal Regulation 1990
- Marine Water Quality Regulation1992
- Public Water Supply Regulation 1994
- Environmental Impact Assessment Regulation 1994
- Ozone Layer Protection Regulation 2004Pesticides and Persistent Organic Pollutants Regulation 2004.
- Sustainable Development Regulation – this is currently in draft and will replace the Earthmoving Regulation once it comes into force.

Environmental Impact Assessment Regulation 1994

The Environmental Impact Assessment (EIA) Regulation (Section 21, NEPA) is the central environmental planning legislation. Its aim is to ensure that environmental concerns are given appropriate consideration in decision making for all new infrastructure projects. The EIA regulation requires a preliminary proposal for every development activity, and applies a two-step assessment process to determine the level of assessment required. Step 1 is an initial evaluation to determine if the activity has the potential for significant effect on the environment; the preliminary proposal is an initial evaluation to determine whether an activity or action has significant environmental effect. Step 2 is an EIA for proposals assessed to have potential significant impact which will be reviewed and form the basis of an approved or not approved decision. The EIA process requires extensive and inclusive consultations with all stakeholders. In preparing the EIA, the proponent shall follow the format and content, as detailed in Part IV of the regulation, unless otherwise directed by the Authority. The proponent shall remain subject to regulatory and permitting requirements pursuant to NEPA, Coast Conservation Act, and the Historic Preservation Act and Tourism Act 1991.

3.2 Land Acquisition

The framework for land acquisition and resettlement is based on the laws and regulations of the Republic of the Marshall Islands Government and the World Bank's Safeguards Policies. The

principal Marshall Islands laws governing land acquisition, resettlement and compensation presently include (i) RMI Constitution (ii) Land Acquisition Act 1986 and (iii) Coast Conservation Act 1988.

4. OBJECTIVES OF THE ASSIGNMENT

The objectives of the Assignment are to:

i) Undertake an ESIA/EMP study for the RE projects as describe above (including all relevant ancillary facilities). The process shall include screening, scoping, defining baseline scenarios, predicting impacts, and developing robust and applicable management and monitoring plans to avoid, mitigate or remedy significant potential and enhance benefits.

ii) Accurately identify the project's 'area of influence' and implement an ESIA/ESMP study that reflects the nature, scale and intensity of the impacts in the area of influence. This includes the geographical and temporal scale of cumulative impacts.

iii) Focus on the significant / key environmental and social issues related to all proposed facilities and activities under the project (including design aspects, construction methods and operational activities, and including all associated facilities and activities such as temporary construction facilities, source of aggregates etc.). Cumulative impacts with concurrent infrastructure projects should also be considered.

iv) Identify and analyze any opportunities to enhance social and environmental benefits, as well as avoiding and mitigating the potential adverse impacts.

v) Provide expert advice to the MEC PIU and the design team throughout the process to ensure that risks are identified and managed as early as possible, and that infrastructure designs are optimized to address significant environmental and social impacts;

vi) Facilitate a comprehensive stakeholder engagement process with MEC PIU to ensure all stakeholders (host communities, affected people, NGO's, etc.) are fully informed about the projects and are engaged in the ESIA/ESMP process, and contribute to project outcomes.

vii) Prepare ESIA and ESMP instruments to meet the RMI permitting processes and safeguards requirements under World Bank Safeguard Policy 4.01 Environmental Assessment. Support the PIU to apply for permits.

viii) Prepare a Land Due Diligence report to identify the land parcels, land owners, assets that may be damaged or removed and land acquisition processes (lease, compulsorily acquire). Prepare a Resettlement Action Plan or Abbreviated Resettlement Action Plan in accordance with the SEDeP RPF, to comply with World Bank Safeguard Policy 4.12 Involuntary Resettlement, if involuntary land acquisition and / or resettlement will be required.

5. SCOPE OF WORK

5.1 Overview

A consultant will be hired to conduct the following Scope of Work. In summary:

Task 1.**ESIA Study:** Undertake a detailed qualitative and quantitative ESIA/ESMP study for Component 3.2 of the SEDeP including all ancillary infrastructure and works.

Task 2.**Stakeholder Consultation and Engagement:** Assist the PIU to consult broadly and effectively engage with all stakeholders who have an interest in, or will be affected by, the project. This includes preparing and implementing a comprehensive Stakeholder Engagement Plan.

Task 3.**Prepare a Land Due Diligence Report** to accurately assess the land, foreshore and seabed requirements and the possibility of involuntary land acquisition.

Task 4.**Prepare relevant safeguards documentation** and facilitate the public disclosure and approvals processes.

The four tasks are interrelated and in some cases concurrent.

5.2 Task 1 –ESIA Study

The ESIA study shall follow international best practice for the screening, scoping, baseline definition, impact assessment and management for impacts and benefits on the environment and people. Task 1 will be undertaken concurrently and will interrelate with the design and consultation tasks (Tasks 2, 3 and 4).

Start up and Review of Existing Information

Conduct initial information gathering from all available resources. The scoping work will be based on the known design features of the infrastructure and possible alternatives, even if detailed design has not been completed. It is expected that the majority of information gathering will be from secondary sources. Existing GIS data, satellite imagery and topographic and bathymetric data will be collated.

Baseline Data Gathering, Site Visits and Interviews

The Consultant shall visit all project sites to collect field data and information. During the site visit to Ebeye the Consultant shall visit government agencies, NGO's and other organizations to identify project stakeholders, obtain secondary data and discuss ongoing consultation arrangements with stakeholders. During the visits to the outer islands, the Consultant shall collect biodiversity and environmental data, social data and confirm the plan for ongoing communications and engagement with the community about the project.

- The Consultant shall conduct baseline data gathering as required to adequately describe the existing environmental and social context relevant for each of the design options for the proposed project sites:
- Island and reef geology, topography, climate change and natural hazards profiles, erosion potential and, if necessary, bathymetry, hydrography, hydrogeology, metocean characteristics, ;
- Terrestrial, marine social and urban environments;
- Foreshore, reef and ocean uses for subsistence, cultural and economic purposes,
- Land cover, land ownership, land use, assets and physical cultural resources within the project footprint, and wider area of influence;

- Socio-economic profile of each island and the resilience of the community to withstand the influx of workers and provide labour and other services. The value and significance of the existing and proposed transport infrastructure.

Preparation of Baseline

With the data collected in 0 and 0 the Consultant will prepare a description of the environmental and social context that will serve as the baseline for assessing potential impacts and benefits. This information should be shared with the design team to inform the detailed design process (to incorporate mitigation into design).

The description of the existing environment shall conclude the existing quality and values of the land, foreshore and reef and detail the existing threats (climate change, existing developments etc.). It should identify the interrelationships and dependencies between people and the environment, vulnerable species or habitats, physical cultural resources, and other significant features of each area.

Data shall be captured and presented spatially wherever possible and relevant. Data shall be presented and analyzed in context, such as the weather conditions leading up to the time of sampling, data gaps and limitations of sampling methodologies used.

Description of the Project Activities

Once confirmed by PIU, the Consultant will prepare a project description that captures all activities, in order to confirm the project area of influence and the scenario on which to base the impact assessment. The project will include the pre-construction activities as well as land clearances, excavations, dredging/blasting, construction of infrastructure, sources of aggregates, laydown areas, work camps, transportation and ship-to-shore operations for all imported equipment and materials to the island, and all waste materials and equipment from the island at the end of the project, waste management, land-based buildings, roads, spoil disposal areas, harbor operations and maintenance.

The Consultant should have the capacity to work efficiently in parallel with the design process and need to be aware that designs / project description may change throughout the period of the consultancy.

Impact Assessment

Impact assessment shall include direct and indirect impacts, the connections between primary, secondary and tertiary impacts, cumulative impacts, cover the entire project area of influence, and consider and analyze alternatives. Impact assessment should focus on significant impacts only. Minor impacts may be briefly described and managed under the ESMP. A general scope of work is provided in this section. Specific requirements for impact assessment for biodiversity and social impacts Annexes 2 and 3 respectively.

Qualitative impact assessment shall be conducted. The methodology for impact assessment shall be described by the Consultant in detail in the proposal.

The anticipated outcomes of mitigation and monitoring measures shall also be analyzed (and modelled if necessary) for any new impacts and benefits, before they are confirmed in the ESMP.

The preliminary results of impact assessment shall be shared with PIU and the design team; particularly high risk issues and / or issues that may alter design or delay the project. These should

be discussed and evaluated amongst the team during this phase before the final impact assessment is completed to allow for an iterative process between the ESIA and the design.

Assessment of Alternatives

The ESIA/ESMP process serves to provide evidence for an investment as the best alternative with respect to minimising and mitigating social and environmental risks and impacts, thus complementing the project's financial and technical considerations. The analysis of alternatives is therefore an essential step in the scoping and assessment of impacts. Important factors in the analysis of alternatives are:

- site location and project footprint orientation;
- alternative ancillary services such as onshore facilities and spoil locations (location, type, design);
- construction methodology;
- operations; and
- the 'without project' scenario.

A summary of the analysis and the findings will be provided in the ESIA document. Early assessments shall be shared with the design team (Task 1.3, 1.5), allowing the design team to consider the analysis prior to the confirmation of the layout and design.

Mitigation and Monitoring

The impact assessment process shall include consideration of potential management measures, following the hierarchy of avoid, mitigate, remedy, offset then compensate. Benefits should be identified and methods to protect and enhance them shall be developed. Each phase of the project shall be considered – preconstruction, construction and operation. The probable outcomes of management measures shall be analyzed for any new impacts and benefits, before the ESMP is prepared.

The construction-phase management shall include clear expectations of the level of mitigation required by PIU and the Contractor, for significant aspects and impacts, such as:

- The requirement for the Contractor to prepare a management plans such as Health and Safety Plan, Community Health and Safety Plan,
- Community health and safety –Preparation of protocols for worker-local interactions, health services, HIV/AIDS/communicable disease awareness, prohibiting access to work sites, workers camp design and management, community engagement and grievance redress mechanism, maintaining access to fishing and harvesting grounds etc. This may include a shipping management or traffic management plan, depending on the nature of risks on-island.
- Economic impacts and benefits – options for jobs and provision of food and services by host communities. Managing the reliance on local services and facilities to avoid overwhelming the communities.
- Outer islands rely on the MEC boat that delivers fuel on a regular basis for existing outer island generators, for inter-island travel to and from Majuro. This boat service also allows the two-way flow of goods and supplies including food, medicine and other livelihood essentials. Thus while the intended result of SEDeP is reduced reliance on diesel generators

through the use of stand-alone PV mini-grids, an unintended consequence is the reduced frequency and regularity of MEC boat trips and the possible severing of a critical lifeline for outer island populations. Some outer islands have secondary level boarding schools serving nearby atolls and are also heavily dependent on the MEC boat trips.

- Biodiversity –avoiding and mitigating damage through sediment control, controls over dredging and disposal areas and other matters.
- Emergency plans for spills and other incidents
- Worker health and safety
- Waste management – the removal of all waste from the island for safe recycling or disposal; spoil management.
- Training, staffing, resources and budgeting requirements for the Contractor, Supervising Engineer, PIU and other stakeholders.

The operational-phase ESMP shall include procedures to avoid environmental, social, health and safety incidents and accidents during operation, and how these will be operationalized into MRD. It should include procedures for avoiding and managing impacts during repairs and maintenance.

The ESMP shall follow the format of World Bank Safeguard Policy 4.01 Environmental Assessment, while also covering the requirements of the Environmental Protection Act (2008) and regulations.

Mitigation and monitoring shall take into account the capacity of MRD, the community, the Contractor and third parties such as NGOs and the amount and source of funding required for implementation. Institutional arrangements (who is responsible for what), supervision responsibilities, capacity strengthening (training, recruitment, equipment) and budgets shall be included in the ESMP.

The ESMP shall clearly articulate the procedures for preparing the safeguards aspects of the bid documents for the Contractors, following World Bank procurement guidelines and Safeguards Policies. The bid documents shall insist that the Contractor must comply with the ESMP, must have their own safeguards specialists, and prepare their own Contractor's ESMP which will articulate in detail how the Contractor will ensure compliance with the tasks they are responsible for.

The EMSP shall also include a grievance redress mechanism that allows for complaints and grievances to be reported and managed in culturally appropriate ways, consistent with World Bank policies.

ESIA and EMP Reporting

Draft ESIA and ESMP will be prepared and provided to MRD and the World Bank for review and comment. Following comment, the draft ESIA and ESMP will be publicly disclosed and consulted in RMI, and on the World Bank website. Final documents will be prepared based on feedback from consultation and disclosure, and will be submitted to the Department of Environment for approvals and the World Bank for clearance. Refer to Section 0 for details on documentation, disclosure and approvals.

5.3 Task 2 – Stakeholder Consultation and Engagement

The Consultants shall support MRD to continue to undertake regular consultations with each island community and on Funafuti with key stakeholders.

Consultation will be led by MRD, but will be facilitated by the Consultant. The Consultant will be expected to develop plans, provide training, develop consultation materials and resources and otherwise assist MRD to undertake meaningful and appropriate consultation in compliance with World Bank safeguards policies and GoRMI policies and laws.

Task 2.1 Stakeholder Engagement Plan

The Plan will prescribe the consultation activities with project stakeholders and host communities as well as: (i) procedures and mechanisms for information dissemination and community access to the project in a format that is meaningful and acceptable to the recipients; (ii) consideration of various consultation methods to include all community members (including women, elderly, youth, people who work during the day etc.); (iii) processes for including feedback into the project design and the impact assessment; (iv) roles and responsibilities of MRD, Contractor, Community and other players; (v) how the Grievance Redress Mechanism will be integrated into stakeholder engagement; and (vi) timetable or programme.

The Stakeholder Engagement Plan should cover the entire project, not just the ESIA phase. The methods of engagement and the messages and desired outcomes should be nuanced for the various project phases.

The draft Plan will be reviewed by MRD and the World Bank and the comments will be adapted into the final Consultation Plan.

Task 2.2: Consultation and Stakeholder Engagement – ESIA Phase

For budgeting purposes the Consultant shall plan for at least one community-consultation sessions during the ESIA to present the draft findings of the impact assessment phase.

The Consultant shall prepare relevant consultation information in a form/format that is meaningful and acceptable to the groups to be consulted (e.g. using local language, non-technical language, relevant imagery etc.). Radio announcements, social media, text alerts and posters can be used to disseminate information and obtain comments and feedback. Note that the internet services in Tuvalu are slow and unreliable, and people will not be able to access large files, videos and similar materials.

Face-to-face consultations shall be undertaken at times and locations to suit the particular needs, cultural norms and vulnerability of stakeholders. For example, separate sessions may be required for women, or evening sessions may be required for people who work during the day. All consultation shall be adequately documented including lists of attendees (name, gender, role / job if relevant), key issues discussed, key outcomes, and photos.

The Stakeholder Engagement Plan will be updated and appended to the ESIA.

Task 2.3: Consultation Record Keeping and Reporting

The Consultants will be responsible for keeping records of all consultation for the ESIA phase. The use of stakeholder engagement software is optional. A final report attached to the ESIA will provide details of consultation held during the ESIA stage, details of communications methods, attendees details, key discussion points and outcomes, photos and compendium of consultation materials (fliers, articles, mass media announcements, etc.).

5.4 Task 3 – Land Due Diligence

Voluntary land acquisition via leases under GoRMI land law is the preferred and prioritised method of land access for this project. The Consultant shall assist MRD to undertake the consultations and surveys for land acquisition and produce relevant documentation in accordance with OP4.12 Involuntary Resettlement.

Task 3.1: Prepare a Land Due Diligence Report

A Land Due Diligence Report shall be prepared and should be based on the final project footprint. The methods and procedures to determine the value of assets to be offered to land/assets owners for each type of affected assets should be documented and should reflect fair replacement value of acquired assets. The processes for leasing should follow the GoRMI laws and World Bank safeguards policies.

The report should clearly explain the institutional responsibilities, timetable / program, land area / survey details, maps, land ownership and others with attachments to land, and cost and budget covering the voluntary land transaction implementation, including estimated cost for assets compensation. This is a practical tool that 1) documents the process carried out to date; 2) contains the matrix of land parcels with the best-known details of voluntary transactions known at the time and 3) plans to complete each land transaction. It should specify the process and documentation required for voluntary land transactions that will ensure that coercion is avoided and the transaction is entirely based on the willingness of land owners, and in compliance with OP4.12 and the laws of GoRMI. It should specify how the SEDeP GRM will be used for land acquisition and how it has been communicated to the affected people. The Plan should include the matrix of land parcels with notations for each site on the land owner (Government, private, etc.), likelihood of voluntary negotiated lease, and highlight any risky sites and their potential alternatives (including involuntary land acquisition). The Plan should also identify any residual land parcels will need to be acquired using involuntary / compulsory means and the requirement for the Consultant to carry out Task 3.3.

Task 3.2: Resettlement Action Plan (RAP) (if necessary, following Task 3.1)

For any involuntary land acquisition that is identified through the process in the steps above, a Resettlement Action Plan will be prepared following the specific requirements of OP4.12 Involuntary Resettlement. The consultant must provide a cost estimate and program to complete the RAP, for approval by MRD and the World Bank, prior to starting the RAP.

5.5 Task 4 - Preparation of Safeguards Documentation, Disclosure and Approvals Documentation

The following documents will be prepared by the Consultant:

1. Stakeholder Engagement Plan

The Plan shall be prepared in accordance with 0.

*The Plan is due **xx** after Contract signing.*

2. Land Due Diligence Report

The Report shall be prepared as per Task 3.

The Draft Report is due within xx months after Contract Signing. The Final Report will be appended to the ESIA.

3. ESIA Report, ESIA Executive Summary and ESMP

The documents shall follow the prescribed aspects of ESIA and EMP documents under World Bank Safeguard Policy 4.01 Environmental Assessment and NEPA (2008). This includes a stand-alone, non-technical, executive summary of the ESIA that will go to the World Bank board as part of project appraisal.

The Consultant shall present data in a clear and succinct way, using graphs, maps (GIS format) and tables where possible. All technical data and detailed analyses shall be appended or provided as a 'supporting technical document'.

Management and monitoring plans shall be robust, relevant for the nature, scale and intensity of potential impacts and roles and responsibilities clearly articulated. The Stakeholder Engagement Plan shall be updated at the end of the ESIA phase and appended to the ESIA. The Land Due Diligence Report shall be appended to the ESIA.

Early drafts of the ESIA, ESIA Executive Summary and ESMP shall be prepared for review by MCT and World Bank. A final draft, taking into account the feedback, shall be prepared for consultation and disclosure purposes.

*The Final Draft Reports are due **within xx months** after Contract signing.*

The Consultants shall take into account the feedback on the draft ESIA, ESIA Executive Summary and ESMP from the project affected people and other stakeholders, and produce final reports ready for submission to the Department of Environment and to the World Bank for clearances and permitting.

*Final reports due **within xx months** after Contract signing.*

4. Resettlement Action Plan (if required)

If the land due diligence assessment identified involuntary land acquisition is required for project to be successfully implemented, then the consultant shall prepare a Resettlement Action Plan (RAP) or an Abbreviated Resettlement Action Plan (ARAP), in accordance with World Bank Policy 4.12 Involuntary Resettlement.

Early drafts of the RAP/ARAP shall be prepared for review by MRD and World Bank. A final draft, taking into account the feedback, shall be prepared for consultation and disclosure purposes.

*The Final Draft Reports are due **within xx months** after Contract signing.*

The Consultants shall take into account the feedback from the project affected people and other stakeholders, and produce final reports ready for submission to the World Bank for clearances ***within xx months*** *after Contract signing*.

5. NOTE:

1) Each deliverable listed above should be presented by the Consultants in a Skype / teleconference meeting with MRD (which may also be attended by Word Bank representatives) within two weeks of submission of the deliverable.

2) Allow two weeks for MRD and the World Bank to provide feedback.

3) All documents shall be submitted in English. The non-technical ESIA Executive Summary and consultation materials shall also be prepared in Tuvaluan.

4) Number of copies of each deliverable: 2 electronic versions on flash drive and 1 electronic version on an online file sharing server. Files shared via email or via online file sharing servers shall be no larger than 5MB each. All reports to be delivered in English, and the non-technical ESIA Executive Summary to be translated into Tuvaluan.

6. PUBLIC DISCLOSURE

The Consultant shall provide support and assistance to MRD in meeting the disclosure requirements, which at the minimum shall meet the World Bank's policy on public disclosure. The consultants shall prepare a plan for RMI disclosure, specifying the timing and locations and allowing time and budget for translation of documents. The Consultants shall draft newspaper and on-line announcements for disclosure and other media based materials as necessary.

7. APPROVALS

The Consultant is to assist MCT in applying for an environmental permit from the Department of Environment. These tasks include submission of the applications, responding to queries, providing additional information and maintaining regular communications with the relevant staff members.

8. TIME FRAME

The Assignment is expected to take **xx months**.

9. OUTPUTS OF THE ASSIGNMENT

The expected outputs of the Assignment are:

1 Stakeholder Engagement Plan.

2 Consultation materials.

3 Draft and Final ESIA, ESIA Executive Summary and ESMP.

4 Land Due Diligence Report.

5 Resettlement Action Plan (if required).

10. SELECTION PROCEDURE AND FORM OF CONTRACT

The consultants will be selected following Quality Based Selection (QBS) criteria under the World Bank Guidelines for selection of consultants. The contract will be financed by a Project Preparation Advance, and will be a LUMP SUM contract.

11. REQUIRED CONSULTANT AND EXPERTS

The Consultant will be at least one environmental and one social specialist. They will have international experience in preparing environmental and social impact assessments and management plans for renewable energy projects in small island states. The consultant shall be able to demonstrate experience in sustainable energy development, with a proven record of following international good practice and internationally recognized impact assessment methodologies.

Preferably the consultant shall also have experience with consultation, stakeholder engagement and / or social surveys in RMI, but otherwise in the Pacific.

The Environmental Specialist shall have a minimum of 10 years of relevant professional experience in environmental assessments of sustainable development projects. He/she should have demonstrated ability to work with small communities, government officials, civil society organizations, and should have a proven track record on managing and coordinating ESIA studies. The specialist shall have an advanced degree in impact assessment, resource management, environmental science, environmental engineering or similar. A professional certification of ESIA expertise and experience is desirable (such as Certified Environmental Practitioner (CEnvP) or equivalent).

The Social Specialist shall have a minimum of 10 years of relevant professional experience in land acquisition and social impact assessments of sustainable development projects. He/she should have demonstrated ability to work with small communities, government officials, civil society organizations. The specialist shall have an advanced degree in impact assessment, sociology, anthropology, international development or similar. Experience working in Marshall Islands or other North Pacific island states is an advantage.

12. RELEVANT INFORMATION TO BE PROVIDED BY THE CLIENT

Please update once project is identified

Annex F: Consultation Report

SEDeP RMI

Stakeholder Consultations Report, 31 July, August 2017

Introduction –

Stakeholder consultation is mandatory in the preparation of safeguards instruments for all the four safeguards policies triggered under SEDeP. These policies are OP/BP 4.01 Environmental Assessment, OP/BP 3.6 Natural Habitats, OP/BP 4.11 Physical Cultural Resources and OP/BP 4.12 Involuntary Resettlement.

The following report documents the consultations undertaken for the draft ESMF and RPF, held on 31 July 2017. Following consultation the ESMF was changed to an ESMP.

Target groups

The following groups of stakeholders were targeted for the consultations –

a) Government agencies, authorities and SOEs in Majuro and Ebeye
b) NGOs, non-governmental institutions and organizations, and civil society groups
c) Donor agencies especially those with experience and involvement in RMI's renewable energy sector.

Methods

Invitation and solicitation –

Formal invitations were sent out by MOF-DIDA to targeted government agencies, state owned enterprises, donor organizations for the first formal consultation to discuss and disclose the ESMF and RPF. Similar invitations were sent out for non-governmental organizations, academic institutions and other civil society organizations.

Both consultation meetings were held at the Ministry of Finance Conference Room in Majuro.

Schedule –

The consultations for the various groups took place according to the following schedule -

Stakeholder group	Date and time
3. Relevant Government agencies, SOEs, donors	• 31 July, 2017; 10am MOF Conference Room

4. NGOs, civil society and local community at Majuro
   - 31 July, 2017; 2:00pm MOF Conference Room

Consultations Format and Presentations –

The consultations agenda consisted of the following –

- Introductory remarks by Ms Jennifer Tseng
- First presentation – Overview of the Project covering objectives, rationale, components, delivered by Jennifer Tseng, MOF-DIDA;
- Questions and Answers session
- Second presentation – Environmental and Social Management Framework (ESMF), and Resettlement Policy Framework (RPF) delivered by Sam Sesega, Safeguards Consultant
- Questions and answer session
- Close of consultation.

Each consultation ran for two hours, from 10 – 12 noon, and 2 – 4 pm respectively.

Powerpoint presentations of both presentations are annexed to this report.

Questions and Issues raised and discussed during Consultation 1 for Government agencies, SOE's and donors

1. On discussions of waste oil storage facility in MEC's Majuro compound, the MEC and ADB representatives advised that ADB is funding a project to refurbish the tank farm in Majuro.

2. One of the targeted schools for possible roof-top installations is a private school, the Majuro Co-operative School. All other buildings assessed on the recommendation of MOF-DIDA are government or public owned. If this is a mistake (because presentation says targeted buildings are government and public buildings), please include this.

3. A strong plea to include private buildings that are suitable was received including the private school buildings, in the context of ensuring there is sufficient surfaces and spaces to help achieve the RMI RE target by the year 2020.

4. In response to the interest expressed about private buildings, the MEC representative intervened to explain that proper structural assessments of all buildings are necessary to ensure they are structurally sound and capable of carrying PV panels. There is also the issue of liability invol ved in the on-going repairs and maintenance of buildings hosting PV installations that complicates project financing. Part of the preference given to government buildings in the current design is to simplify project design and to avoid such complications which are often likely to delay and or disruptions to project preparation and implementation.

5. Participants were also advised that all compensation payments associated with the Project will be RMI's responsibility and will not be funded out of the Project grant. It is therefore in the best interest of RMI that compensation is minimized.

6. In response to discussions over the issue of the cumulative impact of the project on the issue of accumulated waste oil in both MEC and KAJUR's compound, the JICA representative informed the consultation that JICA is funding a feasibility study for ways of reusing waste lubricant oils. The feasibility team is currently in RMI and have visited MEC and KAJUR's facilities to assess their

facilities and capacities, and to collect used oil samples for testing. The JICA representative invited the Safeguards Specialist to meet with the JICA Feasibility Team before their return.[17]

7. A participant from KAJUR asked if there are resettlement impacts, and if so, how are these handled? Will the Project ensured that compensation owed are settled and paid out and not ignored? In response, it was explained that a resettlement action plan (RAP) will be prepared if there are resettlement impacts and all compensation and entitlements identified in the RAP will be paid out. Moreover, the Project will not start until WB is satisfied, based on the RAP Implementation report to be prepared and submitted by Government of RMI, that all entitlements have been fully paid to the rightful people.
8. There was clarification of the term resettlement which one participant misunderstood to mean there will be relocation of affected people. It was explained that the term is much broader and also refer to losses and or damage to assets, and that if people needed to be relocated temporarily from their homes, the Project will be responsible for their relocation including all costs associated with it.
9. Why is Ebeye not included in targeted areas for the replacement of incandescent streetlight bulbs with LED bulbs? The Ebeye participant noted that safety at night is an important issue for their densely populated atoll.
10. Who is in the Project Steering Committee?
11. When will the next mission be?
12. What is the timeframe for the SEDeP?
13. Ongoing operation and maintenance costs need to be properly calculated and considered.
14. In Ebeye, with the installation of R.O. units, the energy need and consumption is expected to be increased. The need for Renewable Energy Project in Ebeye is strong.
15. Donor coordination needs to be further strengthened to ensure complementary between approaches and investments.
16. Private sector engagement: Private buildings/spaces could be considered for solar PVs installation but the structure and the suitability of those buildings/spaces needs to be evaluated.
    a. In response, it was explained that from a safeguards' perspectives, the project is targeting the public buildings/spaces for solar PVs installation to avoid the issues associated with building/spaces ownership and compensation which would be a cost to GRMI. Also dealing with private buildings will likely to complicate and project preparation.
17. Ministry of Public Works has been working with BECA (consulting firm) to design and construct public buildings with a specific consideration that solar PVs installation can be accommodated in the future.
18. Ministry of Public Works commented that the proposed flexible support structure for the solar PVs on water reservoir should be designed to withstand high wind speed. Typhoon is not very

[17] This meeting took place on the 1 August, 2017 at the JICA Office. Present were S Sesega - Safeguards Specialist, Mr Nobuaki Matsui – JICA Resident Representative, and six members of the Feasibility Study Team).

common in the RMI but the designing firm/consultant should also consider the impacts of typhoon.

19. MWSC requested that the technical feasibility study once finalized should be shared with stakeholders.

Comments and views expressed and discussed in Consultation 2 for NGOs, civil society groups, academic institutions etc.

1. RMI EPA noted that a shipment of used batteries (~16,000 lbs) was despatch to South Korea in June; an initiative led by MEC. This was partly donor funded (under a NEPA implemented project).
2. A few participants recalled there were whirlwinds in Delap that affected roof buildings in this location, and it's a regular occurrence in this area. Would this not have any impact on the proposed roof-top installations for schools in Delap?
3. Contrary to ESMF narrative that work opportunities from the Project for local people are likely to favour men over women, WUTMI Executive Director noted that the ESMF should not assume so, and that equal job opportunity should be offered to both genders.
4. Would the quality of drinking water in the reservoir be adversely affected by sunlight passing through PV panels?
5. CMI research on possible location of PV panels on reefs would be damaging to reef ecosystem.
6. WUTMI Executive Director also advised that should there be a sizeable amount of foreign workers involved, proper orientation of workers regarding the local culture and traditions should be conducted. WUTMI also offered their services to conduct orientation.
7. Multiple NGO representatives have shared the similar comments on the operation and maintenance costs, including the necessary policy, the institutional mechanism, and the sinking funds management capacity to ensure 1) saving from RE investment is contributed to the future O&M and 2) the GRMI is committed to financially support the future O&M costs. O&M should be both MEC and GRMI's shared responsibility.
8. In addition to the RE facilities maintenance, the hosting building/structure maintenance needs to be included in the O&M plan.
9. The usage of batteries has significant environmental impacts and practical recycling plan needs to be looked into.
10. Gender needs to be addressed, including gender-based violence from local workers.