Addressing Climate Vulnerability in the Water Sector (ACWA) in the Marshall Islands

Environmental and Social Management Framework and Social Management Plan (ESMFMP)

23 April 2019

CONTENTS

1 INTRODUCTION

1. This Environmental and Social Management Framework and Management Plan (ESMFMP) has been prepared in support of a project proposal for "*Addressing Climate Vulnerability in the Water Sector (ACWA) in the Marshall Islands*" by the Government of the Republic of the Marshal Islands (RMI) to the Green Climate Fund (GCF). As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP's Social and Environmental Standards Procedure and deemed a moderate risk (International Finance Corporation/World Bank Category B) project.

1.1 BACKGROUND

2. The Office of Chief Secretary (OCS), in collaboration with the Environmental Planning and Policy Coordination (OEPPC), Environmental Protection Authority (EPA), National Disaster Management Office (NDMO), Weather Service Office (WSO) and Majuro Water and Sewer Company (MWSC), with support from UNDP, has formulated a project on adaptation to climate change impacts to water supply in RMI for submission to the GCF. The project seeks to improve the resilience of vulnerable communities to climate change impacts.

1.2 OVERVIEW OF THE PROJECT

3. The project will complement GoRMI efforts in making the RMI resilient to the shocks of climate change, particularly among atolls that are highly vulnerable to drought. The project will invest in improving water security, water resilience and water governance through:

   - **Water Security** - Water Security - Improving water security through providing access to safe freshwater resources year-round for approximately 79% of the 2016 estimated population, including 49% women
   - **Water Resilience** - Expanding integrated water resource management (IWRM) and disaster risk management (DRM) for water resilience in face of climate change
   - **Water Governance** - Empowering national and subnational institutions & stakeholders to champion water governance for efforts to be coordinated, effective, participatory, equitable, and sustainable

4. The Republic of Marshall Islands (RMI) is a Small Island Developing State in the Pacific Ocean - part of the larger island group of Micronesia - consisting of 29 coral atolls and five single islands (Figure 1). Twenty four of the inhabitated atolls will be involved with approximately 44,000 people directly benefiting and a total of approximately 55,000 indirect beneficiaries (see Project Proposal and Feasibility Study for additional information).

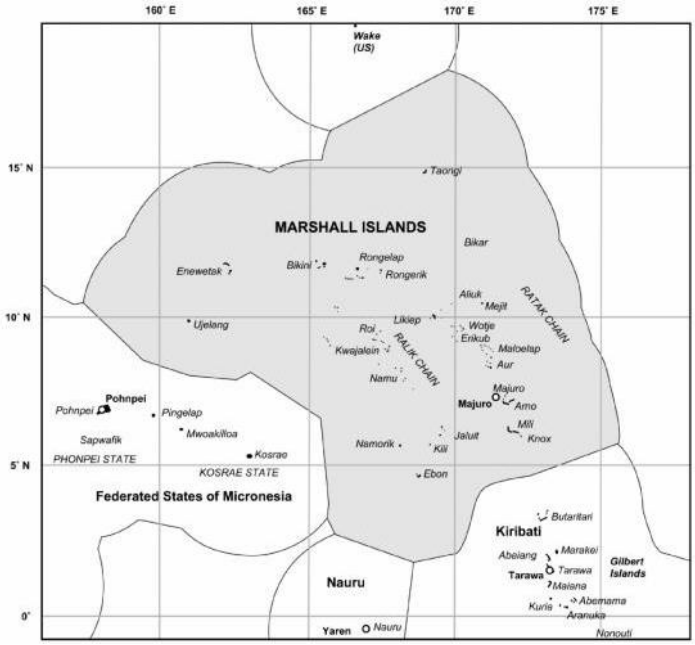

Figure 1 Map of RMI and Exclusive Economic Zone (SPC 2011)

1.2.1 Summary of Activities

5. The main objective of the proposed project is to enhance water resilience in the Republic of Marshall Islands through an integrated water resource management approach. In particular, the proposed project will year round access to at least 20 liter per person per day of reliable and safe water supply, despite climate and weather related impacts.

6. The proposed project will comprise the following activities:

7. The main objective of the proposed project is to enhance water resilience in the Republic of Marshall Islands through an integrated water resource management approach. In particular, the proposed project will year round access to at least 20 liter per person per day of reliable and safe water supply (for water used for drinking, cooking, and personal hygiene) year-round for a 25-year design period to 2041.

Output 1: Implementation of optimal mix of interventions to ensure water security in outer atolls and islands of RMI

8. To assess the most cost-effective sequence of water supply augmentation measures and to ensure water security by 2045, a cost curve methodology was used (please refer to Annex XIII for additional details on the methodology). The water security target to be achieved for baseline drought (unrelated to climate change), requires an additional 11,302 m^3 of water, whereas for climate change induced drought periods, it requires an additional of 9,161 m^3 of water. In order to close the water supply-demand gap, and to ensure the water security target is met, three types of interventions were identified:

- Improvement of household rainwater harvesting systems
- Improvement of community center rainwater harvesting systems and construction of new storage tanks
- Construction of new community-based roof structures in combination with new storage tanks

9. Under this output, the GCF funds will co-finance, together with domestic funds, the improvement of rainwater harvesting structures and increased storage capacity at the community and household levels. The project will invest in sufficient capacity to provide each resident with at least 20 liters of water per day throughout the projected drought length for the specific climate region. The proportional cost totaling 4.21 million USD of developing the harvesting and storage capacity to meet the water needs for a baseline drought will be borne by the Government of RMI. The additional cost of 5.21 million USD for developing the further capacity required for additional drought days attributable to climate change will constitute the GCF co-financing.

Activity 1.1. Improve existing rainwater harvesting systems for community buildings and households in outer islands and atolls

10. The proposed activity will upgrade existing rooftop rainwater harvesting systems on 158 community buildings and 2,524 households in 77 communities across the 23 local government jurisdictions. The targeted community buildings include schools, churches, community halls, police stations, youth centers, airport terminal buildings, copra houses, Marshall Islands Marine Resource Authority (MIMRA) buildings and other buildings owned by the public sector or civil society that have more than 100 m^2 of roof area.

11. On average, only 50% of the roof area of households and community buildings is connected with guttering system, and the overall average efficiency of rainwater harvesting systems is only 20% for households, leading to significant loss of rainwater. This activity will install new components to areas of the roof that are not connected, and will upgrade existing components to reduce leakage and increase quantity of the water that is harvested. After improvements to connection, gutters and downspout, it is expected to have rainwater harvesting systems with 70% efficiency for households amd at least 80% for community buildings.

12. The systems currently in use vary in guttering systems and downpipes size ranging from 75 mm to 100 mm in diameter resulting in overflow and higher O&M costs. The project will replace these with 150 mm diameter gutters and downpipes. Furthermore, this activity will cover expenditures required to upgrade and refurbish rooftop rainwater catchment systems including gutters, downpipes, debris traps, first flush systems, filters, storage and access points.

Activity 1.2. Provide additional rainwater harvesting systems and increase of storage capacity for communities in outer islands and atolls

13. This activity will focus on providing additional rainwater harvesting catchments (roofs) and in upgrading community level storage quality and capacity as the primary source of water during prolonged droughts. The GCF resources will be used to supplement RMI government funding to improve the efficiency of utilization of existing community building catchment systems and construct additional roof systems to close the water gap. Local government will provide resources with in-kind support from the community to cover the investment required under baseline climate conditions. The additional investment required by the GCF is for increased harvesting and storage capacity required due to climate change impacts.

14. Nearly all the community buildings that will be covered by the project currently have at least one 4.5m^3 (1,200 gallon) or 5.6 m^3 (1,500 gallon) storage tank. However, the current 35% RWH system efficiency leads to water loss from roofs, gutters and downpipes before reaching the tanks, while tanks that are too small to store the volume of water harvested during high rainfall events results in significant water is lost from tank overflow. Furthermore, most tanks in community buildings do not have first flush diverters or mosquito guard systems. General practice on first seasonal rainfall was to divert the feed away from the storage system to overflow onto the ground resulting in further water loses. The project will install an additional of 50m^3 of storage capacity for the targeted community buildings and improve the RWH system to ensure it is functioning at 80% efficiency post project intervention. Table 1 below summarises the project impacts on community RWH systems.

Table 1 Project Impact on Community Rainwater Harvesting and Storage Systems

Pre-project context	Intended post project context
Average of 50% of roof area used for RWH	100% of roof area used for RWH
Currently at Average 35% efficiency	Efficiency improved to at least 80%
100mm guttering systems	150mm diameter gutters
100mm diameter downpipes	150mm diameter downpipes
One 4.5m^3 (1,200 gallon) or 5.7m^3 (1,500 gallon) tanks Most without first flush diverters or mosquito guards.	Minimum of 50m^3 of storage capacity installed First flush diverter installed Insect screens installed

15. Based on a technical and cost assessment considering high transportation costs (see Annex II) the proposed project will use flat pack tank systems - structural panels and a base made of either galvanized steel or High-Density Polyethylene (HDPE) with aluminium structural components and food grade polypropylene liner.
16. Finally, this output will support market creation and will establish long term procurement agreements with a local provider that provides maintenance supplies, ensuring cost efficient agreements that may be applicable beyond the scale of the project.

Output 2: Optimization of alternative water sources to reduce reliance on harvested rainwater

17. Activities through this output are focused on optimizing alternative water sources to reduce the burden on potable water supplies, and the establishment of a network of national and regional specialists on climate change through formal and informal trainings, and awareness raising on climate change adaptation.

Activity 2.1. Protect groundwater wells from more frequent storm surges and contaminations

18. The project will protect 2,586 priority household and community groundwater wells identified within the 77 target rural communities, located in 23 local government jurisdictions and vulnerable to contamination from debris, sea swells and high tides. The importance of groundwater as complementary water source for non-potable water uses was demonstrated during previous drought events and is highly relevant for building additional resilience. Its importance lies in meeting non-potable water demand, and reducing the pressure of drinking water supplies.
19. The proposed project will fund the protection of wells from surface pollution by lining the well for the full depth and to at least 0.6 m above the ground to form a head wall around the outer rim of the well. A concrete slab will be constructed on the ground surface, extending for 2 m around the well which will also serve to seal any fissures between the well lining and the walls of the excavated hole, preventing polluted surface water from seeping into the well along the outer casing. This activity will also invest in well covers and in the installation of hand pumps that are fitted to further prevent contaminants from entering the well.
20. The investment per well is determined by its current status and its importance to the community. The importance to the community range from household wells used mainly for washing, to large community wells that are used for drinking, cooking and/or washing and serves an important water resilience function. Community members have advised that in times of need and prolonged drought, households' wells are shared and used by the community.

Activity 2.2. Enhance women and youth's leadership through best practices and community awareness programmes on reduced demand for rainwater

21. In order to enhance the value of the GCF investment and create a pathway to scale nationally and regionally, this output will create opportunities for learning exchanges and will facilitate inter-island competitive tournaments on best practices in climate change risk reduction on water resources, including water security and conservation of water resources. Trainings will serve to increase coping capacities, and reduce hardship faced by communities in times of disaster and water scarcity. Given that as of 2016, approximately 60% of the population was estimated to be less than 24 old, with 19% under 14 years old, women and youth have been selected as targeted group. This activity will be undertaken in partnership with the Marshall Islands Red Cross Society, WUTMI, the National Youth Congress, and existing women and youth networks.

22. Building on the USP-European Union Global Climate Change Alliance (USP EUGCCA) project, youth expertise in water demand management will be developed through a Climate Change and Disaster Risk Reduction certification programme part of a non-formal course of study at the University of the South Pacific. Women and youth engaged in learning exchange visits will also gather practical management skills, such as project management, written and oral presentation, reporting, monitoring and evaluation of project, conflict management, etc.

Output 3: Drought preparedness and response measures implemented in outer atolls and islands

23. This output will support the effectiveness of RMI institutions responsible for drought early warning and preparedness, by strengthening the institutional coordination, and accountability mechanisms between government departments to initiate drought preparedness and coordinate response. This output will prepare a system and technology roadmap for outer island communications, and upgrade communications systems in remote locations and train people to use them. The project will also support local government and Community-based Water Committee to mobilize resources and to develop and implement contingency plans in anticipation of and in response to droughts.

Activity 3.1. Update national-level contingency plans and Standard Operating Procedures (SOPs) for drought response

24. This activity will support the Office of Chief Secretary (OCS), National Disaster Management Office (NDMO), Municipal Governments, Weather Service Office, Ministry of Finance, Environmental Protection Authority, Ministry of Internal Affairs, Community and Nongovernmental Organizations and development partners, and private sector to develop systems to coordinate early warning and disaster response.

25. The Project will strengthen the capacity of NDMO housed within OCS, implement its mandate to lead coordination efforts for drought preparedness and response. This activity will also support the NDMO to expand their subnational disaster management and coordination efforts through the appointment of community disaster focal points and disaster management plan development. NDMO will play an active role in the Community-based Water Committee establishment and Water Safety Plan development and implementation process.

26. The project will also support the development of SOPs for drought early warning and response. The SOPs will indicate in a comprehensive manner, the specific actions required to be taken by various Ministries and Departments of the RMI Government in responding to droughts within the context of their overall disaster management strategies and JNAP. The SOPs will provide, in a concise and convenient form, a list of major executive actions involved in responding to drought and necessary measures for preparedness, response and relief required to be taken.

27. Training programs for drought risk management and contingency planning at institutional level will be provided to improve the entire cycle of activities required to develop plans that are practical, result oriented, simple, participatory, realistic and supported by preparedness actions. It will ensure that NDMO and partners are prepared to respond to anticipated droughts and have the systems and tools to respond in a timely manner during drought. This training will target functional level staff of the

NDMO, other government departments, volunteers, NGOs the UN, intergovernmental bodies and the private sector.

28. The training will aid participants in the understanding of the need for contingency planning, how to develop plans, quality and accountability, resource mobilization, vulnerability and capacity assessment, risk analysis and how to activate the plan. The training will also enable the participants to update and evaluate the drought contingency plan once implemented.

29. The proposed activity will furthermore invest in technical assistance, and will facilitate workshops to update RMI drought contingency plans and develop SOPs within the overall context of national disaster preparedness. This will include the development of drought scenarios, technical audit and improvement of the internal management structure, human resources, assessment, logistics, communications, resource mobilization and mobilization of media and information channels. The SOPs for droughts will be developed and tested through training and simulation. Budgets will be allocated, and a monitoring and evaluation process will be set up. Moreover, this activity will update the national-level water safety plans for effective risk management.

Activity 3.2. Develop and implement community-level drought contingency planning in outer islands and atolls

30. With stakeholder involvement and coordination with community leaders and designated representatives of Community-based Water Committees (CWCs), the proposed activity will provide training and formulate SOPs to develop and implement drought contingency plans when a drought warning is issued. These contingency plans will define goals and objectives, such as targets for reduced consumption, priority of use etc based on an assessment of all existing and potential water supply sources during episodes of extreme drought. The project will also train and provide required technology to develop and implement these plans using the management strategies, templates, and statistics assembled during the assessment process. Considering that the length, severity and frequency of drought conditions are projected to increase by 2045, the GCF co-financing of this activity is justified.

31. The water harvested at the community level will be communal by definition. Therefore, to ensure the sustainable management of the harvesting and storage systems and the equitable distribution, operation and maintenance of the water resource, the project provide training to CWCs to conduct simple water balance assessments and access plans for community water resources defining rights of access and exclusion. Considering that in most cases communally harvested water will be most critical during extreme drought events, the investment of GCF funds meet the climate additionality requirements.

32. CWCs will play a critical role in the planning, coordination, implementation, and monitoring of the proposed community-based water security and water resilience initiatives. The project will strengthen 75 Community-based Water Committees (CWCs) and enhance their capacities to develop, implement, operate, monitor, and maintain drought SOPs - the governing framework for the water investments, in line with the National Water and Sanitation Policy. The CWCs will represent the area population and include women and men landowners, water users, traditional leaders, local government, and national authorities.

33. The CWCs will build on existing structures that may exist in some of the communities, such as the disaster management committees and Reimaanlok's natural resource management committees. Traditional leaders will be engaged and involved, and play a significant role in providing the leadership, support, and credibility to the CWCs. In the context of the project these community based organizations will have two significant tasks;

    a. The operation and maintenance (with government support and oversight) of community based investments made by the project. This will include community water storage and community wells.

    b. The equitable and sustainable distribution of water during droughts

34. The project will provide technical assistance to the CWCs and to local governments to develop adaptive drought contingency plans to be pilot tested during the project implementation period. The technical assistance will be in the context of local and international facilitators with best-practice examples from the region and elsewhere. Standard Operating Procedures (SOPs) will be prepared and used by municipal government, community organizations and households (i.e. schools, churches, etc). The SOPs will entail good practice guidelines for the operation, management, and monitoring of all water security investments (household and community rainwater harvesting systems improvements). These guidelines will also take into consideration gender and social inclusion as well as environmental and social safeguard principles.

1.3 Environmental and Social Risk Assessment

35. As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP's Social and Environmental Standards Procedure. An environmental and social risk assessment has been undertaken and the project deemed to be a **moderate risk (Category B)** project. Discussions on the impact assessment are provided in the Social and Environmental Screening Template, which provided the rationale for the project being classified as a **Category B**. This ESMFMP provides further discussion below.

    An impact risk assessment was undertaken to assess the impact (Table 4, Table 2) and the probability of each impact (Table 3). From this, a significance value was attributed to the potential impact (low, medium, high) (Table 4).

Table 2 Rating the 'impact' of a risk

Score	Rating	Social and environmental Impacts
5	Critical	Significant adverse impacts on human populations and/or environment. Adverse impacts high in magnitude and/or spatial extent (e.g. large geographic area, large number of people, transboundary impacts, cumulative impacts) and duration (e.g. long-term, permanent and/or irreversible); areas impacted include areas of high value and sensitivity (e.g. valuable ecosystems, critical habitats); adverse impacts to rights, lands, resources and territories of indigenous peoples; involve significant displacement or resettlement; generates significant quantities of greenhouse gas emissions; impacts may give rise to significant social conflict
4	Severe	Adverse impacts on people and/or environment of medium to large magnitude, spatial extent and duration more limited than critical (e.g. predictable, mostly temporary, reversible). The potential risk impacts of projects that may affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples are to be considered at a minimum potentially severe.
3	Moderate	Impacts of low magnitude, limited in scale (site-specific) and duration (temporary), can be avoided, managed and/or mitigated with relatively uncomplicated accepted measures
2	Minor	Very limited impacts in terms of magnitude (e.g. small affected area, very low number of people affected) and duration (short), may be easily avoided, managed, mitigated
1	Negligible	Negligible or no adverse impacts on communities, individuals, and/or environment

Table 3 Rating the 'Probability' of a risk

Score	Rating
5	Expected
4	Highly likely
3	Moderately likely
2	Not likely
1	Slight

Table 4 Risk matrix

Impact						
	5	H	H	H	H	H
	4	M		H	H	H
	3	L	M	M	M	M
	2	L	L	M	M	M
	1	L	L	L	L	L
		1	2	3	4	5
		Probability				

36. When undertaking the risk assessment, all activities were assessed, including, hard/soft infrastructure and livelihood interventions. Specific measures for each matter eg water, erosion, noise etc are discussed along mitigation measures later in this ESMFMP

Activity	Unmitigated Impacts	Likelihood of Impact and Consequence	Avoidance and Mitigation Measures	Likelihood of Impact and Consequence post mitigation
Output 1: Implementation of optimal mix of interventions to ensure water security in outer atolls and islands of RMI				
Improve rainwater harvesting and storage systems to ensure that people in RMI have at least 20 lpcd access to safe freshwater resources year-round				
Community rainwater harvesting systems	Community RWH systems will be improved in all 23 local government jurisdictions. This involves installation and upgrading of infrastructure. • Inability to obtain land or conflict over access • Poor maintenance • Inappropriate design, which reduces efficiency • Poor installation/construction and construction impacts, including disposal of waste. • Tanks become contaminated or breeding grounds for insects • Material supply non-sustainable • Construction impacts during installation	Likelihood: 3 Consequence: 3	Tanks to be located at community buildings eg schools, health centres, churches, community halls, government buildings, youth centres etc. Formation of water management committees to ensure community ownership, management and equitable access. Establishment of a sustainable financing mechanism for maintenance Engineered design to suit RMI conditions Construction training and QA monitoring. ESMFMP includes waste management guidelines. Tanks and conveyance materials inert, roofs to be non-toxic, leaf diverters minimise solid contamination and screens prevent insect entry. Water quality monitoring program and reporting back to EPA	Likelihood: 1 Consequence: 2 Risk: Low

Activity	Unmitigated Impacts	Likelihood of Impact and Consequence	Avoidance and Mitigation Measures	Likelihood of Impact and Consequence post mitigation
			Procurement process to consider source and sustainability of materials	
Enhancement of household rainwater harvesting systems	This involves the improvement of household systems through repairs, maintenance and installation of new systems. Impacts generally limited to potential minor construction impacts and waste. Potential for inequity of service if not appropriately managed	Likelihood: 3 Consequence: 2	Trained teams of maintenance & installation personnel will be deployed. Construction/repair activity impacts will be minimal with implementation of ESMFMP Awareness and training for maintenance will be provided to households Rollout will be in line with the National Water and Sanitation Policy of RMI targeting disadvantaged	Likelihood: 2 Consequence: 2 Risk: Low
Output 2: **Optimization of alternative water sources to reduce reliance on harvested rainwater**				
Protect groundwater wells from more frequent storm surges and contamination	Involves improvement of up to 2586 sites across 24 atolls. Potential impacts include general construction and OHS. As groundwater is being accessed, potential for contamination exists. Groundwater suitability unknown.	Likelihood: 3 Consequence: 3	Impacts are manageable with the application of the ESMFMP. Groundwater quality monitoring will be implemented, including nuclear contaminant testing at four atolls near atomic test sites. Well design includes protection, both within well and at surface to minimise risk of	Likelihood: 1 Consequence: 3 Risk: moderate

Activity	Unmitigated Impacts	Likelihood of Impact and Consequence	Avoidance and Mitigation Measures	Likelihood of Impact and Consequence post mitigation
			contaminants entering well. Buffer zones for toilets will also be introduced for septic tanks. Community water committee will assume responsibility for wells, including cleanliness and maintenance	
Enhance women and youth's leadership through best practices and community awareness programmes on reduced demand for rainwater	Activity is focussed around capacity building and therefore does not pose significant risks during implementation. Schooling and domestic activities can place constraints on the availability of youth and women.	Likelihood: 1 Consequence: 2	Ensure activities take into consideration the needs of women and youth in terms of timing and locations of capacity building. Include an age mix in leadership groups	Likelihood: 1 Consequence: 2 Risk: low
Output 3: Drought preparedness and response measures implemented in outer atolls and islands				
Update national-level contingency plans and Standard Operating Procedures (SOPs) for drought response				
Standard Operating Procedures	This activity is largely consultation and document preparation based, but could have impacts if inadequate or inappropriate SOPs were prepared.	Likelihood: 2 Consequence: 3	SOPs will be developed in consultation with wide range of stakeholders and be based on best practice from elsewhere.	Likelihood: 1 Consequence: 2 Risk: Low

Activity	Unmitigated Impacts	Likelihood of Impact and Consequence	Avoidance and Mitigation Measures	Likelihood of Impact and Consequence post mitigation
Develop and deliver training programs	This activity is focused on development and training. Risk include poor training material/delivery, inappropriate or insufficient stakeholders trained (including possible gender bias).	Likelihood: 2 Consequence: 2	Training will be developed based on need in RMI based on surveys and review of best international practice. Training would target men and women from multiple levels of government and community. Training partners would include RMI, Pacific Regional and/or global entities.	Likelihood: 1 Consequence: 2 Risk: Low
Develop and implement community-level drought contingency planning in outer islands and atolls				
Raising community awareness	This activity is based on raising awareness and skills development related to climate change, integrated water resource management, disaster risk reduction and management, the various technologies, and their installation, construction, maintenance and operation, monitoring, and financing. Adverse impacts are not anticipated.	Likelihood: 1 Consequence: 1	Broad-based stakeholder engagement Exposure to international best practices Clarity on practical application of learnings to community	Likelihood: 1 Consequence: 1 Risk: Low
Establish and empower 24 subnational Community-based Water	Committees not representative of entire population – including men, women and vulnerable groups.	Likelihood: 2 Consequence:2	Where possible build on existing structures CWCs will be represented by the area population, landowners, water users, traditional leaders, local government, and national authorities.	Likelihood: 1 Consequence:2 Risk: Low

Activity	Unmitigated Impacts	Likelihood of Impact and Consequence	Avoidance and Mitigation Measures	Likelihood of Impact and Consequence post mitigation
Committees (CWCs)			Equal representation of men and women will be strongly encouraged	

1.3.1 Assumptions Underpinning the Development of the Environmental and Social Management Framework and Management Plan

37. The following assumptions have been made in the preparation of this ESMFMP:

- none of the interventions will require the displacement of people;
- none of the interventions will be conducted in protected areas or sensitive locations;
- appropriate erosion and sediment control will be undertaken during all stages of the projects; and
- there will be no release of pollution and/or chemicals as a result of the projects.

1.3.2 Purpose and Objectives of the Environmental and Social Management Framework and Management Plan

38. An ESMFMP is a management tool used to assist in minimising the impact to the environment and socially; and reach a set of environmental and social objectives. The ESMFMP provides a framework and guidance for further development of site or activity specific environmental and social work plans. To ensure the environmental and social objectives of the projects are met, this ESMFMP will be used by the project implementers to structure and control the environmental management safeguards that are required to avoid or mitigate adverse effects on the environment.

39. The environmental and social objectives of the projects are to:

- improve the water supply, quality and management in the targeted areas and introduce water security and resilience measures;
- provide an improved weather and climate information system that informs water safety planning and ensures adequate measures are undertaken prior to any event;
- encourage good management practices through planning, commitment and continuous improvement of environmental practices;
- minimise or prevent the pollution of land, air and water pollution;
- protect native flora, fauna and important ecosystems;
- comply with applicable laws, regulations and standards for the protection of the environment;
- adopt the best practicable means available to prevent or minimise environmental impact;
- describe monitoring procedures required to identify impacts on the environment; and
- provide an overview of the obligations of OCS and UNDP staff and contractors in regard to environmental obligations.

40. The ESMFMP will be updated from time to time by the implementing Project Management Unit (PMU)/contractor in consultation with the UNDP staff and OCS to incorporate changes in the detailed design phase of the projects.

1.3.3 Land Issues

41. There is very little government owned land, therefore project interventions will be undertaken on land that is privately owned, but for which land use agreements have been put in place. Typically these are existing public facilities, such as schools, health centres, and churches. As such, there is no requirement for any compulsory land acquisition and/or compensation to be paid.

1.3.4 Indigenous Peoples

42. As part of due diligence, an analysis and consultations were undertaken as to the likelihood of any of the project's activities involving indigenous people and/or ethnic minorities. No indigenous people and/or ethnic minorities are known to live in the Marshall Islands.

1.4 Overview of Institutional Arrangements for the Environmental and Social Management Framework and Management Plan

43. The ESMFMP will be assessed for each sub-project by the OCS and UNDP prior to any works being undertaken. The ESMFMP identifies potential risks to the environment and social matters from the projects and outlines strategies for managing those risks and minimising undesirable environmental and social impacts. Further, the ESMFMP provides a Grievance Redress Mechanism for those that may be impacted by the projects that do not consider their views have been heard.

44. The OCS will be responsible for the supervision of the ESMFMP. The UNDP with gain the endorsement of the OCS and will ensure the ESMFMP is adequate and followed. The PMU will ensure timely remedial actions are taken by the contractor where necessary.

1.4.1 Administration

45. The OCS will be responsible for the revision or updates of this document during the course of work. It is the responsibility of the person to whom the document is issued to ensure it is updated.

46. The site supervisor will be responsible for daily environmental inspections of the construction site. The OCS will cross check these inspections by undertaking monthly audits.

47. The contractor will maintain and keep all administrative and environmental records which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

48. The contractor will be responsible for the day to day compliance of the ESMFMP.

49. The OCS will be the implementing agency and will be responsible for the implementation and compliance with the ESMFMP via the collaborating partners and contractors. The ESMFMP will be part of any tender documentation.

50. The Project Manager will supervise the contractor, while the OCS will be responsible for environment and social issues.

2 RMI'S LEGAL AND INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL MATTERS

2.1 LEGISLATION, POLICIES AND REGULATIONS

51. The following GoRMI legislation is relevant to the project:

- **RMI constitution -** The Preamble to the Constitution of the Republic of the Marshall Islands states: "All we have and are today as a people, we have received as a sacred heritage which we pledge ourselves to safeguard and maintain, valuing nothing more dearly than our rightful home on the islands within the traditional boundaries of this archipelago." This means that the government of the RMI has a responsibility to safeguard and maintain heritage and ensure that the islands can continue to provide a home to the people of the Marshall Islands for generations to come.
- ***Animal and Plant Inspection Act*** - In order to protect the agricultural and general well-being of the people of the Republic, quarantine regulations are promulgated as a means of preventing the introduction and further dissemination of injurious insects, pests, and diseases into and within the Republic. All aircraft and vessels or their cargoes, including baggage, ship's stores and ballast, entering or moving within the Republic, are subject to inspection by agricultural quarantine inspectors for the purpose of enforcing the controls, quarantines and regulations established pursuant to this Part, provided, that such inspections of U.S. military aircraft and vessels shall be subject to existent military security regulations.
- ***Coastal Conservation Act (CCA) 1988*** - An Act to make provision for a survey of the coastal zone and the preparation of a coastal zone management plan; to regulate and control development activities within the coastal zone; to make provisions for the formulation and execution of schemes for coast conservation. Notwithstanding the provisions of any other law, no person shall engage in any development activity other than a prescribed development activity within the Coastal Zone except under the authority of a permit issued in that behalf by the Director. Upon receipt of an application for a permit to engage in a development activity within the Coastal Zone, the Director may require the applicant to furnish an environmental impact assessment relating to such development activity and it shall be the duty of the applicant to comply with such requirement.
- ***Disaster Assistance Act*** - An Act to reduce vulnerability of people and communities of the Republic to damage, injury, and loss of life and property resulting from natural or manmade catastrophes; to clarify the role of the Cabinet and local governments in the prevention of, preparation for, response to, and recovery from disaster; to authorize and provide for coordination of activities relating to disaster prevention, preparedness, response, and recovery between agencies. Every person shall conduct himself and keep and manage his affairs and property in ways that will reasonably assist and will not unreasonably detract from the ability of the Government of the Marshall Islands and the public to successfully meet disasters.
- ***Endangered Species Act 1975*** - An Act to provide for the protection of endangered species of fish, shellfish and game in the Republic. The indigenous plants and animals of the Republic are of esthetic, ecological, historical, recreational, scientific, and economic value and it is the policy of the Government of the Marshall Islands to foster the well-being of these plants and animals by whatever means necessary to prevent the extinction of any species or subspecies from the islands of the Republic or the water surrounding them.
- ***Ethics in Government Act 1993*** - recognizes the right of the people to a responsible and an ethical government and the obligation of the government to take every step reasonable and necessary to conduct government in accord with a comprehensive code of ethics.
- ***Historic Preservation Act 1991*** - An Act to promote the preservation of the historic and cultural heritage of the Republic of the Marshall Islands.

- ***International Organisations Immunity Act 1974*** - An Act to provide immigration immunities to international organizations and their staff. This act has implications for tax, property, privacy etc. The Protection of Resident Workers Act shall not apply to international organizations.
- ***Jaluit Atoll Economic Development Authority Act 2000*** - An Act to establish the Jaluit Atoll Economic Development Authority and to provide all the powers necessary to plan for the development and implementation of all programs and projects for the social, economic and educational betterment of the people of Jaluit Atoll, with responsible and appropriate review by the Government of the Republic of the Marshall Islands to ensure fiscal responsibility and consistency with the development policies of the Government of the Republic.
- ***Land Acquisition Act 1986*** -An Act to make provision for the acquisition of lands and servitudes for public use for payment of just compensation.
- ***Local Government Act 1980*** – an Act providing for the manner of operation of the system of local government. Each atoll has its own local Council.
- ***National Environmental Protection Act 1984*** (NEPA) - An Act to provide for the establishment of a National Environmental Protection Authority for the protection and management of the environment. Marshall Islands EIA legislation is found largely in Part IV of the *National Environmental Protection Act 1984* (NEPA). The 1994 Environmental Impact Assessment Regulations (Regulations) promulgated by the Republic of the Marshall Islands Environmental Protection Authority provide project proponents specific details for the EIA process for both NEPA and CCA. Relevant regulations include:
- **Earthmoving regulations 1989** – all earthmoving activities shall be planned in such a manner so as to prevent accelerated erosion, sedimentation and disturbance of cultural resources.
- **Solid Waste Regulations 1989** – Establishment of minimum standards governing the design, construction, installation, operation and maintenance of solid waste storage, collection and disposal systems to:
  - Prevent pollution of the drinking and recreational waters of the RMI;
  - Prevent air and land pollution;
  - Prevent the spread of disease and the creation of nuisances
  - Protect the public health and safety
  - Conserve natural resources; and
  - Preserve and enhance the beauty and quality of the environment
- **Toilet Facilities and Sewage Disposal Regulation 1990** – The purpose of this regulation is to establish minimum standards for toilet facilities and sewage disposal to minimise environmental pollution, health hazards, and public nuisance.
  - Part II, Section five - It is required that all public buildings or any buildings which may be used for dwellings shall have toilet and sewage facilities.
  - Part IX, Section 37 – Prohibition of disposal of treated, semi-treated, or untreated sewage or excreta into any pond, well, reservoir, body of water, or onto the ground, whether public or private, unless such activity is of economic or social value or research purposes that poses no public health hazard.
- **Marine Water Quality Regulation 1992** – Identify the uses for which the marine waters of the RMI shall be maintained and protected, specify the water quality standards required to maintain the designated uses and to prescribe regulations necessary for implementing, achieving and maintaining the specified marine water quality.
- **Environmental Impact Assessment Regulation 1994** – Implementation of the NEPA 1984 and Coast Conservation Act 1988 for proposed development activities that may affect the quality of the environment of the RMI.

- Part III, Section 9a - Proposed development activities that have the potential for significant effect to the environment shall conduct an Environmental Impact Assessment and submit to the EPA.
- Part III, Section 11 - A scoping process identifying the significant issues related to the proposal shall be initiated by the EPA.
- Part III, Section 13 - Formulation of an EIA must take into considerations any guidelines, directions, policies or plans issued by the EPA regarding the protection, conservation and management of the environment.

- ***Planning and Zoning Act 1987*** - An Act to provide for: (a) planning in land water use; (b) the promotion of the health, safety and general welfare of the people; (c) the creation of zones in municipal areas in order to lessen the congestion and to secure safety from fire and other hazards; (d) the regulation and control of the construction of buildings and the prevention of over crowding of land. Section 208 Planning Local Areas includes (d) "the necessity to establish and maintain catchment areas and water reserves for the collection and supply of water" as one of the aspects that local government Section 209 Restrictions on Buildings includes (b) "specifying the requirement of rain water catchment for every future construction of a house or for every building or industry where water is being used"
- ***Wotje Development Authority Act 2002***- An Act to establish the Wotje Atoll Development Authority and to provide all the powers necessary to plan for the development and implementation of all programs and projects for the social, economic and educational betterment of the people of Wotje Atoll, with responsible and appropriate review by the Government of the Republic of the Marshall Islands to ensure fiscal responsibility and consistency with the development policies of the Government of the Republic
- **The Historic Preservation Legislation of 1992** - has codified Cultural Resource Management into law. The process associated with the production of resource management plans is an eight step process that is heavily reliant on community consultation to develop community-based management plans.

2.2 Environmental Impact Assessment in the Marshall Islands

52. The Marshall Islands has a comprehensive set of EIA regulations, and includes subsequent monitoring, mitigation reporting, auditing, and penalties and enforcement in case of non-compliance following approval of a final EIA. Marshall Islands EIA legislation is found largely in Part IV of the *National Environmental Protection Act 1984* (NEPA), which requires governmental decisions regarding any proposed actions "in all matters in which there is or may be an environmental impact" to include assessment of potential environmental and cultural impacts.

53. The *1994 Environmental Impact Assessment Regulations* (Regulations) promulgated by the Republic of the Marshall Islands Environmental Protection Authority provide project proponents specific details for the EIA process for both NEPA and CCA.

2.2.1 EIA process

54. Under the 1994 Regulations, the EIA process screens out activities with insignificant impacts from review in an initial "Preliminary Proposal." Such a proposal is required by proponents of "each and every proposed development activity," and must contain information on the activity and any potential environmental impacts as well as alternatives to mitigate the impacts. Following a review of the proposal, the reviewing agency (i.e. NEPA or CCA, hereafter "the reviewer") makes a written determination of his or her decision to the proponent. In case the reviewer determines the project will have a significant effect on the environment, a full or partial EIA is required from the proponent. Otherwise, the proponent may continue with the activity as planned, although still subject to regulatory and permitting requirements under any relevant law.

55. The EIA may be performed via separate phases of the activity, and a scoping process open to relevant members of the public identifies issues significant enough to be addressed in the EIA. Following completion of the scoping process, the proponent completes and submits a Draft EIA, which must include a list of alternatives to the proposed actions, a description of the affected environment and a scientific and economic analysis of potential consequences of the action. After receiving the Draft EIA, the reviewer provides for public notice and comment, including a public hearing. The reviewer then responds to the proponent, requiring either further revisions or a Final EIA, the latter of which must include the final chosen alternative, any mitigation measures and monitoring plans. The reviewer has discretion to approve or reject the Final EIA. If approved, the reviewer monitors activities and can perform audits and enforce the EIA regulations by means of fines, cease and desist orders, or entry without notice.

56. The CCA requires an EIA to be conducted in accordance with the 1994 EIA regulations described above for any proposed development activity on the coastal zone. For the purpose of the CCA, 'development activity' means any activity likely to alter the physical nature of the coastal zone.

2.3 Multilateral Agreements and Biodiversity Protocols

57. RMI is a signatory to a number of international and regional agreements and conventions, which are related to the environment. They include:

- 1993 Agreement Establishing the South Pacific Regional Environment Programme (SPREP)
- 2000 Cartagena Protocol on Biosafety on the Convention on Biological Diversity
- 1945 Constitution of the United Nations Educational, Scientific and Cultural Organisation
- 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage
- 1923 Convention and Statute on the International Regime of Maritime Ports
- 1986 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region
- 1992 Convention on Biological Diversity
- 1971 Convention on Wetlands of International Importance especially as Waterfowl Habitat
- 1980 Convention on the Physical Protection of Nuclear Material
- 1989 Convention on the Rights of the Child
- 1995 Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region , Waigani, Papua New Guinea
- 1990 International Convention on Oil Preparedness and Co-operation
- 2001 International Treaty on Plant Genetic Resources for Food and Agriculture
- 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change
- 1986 Protocol concerning co-operation in Combating Pollution Emergencies in the South Pacific Region
- 1988 Protocol of 1988 Relating to the International Convention for the Safety of Life at Sea of 1 November 1974
- 2001 Stockholm Convention on Persistent Organic Pollutants
- 1998 Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations
- 1987 The Montreal Protocol on Substances that deplete the Ozone Layer

- 1992 United Nations Framework Convention on Climate Change
- 2009 Statute of the International Renewable Energy Agency (IRENA)
- 1982 United Nations Convention on the Law of the Sea
- 1994 United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification particularly in Africa
- 1985 Vienna Convention for the Protection of the Ozone Layer

3 IMPLEMENTATION AND OPERATION

3.1 GENERAL MANAGEMENT STRUCTURE AND RESPONSIBILITIES

58. A high-level project organisation structure is shown in Figure 2. The key roles are discussed below.

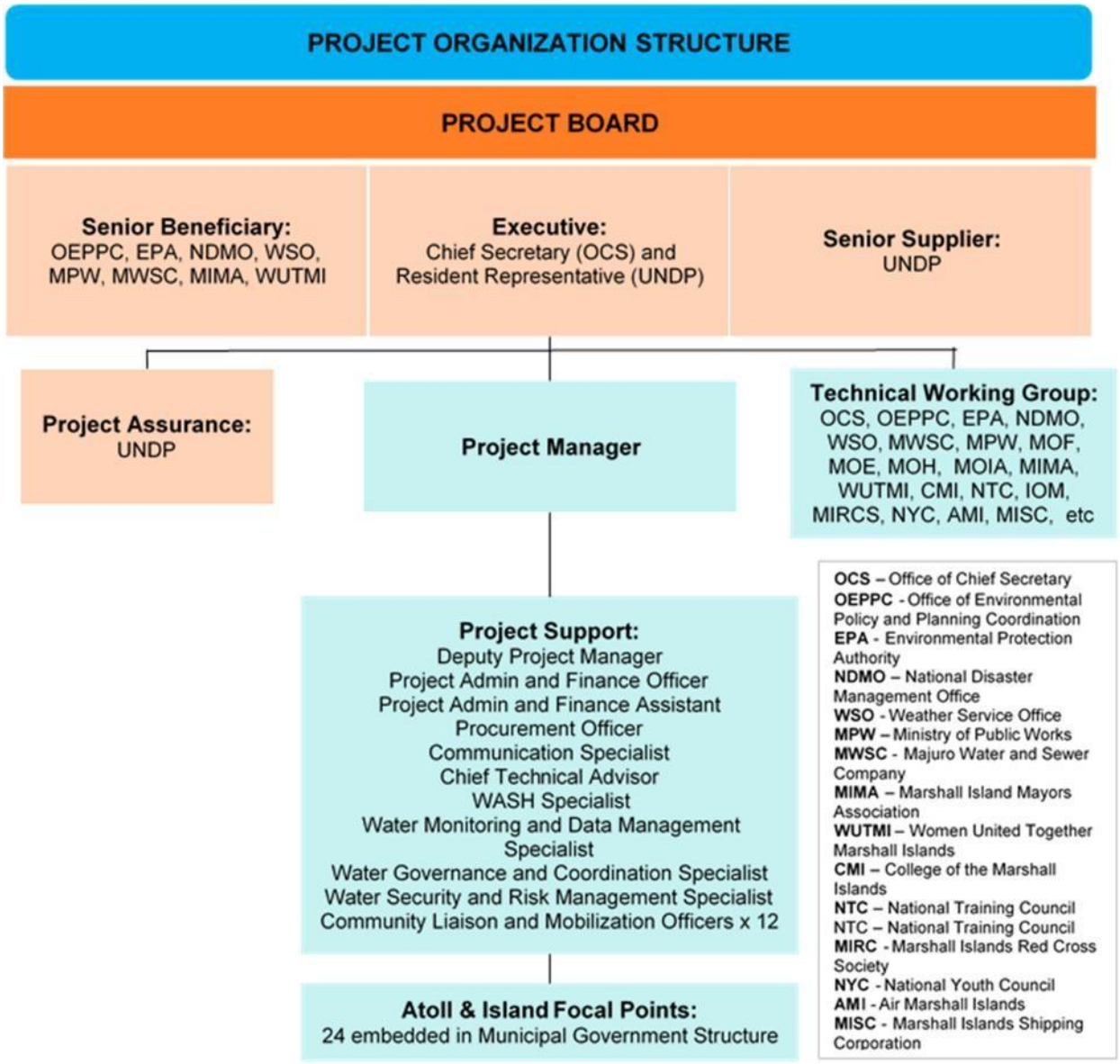

Figure 2 Project organisation structure

3.1.1 Project Board

59. The Project Board is comprised of Implementing Partner and Responsible Parties.

60. The Project Board (PB) will be co-chaired by UNDP's Resident Representative or his/her deputy and the NDA (Office of Environmental Policy and Planning Coordination). The PB is comprised of the Office of Chief Secretary, Environmental Protection Authority (EPA), Weather Service Office (WSO), Majuro Water and Sewer Company (MWSC), Ministry of Public Works, College of Marshall Islands, National Training Council, and Municipal Government Representatives and representatives from relevant NGOs.

61. EPA, WSO, MWSC, and the 24 Municipal Governments are the Senior Beneficiaries. The Project Board meets twice a year and is responsible for approving, by consensus, the Annual Work Plan prepared by the Project Manager, and making management decisions when guidance is required by the Project Manager. The Project Manager's decisions will be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the Board, final decision shall rest with the UNDP Resident Representative.

62. UNDP participates in the PB as Senior Supplier to represent the interests of the parties which provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring, implementing). The senior supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. The senior supplier role must have the authority to commit or acquire supplier resources required. If necessary, more than one person may be required for this role.

3.1.2 Project Manager

63. The Project Manager (PM) will run the project, under guidance of the Project Board and day-to-day supervision by UNDP and GoRMI within the conditions laid down by the PB. The PM function will end when the final project terminal evaluation report and other documentation required by the GCF and UNDP, have been completed and submitted to UNDP. The PM is responsible for day-to-day management and decision-making for the project within the Annual Work Plan approved by the PB and reviewed by UNDP. The PM's main responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Manager will have a matrix reporting arrangement to the UNDP Pacific Office and the GoRMI.

3.1.3 Project Support

64. The PM will be part of and supported by the Project Management Unit (PMU) which comprises of a group of project-financed staff. The PMU will be located in Majuro with several staff members outposted in the UNDP Pacific Office. The PMU will be responsible for supporting the PM in carrying out day-to-day activities of the project, the overall operational and financial management, and liaison with relevant stakeholders for the project. The PMU will be located within the CSO.

3.1.4 Project Assurance

65. The 'project assurance' function of UNDP is to support the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance has to be independent of the PM and the PMU; therefore, the Project Board cannot delegate any of its assurance responsibilities to the Project Manager. Furthermore, as the Senior Supplier, UNDP provides quality assurance for the project; ensures adherence to the NIM guidelines and ensures compliance with GCF and UNDP policies and procedures.

66. A UNDP Programme Officer, or M&E Officer, the typically holds the Project Assurance role on behalf of UNDP.

3.2 Project Delivery and Administration

3.2.1 Project Delivery

The project will be delivered on the ground via the OCS through its subsidiary departments and the MWSC. In addition, collaboration with the atoll municipal governments, existing NGOs and local communities is expected.

3.2.2 Administration of ESMFMP

67. As the implementing agency, UNDP will be responsible for responsible for the implementation with the ESMFMP via the delivery organisations.

68. The ESMFMP will be part of any tender documentation. The UNDP will be responsible for the revision or updates of this document during the course of work. It is the responsibility of the person to whom the document is issued to ensure it is the most up to date version.

69. The UNDP are accountable for the provision of specialist advice on environmental and social issues to the delivery organisations (eg contractors and/or NGOs) and for environmental and social monitoring and reporting. The UNDP or its delegate will assess the environmental and social performance of the delivery organisations (eg contractors) in charge of delivering each component throughout the project and ensure compliance with the ESMFMP.

70. During operations the delivery organisations will be accountable for implementation of the ESMFMP. Personnel working on the projects have accountability for preventing or minimising environmental and social impacts. Delivery organizations have the responsibility for ensuring systems are in place so that relevant employees, contractors and other workers are aware of the environmental and social requirements for construction, including the ESMFMP.

71. All project personnel will attend an induction that covers health, safety, environment and cultural requirements. All workers engaged in any activity with the potential to cause serious environmental harm (e.g. handling of hazardous materials) will receive task specific environmental training.

72. To manage day to day environmental and social monitoring and reporting, it is recommended that a a Field Officer/s be appointed as part of the delivery team. The Field Officer will be responsible for daily environmental inspections of the project/construction site. The UNDP or its delegate will cross check these inspections by undertaking monthly audits.

73. The delivery organisation eg contractor will maintain and keep all administrative and environmental records, which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

74. The delivery organisation/s (contractor) will be responsible for the day to day compliance of the ESMFMP.

3.2.3 Environmental procedures, site and activity-specific work plans/instructions

75. Environmental procedures provide a written method describing how the management objectives for a particular environmental element are to be obtained. They contain the necessary detail to be site or activity-specific and are required to be followed for all construction works. Site and activity-specific work plans and instructions are to be issued and will follow the previously successful work undertaking similar projects by the UNDP, JICA, SREP, GIZ, UNGEF and ADB.

3.2.4 Environmental incident reporting

76. Any incidents, including non-conformances to the procedures of the ESMFMP are to be recorded using an Incident Record and the details entered into a register. For any incident that causes or has the potential to cause material or serious environmental harm, the field officer shall notify the Project Manager as soon as possible. The delivery organisation/contractor must cease work until remediation has been completed as per the approval of UNDP.

3.2.5 Daily and weekly environmental inspection checklists

77. A daily environmental checklist is to be completed at each work site by the relevant field officer and maintained within a register. A weekly environmental checklist is to be completed and will include reference to any issues identified in the daily checklists completed by the field officers. The completed checklist is to be forwarded to UNDP for review and follow-up if any issues are identified.

3.2.6 Corrective Actions

78. Any non-conformances to the ESMFMP are to be noted in weekly environmental inspections and logged into the register. Depending on the severity of the non- conformance, the field officer may specify a corrective action on the weekly site inspection report. The progress of all corrective actions will be tracked using the register. Any non-conformances and the issue of corrective actions are to be advised to UNDP.

3.2.7 Review and auditing

79. The ESMFMP and its procedures are to be reviewed at least every two months by UNDP staff and OCS. The objective of the review is to update the document to reflect knowledge gained during the course of project delivery/construction and to reflect new knowledge and changed community standards (values).

80. The ESMFMP will be reviewed and amendments made if:

- There are relevant changes to environmental conditions or generally accepted environmental practices; or
- New or previously unidentified environmental risks are identified; or
- Information from the project monitoring and surveillance methods indicate that current control measures require amendment to be effective; or
- There are changes to environmental legislation that are relevant to the project; or
- There is a request made by a relevant regulatory authority; or
- Any changes are to be developed and implemented in consultation with UNDP Staff and OCS. When an update is made, all site personnel are to be made aware of the revision as soon as possible e.g. through a tool box meeting or written notification.

3.3 TRAINING

81. As UNDP is the implementing agency, UNDP standards will apply, this includes environmental and social policies. Capacity building of various RMI entities, both government, private sector (eg contractors and suppliers), and community so that environmental and social requirements can be met. The project includes capacity building at a number of levels: PMU / CWC / SOPs etc.

82. Delivery organisations have the responsibility for ensuring systems are in place so that relevant employees, contractors and other workers are aware of the environmental and social requirements for construction, including the ESMFMP.

83. All project personnel will attend an induction that covers health, safety, environment and cultural requirements.

84. All workers engaged in any activity with the potential to cause serious environmental harm (e.g. handling of hazardous materials) will receive task specific environmental training.

3.4 PROCEDURES TO ADDRESS ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

85. This ESMFMP was developed to ensure due diligence, to avoid causing harm or exacerbating risks or impacts. This section describes the procedures in place to determine: (i) the categorization of the project activity based on potential adverse environmental and social impacts of project activities, and (ii) how potential impacts will be addressed through the selection of appropriate mitigation and management plans.

86. The broad physical investments are known, however, there are implementation details and final detailed designs that will be identified during project implementation. To ensure that detailed design and implementation plans do not change risk ratings and to better define the nature and scale of potential impacts and the mitigation measures required in the subsequent ESMMPs, secondary screening should be undertaken (this can be done at the appropriate level eg task by task or by atoll or by sub-activity).

87. Contractors must prepare a Construction Environmental Management Plan (CEMP) – an ESMFMP specifically focused on construction related issues. The Contractor can use the resources included in the ESMFMP to prepare the CEMP. The CEMP must be cleared by UNDP prior to works starting.

3.4.1 Environmental Safeguard Screening Procedures

88. This section sets out a process for screening sub-activities and associated elements during project implementation. Any sub-activity and associated elements developed during the Project should be evaluated according to the screening process described below to determine the potential risk of associated environmental and social impacts, and associated mitigation options. The process consists of the following steps:

- Step1: at the time of preparing Terms of Reference for each sub-activity or associated element (TA or services delivery component), each sub-activity or associated element shall be screened and categorized, with a decision made to proceed or modify the proposal to ensure it remains within Category B or C, and identify relevant safeguards instruments.
- Step 2: Preparation of required safeguards instruments (ESMFMP) including stakeholder consultations as necessary
- Step 3: Review of prepared safeguards instruments as per RMI and GCF safeguards policies; additional stakeholder consultations as deemed necessary. (PMU)
- Step 4: Submit prepared safeguards instruments to UNDP. Disclosure of approved instruments locally and on UNDP's website.
- Step 5: Implementation – monitoring, reporting and remedial measures as per approved ESMFMP etc. Ongoing consultations and community engagement. (Implementing Agency)

4 COMMUNICATION

4.1 PUBLIC CONSULTATION AND ENVIRONMENTAL AND SOCIAL DISCLOSURE

89. The project was developed in discussion with a wide range of stakeholders, including relevant government departments, industry groups, NGOs, and individual community members and approved by Government. Under the leadership of the GoRMI, climate change related issues and solutions were identified, and they were presented for stakeholder discussions, inputs and endorsement. Relevant stakeholders to be involved in the project implementation, M&E, and post-project O&M were also identified during the process.

90. The Stakeholder Engagement Plan (SEP) (FP-UNDP-200418-5701-Annex XIIId-1) provides a summary of the consultation undertaken. Extensive on-ground consultation has been undertaken during the design of the project and consultation with any affected communities will continue. The SEP contains a table with proposed engagement activities and parties. It is anticipated that based on the communities' needs and the feedback received to date the projects will be fully accepted.

91. As per the GCF disclosure policy, the UNDP will disclose and announce to the public and, via the Secretariat, to the Board and Active Observers, the safeguard documents at least 30 days (as is required for Category B projects) in advance of the AE's or GCF's Board decision, whichever is earlier.The UNDP and OCS will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media eg print, radio, social media or formal reports. A publicized telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concerns and complaints. All enquiries, concerns and complaints will be recorded on a register and the appropriate manager will be informed. All material must be published in English and Marshallese as appropriate.

92. Where there is a community issue raised, the following information will be recorded:

    a. time, date and nature of enquiry, complaint or concern;
    b. type of communication (e.g. telephone, letter, personal contact);
    c. name, contact address and contact number;
    d. response and investigation undertaken as a result of the enquiry, complaint or concern; and
    e. actions taken and name of the person taking action.

93. Some enquiries, complaints and concerns may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, complaints and concerns will be investigated and a response given to the complainant in a timely manner. A grievance redress mechanism has been included in the ESMFMP to address any complaints that may not be able to be resolved quickly.

94. Nominated PMU/contractor staff will be responsible for undertaking a review of all enquiries, complaints and concerns and ensuring progress toward resolution of each matter. For this project, this could be the Deputy Project Manager.

4.2 COMPLAINTS REGISTER AND GRIEVANCE REDRESS MECHANISM

95. During the construction and implementation phases of any project, a person or group of people can be adversely affected, directly or indirectly due to the project activities. The grievances that may arise can be related to social issues such as eligibility criteria and entitlements, disruption of services, temporary or permanent loss of livelihoods and other social and cultural issues. Grievances may also be related to environmental issues such as excessive dust generation, damages to infrastructure due to construction related vibrations or transportation of raw material, noise, traffic congestions, decrease in quality or quantity of private/ public surface/ ground water resources during irrigation rehabilitation, damage to home gardens and agricultural lands etc.

96. Should such a situation arise, there must be a mechanism through which affected parties can resolve such issues in a cordial manner with the project personnel in an efficient, unbiased, transparent, timely and cost-effective manner. To achieve this objective, a grievance redress mechanism has been included in ESMFMP for this project.

97. The project allows those that have a compliant or that feel aggrieved by the project to be able to communicate their concerns and/or grievances through an appropriate process. The Complaints Register and Grievance Redress Mechanism set out in this ESMFMP are to be used as part of the project and will provide an accessible, rapid, fair and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes.

98. While recognising that many complaints may be resolved immediately, the Complaints Register and Grievance Redress Mechanism set out in this ESMFMP encourages mutually acceptable resolution of issues as they arise. The Complaints Register and Grievance Redress Mechanism set out in this ESMFMP has been designed to:

- be a legitimate process that allows for trust to be built between stakeholder groups and assures stakeholders that their concerns will be assessed in a fair and transparent manner;
- allow simple and streamlined access to the Complaints Register and Grievance Redress Mechanism for all stakeholders and provide adequate assistance for those that may have faced barriers in the past to be able to raise their concerns;
- provide clear and known procedures for each stage of the Grievance Redress Mechanism process, and provides clarity on the types of outcomes available to individuals and groups;
- ensure equitable treatment to all concerned and aggrieved individuals and groups through a consistent, formal approach that, is fair, informed and respectful to a complaint and/or concern;
- to provide a transparent approach, by keeping any aggrieved individual/group informed of the progress of their complaint, the information that was used when assessing their complaint and information about the mechanisms that will be used to address it; and
- enable continuous learning and improvements to the Grievance Redress Mechanism. Through continued assessment, the learnings may reduce potential complaints and grievances.

99. Eligibility criteria for the Grievance Redress Mechanism include:

- Perceived negative economic, social or environmental impact on an individual and/or group, or concern about the potential to cause an impact;
- clearly specified kind of impact that has occurred or has the potential to occur; and explanation of how the project caused or may cause such impact; and
- individual and/or group filing of a complaint and/or grievance is impacted, or at risk of being impacted; or the individual and/or group filing a complaint and/or grievance demonstrates that it has authority from an individual and or group that have been or may potentially be impacted on to represent their interest.

100. Local communities and other interested stakeholders may raise a grievance/complaint at anytime. Affected local communities should be informed about the ESMFMP provisions, including its grievance mechanism and how to make a complaint.

4.2.1 Complaints register

101. A complaints register will be established as part of the project to record any concerns raised by the community during construction. Any complaint will be advised to the UNDP and OCS within 24 hours of receiving the complaint. The complaint will be screened. Following the screening, complaints regarding corrupt practices will be referred to the UNDP for commentary and/or advice along with the RMI's Office of Public Protector.

102. Wherever possible, the project team will seek to resolve the complaint as soon as possible, and thus avoid escalation of issues. However, where a complaint cannot be readily resolved, then it must be escalated.

103. A summary list of complaints received and their disposition must be published in a report produced every six months.

4.2.2 Grievance mechanism

104. The Grievance Redress Mechanism has been designed to be problem-solving mechanism with voluntary good-faith efforts. The Grievance Redress Mechanism is not a substitute for the legal process. The Grievance Redress Mechanism will as far as practicable, try to resolve complaints and/or grievances on terms that are mutually acceptable to all parties. When making a complaint and/or grievance, all parties must act at all times, in good faith and should not attempt to delay and or hinder any mutually acceptable resolution.

105. During all stakeholder engagement activities, there will be a statement announcing that there is a Grievance Redress Mechanism where Stakeholders can raise complaints and have them processed. Moreover, the Designated Contact Person (DCP) will provide contact information during all activities, and provide a location where stakeholders can log their complaints. There will also be a notice at the Atoll Council offices and in the Majuro UNDP offices and a notice on the website at all times explaining the complaints procedure and providing the contact details

106. Table 5 explains the relevant roles and responsibilities associated with the Grievance Redress process.

Table 5 Grievance Redress Process

Stage	Process	Duration
1	Aggrieved Party (AP) takes their grievance to either Construction Site Supervisor (CSS) or Designated Contact Person (DCP). If the AP contacts any other Project Representatives, those Project Representatives will communicate the grievance to the DCP or CSS. CSS/DCP endeavour to resolve immediately. Where AP is not satisfied, the DCP will refer the AP to the ACWA Project Manager. For complaints that were satisfactorily resolved by the CSS/DCP, the incident and resultant resolution will be logged and reported to the ACWA Project Manager. Complaints records (letter, email, record of conversation) are stored together, electronically or in hard copy. Each record is allocated a unique number reflecting year and sequence of received complaint	Anytime
2	On receipt of the complaint, the Project DCP endeavours to resolve it immediately. For complaints that were satisfactorily resolved by the DCP, the incident and resultant resolution will be logged by the DCP and reported to the AWCA Project Manager. If unsuccessful, DCP then notifies AWCA Project Manager.	Immediately after logging of grievance
3	The AWCA Project Manager endeavours to address and resolve the complaint and inform the aggrieved party. For complaints that were satisfactorily resolved by the AWCA Project Manager, the incident and resultant resolution will be logged. The AWCA Project Manager will refer to the UNDP Resident Representative and RMI Chief Secretary other unresolved grievances for their action/resolution.	2 weeks
	If the matter remains unresolved, or complainant is not satisfied with the outcome:	
4	The UNDP Resident Representative and RMI Chief Secretary will then refer to matter to the Project Board for a resolution.	1 month.

5	The AWCA Manager will log details of issue and resultant resolution status. If it remains unresolved or the complainant is dissatisfied with the outcome proposed by the Project board, he/she is free to refer the matter to the following bodies: a) UNDP Environmental and Social Compliance Unit b) appropriate legal or judicial authority. A decision of the Court will be final.	Anytime

107. The RMI does not have an ombudsman. There is an Office of Public Defender, however, the primary duty and responsibility of the Department of the Public Defender is to provide legal defence assistance and representation in criminal proceedings to people who cannot afford to hire a private attorney. Complainants. The RMI judiciary system is also an option should aggrieved parties continue to be dissatisfied.

108. In addition to the project-level and national grievance redress mechanisms, complainants have the option to access UNDP's Accountability Mechanism, with both compliance and grievance functions. The Social and Environmental Compliance Unit investigates allegations that UNDP's Standards, screening procedure or other UNDP social and environmental commitments are not being implemented adequately, and that harm may result to people or the environment. The Social and Environmental Compliance Unit is housed in the Office of Audit and Investigations, and managed by a Lead Compliance Officer. A compliance review is available to any community or individual with concerns about the impacts of a UNDP programme or project. The Social and Environmental Compliance Unit is mandated to independently and impartially investigate valid requests from locally impacted people, and to report its findings and recommendations publicly.

109. The Stakeholder Response Mechanism offers locally affected people an opportunity to work with other stakeholders to resolve concerns about the social and environmental impacts of a UNDP project. Stakeholder Response Mechanism is intended to supplement the proactive stakeholder engagement that is required of UNDP and its Implementing Partners throughout the project cycle. Communities and individuals may request a Stakeholder Response Mechanism process when they have used standard channels for project management and quality assurance, and are not satisfied with the response (in this case the project level grievance redress mechanism). When a valid Stakeholder Response Mechanism request is submitted, UNDP focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns.

110. The UNDP Social and Environmental Compliance Unit is accessible through multiple avenues:

- Web-based form
- Telephone
- Post
- Email

111. A third party is able to utilise any of the above methods to file a complaint on behalf of an affected individual or community. Visit www.undp.org/secu-srm for more details. The relevant form is attached at the end of the ESMFMP.

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5 KEY ENVIRONMENTAL AND SOCIAL INDICATORS

112. This section identifies the key environmental and social indicators identified for the project and outlines respective management objectives, potential impacts, control activities and the environmental performance criteria against which these indicators will be judged (i.e. audited).

113. This section further addresses the need for monitoring and reporting of environmental performance with the aim of communicating the success and failures of control procedures, distinguish issues that require rectification and identify measures that will allow continuous improvement in the processes by which the projects are managed

5.1 ECOLOGY

5.1.1 Background

114. The Marshall Islands has a total of 2,131,000 km^2 of Exclusive Economic Zone (EEZ), of which 0.009% is land. Marine species make up most of the biodiversity.

5.1.1.1 Terrestrial

115. The land ecosystem of RMI is made up of forests, agriculture and wetlands which have been shaped by Marshallese land management practices.

116. RMI has about 70 percent total forest cover, which includes native forest, agro-forest, and coconut plantations. The original forests have been replaced by agro-forestry to support human settlements. Today, the agro-forest is a mixt of trees, shrubs and herbaceous species such as coconuts, breadfruits, pandanus and bananas (Figure 3). Due to low soil fertility, there are few crops that can be grown in an atoll soil. Only a few atolls hold the last remaining native forest ecosystems. *Pisonia grandis* is one of the main forest ecosystems found throughout the Marshall Islands.

117. Land cover mapping has been carried out on the ten larger atolls. . RMI is mainly covered by forest except in a few select locations where urban areas dominate (12%). These are Majuro (49% urban) and Kwajalein (30% urban). Barren land cover is the second most common land cover type (14%) - this is made up of sand and coral bars along and between islets. About four percent is non-forest vegetation including rangeland and agricultural lands

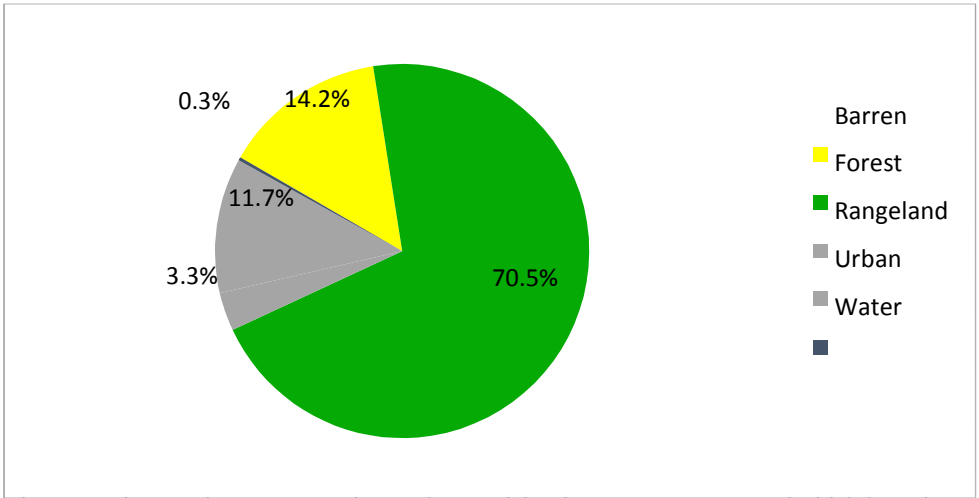

Figure 3 The graph represents the ten largest islands, seventy percent of which is estimated to be forested in a mixture of agro-forest and native species. Urban lands account for 12 percent of the land cover (Donnegan et al, 2008)

118. RMI has a limited number of terrestrial species which are endemic and a low number of terrestrial species. According to Fosberg "little or none of the true original vegetation remains of the Marshall Islands". The original ecological system was altered by the first Marshallese settlers and also during the colonial era (Fosberg, 1990). A comprehensive study of botanicals has yet to be carried out although some atolls were studied. Figure 4 shows the average tree species mix on large atolls.

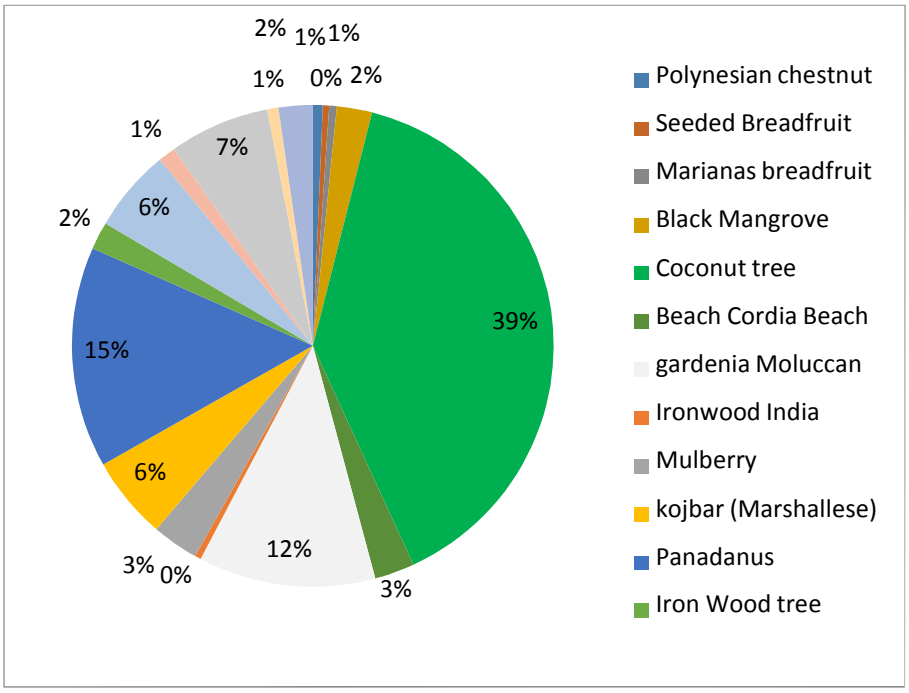

Figure 4 Average tree species mix based on sample plots on the ten largest islands. (Donnegan et al, 2008)

5.1.1.2 Marine

119. The coastal marine environment in the Marshall Islands hosts a range of fauna ecosystems:

- Seagrass community and meadows
- Supratidal and intertidal
- Sandy areas of the intertidal and subtidal zones
- Coral reefs
- Reef holes, artificially quarried and bombed
- Sea surface, lagoon water column, open water
- Deep water.

120. The coastal marine environment has a diverse range of fauna species. There are over 1000 species of fish, 1600 of mollusc species, and more than 250 species of algae and stony coral and is home to endangered species including blue whales, sperm whales, leatherback turtles and the hawksbill turtle.

121. Five turtle species are known to occur in the Pacific region (Table 6)

Table 6 List of marine turtles (IUCN)

Common Name	Scientific Name	Status
Green	*Chelonia mydas*	Endangered

Hawksbill	*Eretmochelys imbicata*	Critically Endangered
Olive ridley	*Lepidochelys olivacea*	Vulnerable
Leatherback	*Dermochelys coriacea*	Vulnerable
Loggerhead	*Caretta caretta*	Critically Endangered

122. Green turtles are the only common species of turtle which nests in RMI, while hawksbill turtles are considered rare (Maison et al, 2010). Nesting season normally takes place from May to November. The main nesting sites are Bikar, Erikub and Jemo, with minor nesting sites in the atolls of Bokak, Ailinginae, Rongerik, Bikini, Wotje, and Taka.

123. Coral reef ecosystems in RMI provide key ecosystem services, including food, to the Marshallese people. The condition of the reefs, particularly in the less populated islands, has a major positive impact on sustainable livelihoods, including fisheries.

124. Live coral reef cover is a useful indicator of the overall state of the inshore ecosystems. Coral cover provides an indirect measure of land-use impacts and erosion, fishing pressure, relative sea surface temperature (SST), presence of disease and predators like the crown of thorns starfish, and mechanical damage from anthropogenic sources or natural phenomena like typhoons.

125. Variations in coral cover trends show higher coral cover in rural atolls, compared to urban atolls. However, overall coral cover in RMI is considered to be relatively healthy. High species diversity indicates the coral reef ecosystems are intact and healthy.

5.1.1.2.1 Marine Ecosystem Management

126. The Marshallese people are reliant on reef fishing for subsistence. Reef fisheries target both reef fish and invertebrates (e.g. crustaceans, clams, sea cucumbers and trochus). Thus healthy reef systems are critical.

127. The Marshall Islands has a unique management regime where traditional and modern styles are integrated to manage and conserve the nation's marine resources. There are 63 marine managed areas covering about 70% of reef area in the RMI. Most of the areas are yet to have proper management plans. Integrated management of marine and terrestrial systems through a community-based approach implementing the Reimaanlok (National Framework for Conservation Area Planning), a framework developed in 2008

128. There are two designated Ramsar sites in RMI (Figure 5) - the Jaluit and Namdrik atolls, with a combined area of 11.38 sq km and some of the most diverse wetland in RMI (SoE 2016). These sites were declared Ramsar sites for a number of reasons, including hosting a breeding population of critically endangered hawksbill turtles, the coconut crab and other rare species. Namdrik Atoll is one of the smallest, with an enclosed lagoon that cannot be accessed by boats. It is one of a few atolls which support mangroves and other native endangered species, as well as the critically endangered hawksbill turtle. Jaluit Atoll also has mangrove systems and supports a range of endangered and critically endangered species.

129. Active management of the Ramsar sites is limited by distance and budget limitations. Both Ramsar sites have local management plans that are managed by the local government with support from the RMI EPA office.

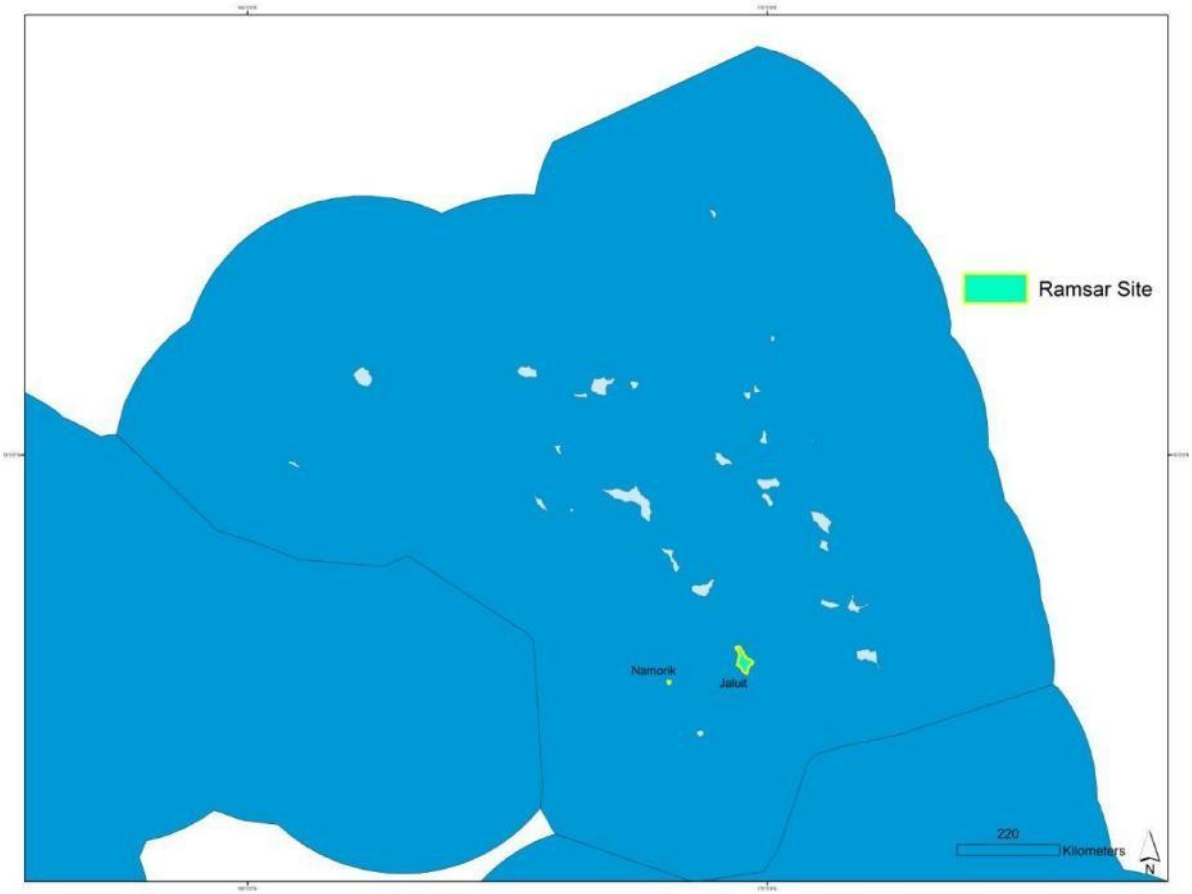

Figure 5 Ramsar wetlands in RMI

130. In 2011, the RMI declared its entire Exclusive Economic Zone a shark sanctuary, banning all activities associated in harvesting sharks and body parts for commercial purposes. The tuna fishery is overfished.

5.1.1.3 Lagoon water quality

131. The lagoon ecosystems in the Marshall Islands are some of the most significant natural assets. They provide food, storm protection and habitats, and are one of the biggest attractions for tourist. These lagoon ecosystems are particularly sensitive to water quality impacts from land based activities and waste disposal associated with recreational use and aquaculture. The impact of lagoon water quality plays an important role for local community incomes and daily subsistence.

132. Water quality monitoring started in 1984 when the Environmental Protection Act came into effect, which the Environmental Protection Authority was mandated to carry out. The monitoring sites are mainly in the urban areas of Majuro and Ebeye where coastal water quality checks are conducted quarterly. There are over 40 monitoring sites in the two populated centres.

133. Marine lagoon water quality has deteriorated mainly in the urban centres. The three most contaminated sites in 2014 were Alwal, Jenrok 2 and Small Island. Enterococci - a bacteria found in the intestines of humans and animals - is used as an indicator for faecal pollution in marine waters. Bacterial counts have been measured above safe recreational guideline of 104MPN/100ml (Figure 6).

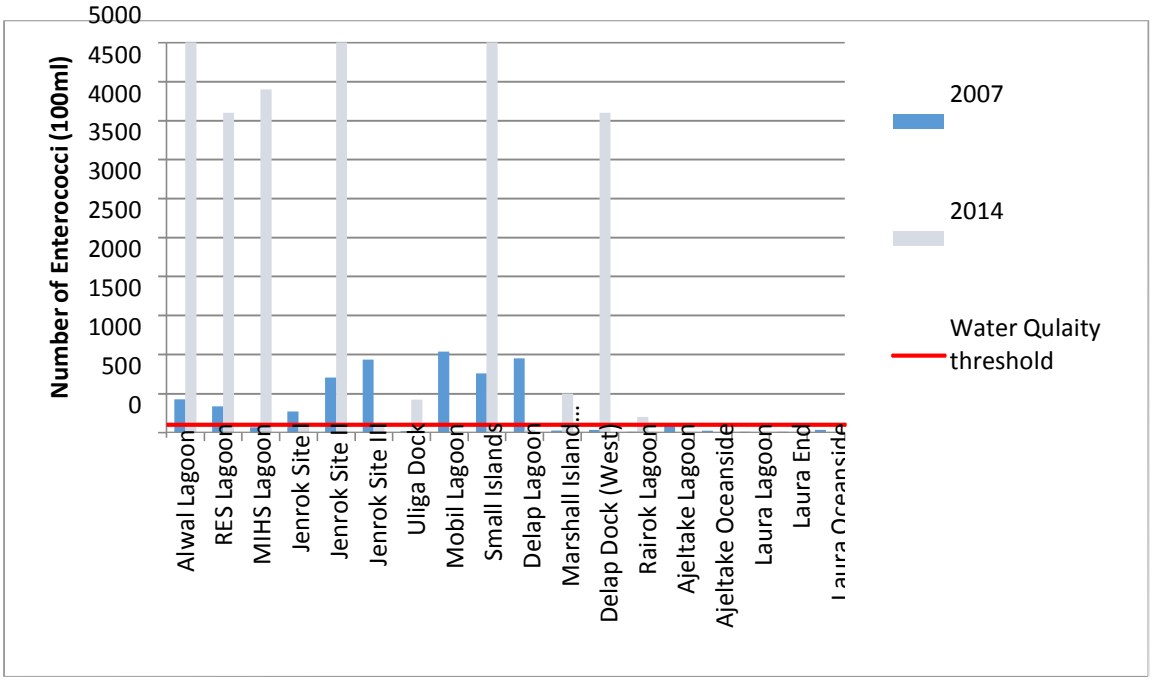

Figure 6 2007 and 2014 Majuro Lagoon Sampling sites (EPA Coastal water quality monitoring reports of 2007 and 2014)

134. Impacts from impaired lagoon water quality include environmental, social and economic factors. Poor water quality is a result of excessive nutrients, harmful bacteria and sedimentation which can accelerate algal bloom, leading to environmental and health issues. Reef habitats in lagoons are susceptible to smothering from algal growth, stimulated by excess organic and nutrient matter. Other factors contributing to lagoon pollution is runoff from residential areas, road drainage that links directly to the lagoon, discharge of RO brine, and continual use of lagoon or shoreline areas for defecation and dumping of domestic wastes. The degradation of lagoon habitats impacts on people who rely on inshore environment for subsistence, income and health.

5.1.1.4 Invasive Species:

135. Increased contact with the world brings more invasive species to RMI. However, the primary pathway for spread is infrastructure, related to development such as roads, urban expansion and agriculture. Invasive species compete with indigenous species and habitats with little or no natural predation.

136. A study conducted in RMI (Pagad, 2015) recorded 523 alien species that impact the environment, as invasive and potentially invasive species. Of the 523 alien species, 41 are animals, the remainder are plants.

137. Many of the invasive species arrived over the past century and efforts are underway to prevent their spread. For example, the Mangrove Monitor lizard was introduced as a pet during the Japanese era of colonization and are known to prey on birds and their eggs. The most harmful ones to native flora and fauna are cats and rats. Many land and marine invasive species, plants or animals are threatening the biodiversity. Once an invasive species establishes itself, eradication and control can be extremely difficult and costly. The well established merremia vine, the crazy ant and red-vented bulbul bird are already having negative impacts by taking over ecosystem niches.

138. Invasive species are unevenly distributed across the nation (Figure 7). Majuro and Kwajalein have the highest number of invasive species, 244 and 187 respectively, as the two atolls are the main ports of entry to the country.

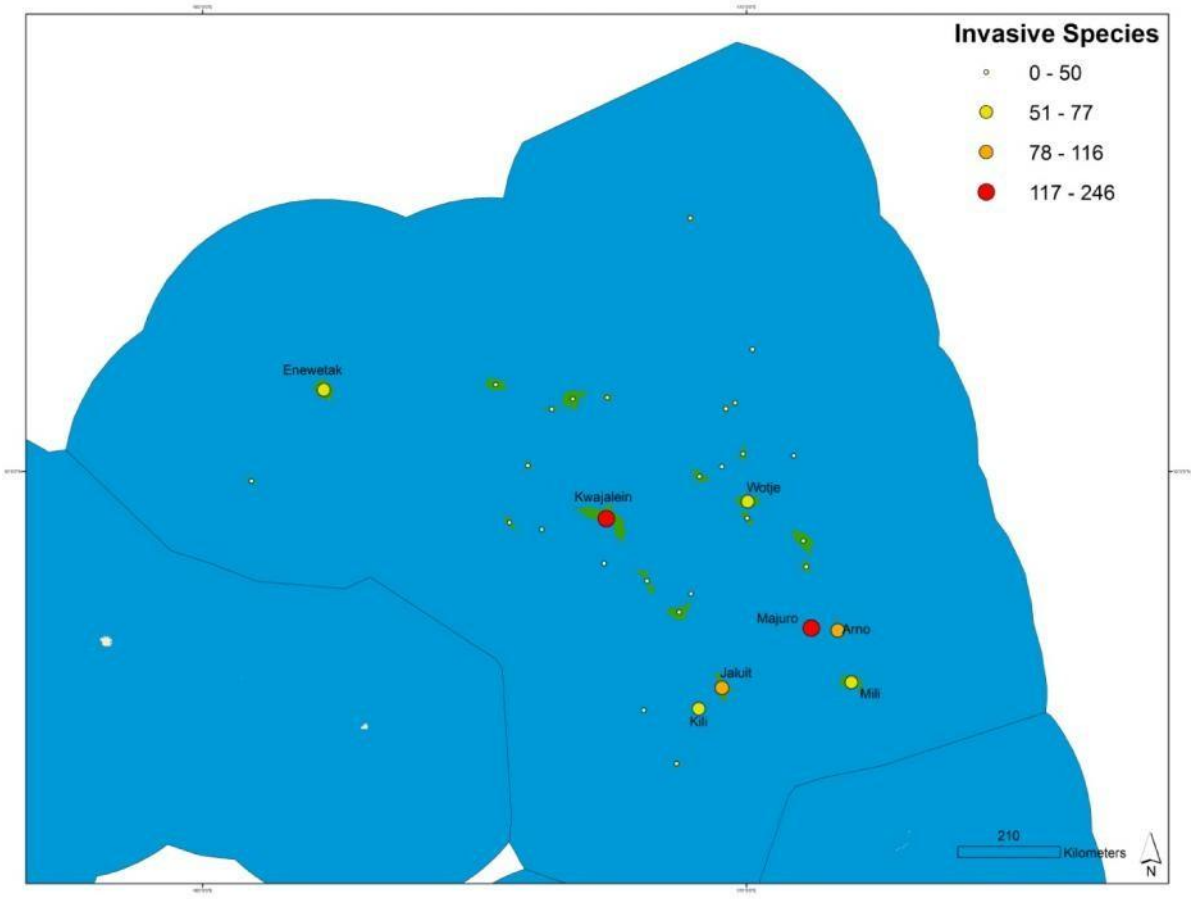

Figure 7 Map of Atolls with high invasive species presence. (SPREP, 2016)

139. RMI is a member of the Micronesia Regional Invasive Species Committee, and joined with FSM and Hawaii to develop the Micronesia and Hawaii Regional Biosecurity plan. Invasive species are also costly to eradicate, control and monitor. In 2015, RMI approved its National Invasive Species Strategy and Action Plan. Biosecurity procedures exist at international ports of entry and there is capacity in Early Detection Rapid Response (EDRR). There are also weed management actions on Majuro, Bikini and Kili atolls (Moverley, 2016).

5.1.2 Performance Criteria

140. The following performance criteria are set for the construction of the projects:

- no clearance of vegetation outside of the designated clearing boundaries;
- no death to native fauna as a result of clearing activities;
- no deleterious impacts on aquatic environments and terrestrial habitats;
- no introduction of new weed species as a result of construction activities ; and
- no increase in existing weed proliferation within or outside of any project footprint as a result of construction activities.

5.1.3 Monitoring

141. A flora and fauna monitoring program will be implemented (Table 7).

142. Weed monitoring will be undertaken and appropriate action taken in the event of alien or noxious species being identified.

143. The delivery organisation will when undertaking works, will compile a weekly report to OCS outlining:

- any non-conformances to this ESMFMP;
- the areas that have been rehabilitated during the preceding week; and
- details of the corrective action undertaken.

5.1.4 Reporting

144. All flora and fauna monitoring results and/or incidents will be tabulated and reported as outlined in the ESMFMP. The OCS must be notified in the event of any suspected instances of death to native fauna and where vegetation if detrimentally impacted

Table 7 Flora and Fauna Management Measures

Issue	Control Activity (and Source)	Action Timing	Responsibility	Monitoring and Reporting
FF1. Habitat loss and disturbance of fauna	FF1.1 Limit vegetation clearing and minimise habitat disturbance through adequate protection and management of retained vegetation.	During construction	Contractor	Daily and maintain records
	FF1.2: Minimise noise levels and lighting intrusion throughout construction and operation in the vicinity of any sensitive locations.	During construction	Contractor	Daily and maintain records
	FF1.3: Ensure that all site personnel are made aware of sensitive fauna/habitat areas and the requirements for the protection of these areas.	During construction	Contractor	Daily and maintain records
	FF1.4 Minimise disturbance to on-site fauna and recover and rescue any injured or orphaned fauna during construction and operation.	During construction	Contractor	Daily and maintain records, report
FF2. Introduced flora and weed species	FF2.1: Implement an ESCP to reduce the spread of weeds through erosion and sediment entering any waterways and therefore spreading.	Pre and during construction	Contractor	Maintain records
	FF2.2: Revegetate disturbed areas using native and locally endemic species that have high habitat value.	During construction	Contractor	As required and maintain records
	FF2.3: Minimise disturbance to mature remnant vegetation, particularly canopy trees.	During construction	Contractor	Daily and maintain records
	FF2.5: Environmental weeds and noxious weeds within the project footprints shall be controlled.	During and post construction	Field Officer	Weekly and maintain records

5.2 GROUNDWATER

5.2.1 Background

5.2.1.1 Geology, Topography and Soils

145. Atolls are geologic structures that rise from the ocean floor and enclose a shallow (less than 300 ft) lagoon. The base of the atoll is a basaltic volcano that has subsided. The volcanoes that formed the Marshall Islands were active more than 150 million years ago. Reef growth during subsidence of the volcanoes results in a cap of calcium carbonate minerals that spans the distance from the top of the now-submerged volcano to the sea surface.

146. The shallow subsurface geology of atolls is determined by precipitation and deposition of carbonate minerals, the chemical alteration (diagenesis) of these minerals, and changes in sea level.

147. The RMI is made of 24 atolls and islands, of which the largest ten islands make up 74% (13,403 hectares) of the land area. The islands are low, generally flat bodies of land. On average, land mass in the Marshall Islands is 2 m above sea level.

148. Soils developed on the atolls are typically thin and poor.

149. The Marshall Islands encompasses 29 atolls divided between the Ralik and Ratak chains. According to Goldberg (2016) Lae features a channel in its rim that is approximately 4 m deep, Utrik has a 4–5 m deep channel in its rim that is navigable with difficulty, while Mili is attached to smaller Narikrik Atoll at its southeast by a shallow (6 m deep) submarine ridge.

150. Four of the atolls have closed lagoons. They are: Lib, Namorik, Bokaak, ik. Of these only Lib's is brackish, the remainder are saline (Goldberg, 2016[1]).

5.2.1.2 Groundwater

151. Atoll aquifers are recharged by rain infiltrating through a thin unsaturated zone. Recharge from rainfall typically forms a thin lens of freshwater that is buoyantly supported by dense saline water from the ocean. Mixing between the infiltrated rain and saltwater forms a zone of transitional salinity. The thickness of this transition zone is determined by the rate of recharge, tidal dynamics, and hydraulic properties of the carbonate aquifer.

152. Uncontrolled and unmanaged land-based activities are known to have impacts on the groundwater quality resulting in contamination. RMI is no exception to this rule.

153. RMI EPA currently routinely monitors the quality of Majuro groundwater for faecal and nitrate contamination. Also through contractual service by JIRCAS, Laura groundwater boreholes and some private wells are monitored for water levels, electrical conductivity, nitrate-nitrogen, COD, calcium, chloride, pH and turbidity.

154. Testing has revealed that groundwater on many of the atolls is contaminated, in particular by bacteria associated with human and animal faeces, *E.coli.*

155. Project specific groundwater studies have not been undertaken, however, as groundwater has been reported to be typically contaminated with E.coli and is often saline, the project is not targeting groundwater for drinking purposes.

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1. [1] Goldberg, (2016). ATOLLS OF THE WORLD: REVISITING THE ORIGINAL CHECKLIST Walter M. Goldberg Atoll Research Bulletin No. 610 ∃ 28 June 2016. Smithsonian Institute

5.3.1 Performance Criteria

156. The following performance criteria are set for the project:

- no significant decrease in the quality and quantity of groundwater as a result of construction and operational activities in proximity to the projects;
- effective implementation of site-specific erosion drainage and sediment control plans (EDSCPs) and other measures to protect groundwater.

157. By following the management measures set out in the ESMFMP the project will not have a significant impact on water quality across the broader area.

5.2.2 Monitoring

158. Refer to Table 8 for the monitoring requirements for groundwater.

159. During the project groundwater quality should be assessed. Initial assessment should cover a wide range of parameters (eg depth to water, pH, DO, conductivity, nitrates, phosphates, faecal coliforms, heavy metals, turbidity, hydrocarbons, radionuclides) to provide a baseline and to identify potential suitability for use. Subsequent monitoring parameters will be determined on need.

5.2.3 Reporting

160. All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMFMP. The OCS must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.

Table 8 Groundwater management measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
GW2: Safety – unplanned entry into well	GW1.1 Ensure that wells have lids that fit snugly. Latches may be required to secure against entry by small children. Consider whether lids require facilities to lock, alternatively well surrounds may be securely fenced to prevent entry of small children and animals. GW1.2 During construction, ensure wells are fenced off to prevent unauthorised entry to area. GW1.3 Consider requirements in event of a rescue being required – wells may include steps/hand grips, ladder or rope/float kept nearby	Planning, construction and operation	CWC	Weekly
GW 2: Increase of gross pollutants, hydrocarbons, metals and other chemical pollutants into the groundwater and/or surface water environment.	GW2.1: Conduct regular surface and groundwater quality monitoring in location where the groundwater is likely to be impacted, including assessing the changes to groundwater quality.	Construction and operation phase	CWC and EPA	As required with reporting to OCS and UNDP
	GW2.2: Prevent contaminated surface water from entering aquifers via boreholes and wells - protect from runoff and flooding and keep surrounds clean.	All phases	All Personnel	Weekly
	GW2.3: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refuelling to be undertaken in areas away from water systems.	Entire construction and operation phase	All Personnel	Weekly with reporting to OCS and UNDP
	GW2.4: Check all vehicles, equipment and material storage areas daily for possible fuel, oil and chemical leaks. Undertake refuelling at designated places away from water systems.	All phases	All Personnel	Daily and maintain records

	GW 2.5: Minimise the use of herbicides and use only biodegradable herbicides that have minimal impact on water quality and fauna. Use only as per directions	All phases	All Personnel	Weekly reporting to OCS and UNDP

5.3 NOISE AND VIBRATION

5.3.1 Background

161. Due to the limited urban development and heavy industry, environmental noise is relatively low. However, the low topography and large expanses of water means that noise is readily transmitted across large distances. Sources of noise include: aircraft (limited flights), motor vehicles, ships and boats utilising the lagoons, generators and power stations and general urban noise.

162. All construction and operation activities have the potential to cause noise nuisance. Vibration disturbance to nearby residents and sensitive habitats is likely to be caused through the use of vibrating equipment. Blasting is not required to be undertaken as part of this project.

163. The use of machinery or introduction of noise generating facilities could have an adverse effect on the environment and residents if not appropriately managed.

164. Contractors involved in construction activities should be familiar with methods of controlling noisy machines and alternative construction procedures as contained within specific RMI legislation or in its absence, international good practice may be used if the legislation has not been enacted.

165. The detail, typical equipment sound power levels, provides advice on project supervision and gives guidance noise reduction. Potential noise sources during construction may include:

- heavy construction machinery;
- power tools and compressors;
- delivery vehicles;

5.3.2 Performance Criteria

The following performance criteria are set for the construction of the projects:

- noise from construction and operational activities must not cause an environmental nuisance at any noise sensitive place;
- undertake measures at all times to assist in minimising the noise associated with construction activities;
- no damage to off-site property caused by vibration from construction and operation activities; and
- corrective action to respond to complaints is to occur within 48 hours.

5.3.3 Monitoring

A standardised noise monitoring program has been developed for the projects (Table 9). The program is subject to review and update at least every two months from the date of issue. Importantly, the field officer will:

- ensure equipment and machinery is regularly maintained and appropriately operated; and
- carry out potentially noisy construction activities during ‘daytime’ hours only.

5.3.4 Reporting

All noise monitoring results and/or incidents will be tabulated and reported as outlined in the ESMFMP. The OCS must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to noise is exceeded

Table 9 Noise and Vibration Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
N1: Increased noise levels	N1.1: Select plant and equipment and specific design work practices to ensure that noise emissions are minimised during construction and operation including all pumping equipment.	All phases	Contractor	Maintain records
	N1.2: Specific noise reduction devices such as silencers and mufflers shall be installed as appropriate to site plant and equipment.	Pre and during construction	Contractor	Maintain records
	N1.3 Minimise the need for and limit the emissions as far as practicable if noise generating construction works are to be carried out outside of the hours: 7am-5.30pm	Construction phase	All Personnel	Daily and maintain records
	N1.4: Consultation with nearby residents in advance of construction activities particularly if noise generating construction activities are to be carried out outside of 'daytime' hours: 7am-5.30pm.	Construction phase	All Personnel	Daily and maintain records
	N1.5 The use of substitution control strategies shall be implemented, whereby excessive noise generating equipment items onsite are replaced with other alternatives.	Construction phase	All Personnel	Daily and maintain records
	N1.6 Provide temporary construction noise barriers in the form of solid hoardings where there may be an impact on specific residents.	Construction phase	Contractor	Daily and maintain records
	N1.7 All incidents complaints and non-compliances related to noise shall be reported in accordance with the site incident reporting procedures and summarised in the register.	Construction phase	Contractor	Maintain records

	N1.8 The contractor should conduct employee and operator training to improve awareness of the need to minimise excessive noise in work practices through implementation of measures.	Pre and during construction	Contractor	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
N2. Vibration due to construction	N2.1: Identify properties, structures and habitat locations that will be sensitive to vibration impacts resulting from construction and operation of the project.	Pre and during construction	Contractor	Maintain records
	N2.2: Design to give due regard to temporary and permanent mitigation measures for noise and vibration from construction and operational vibration impacts.	Pre-construction	Contractor	Maintain records
	N2.3: All incidents, complaints and con-compliances related to vibration shall be reported in accordance with the site incident reporting procedures and summarised in the register.	Construction phase	Community liaison and mobilization officers	Maintain records
	N2.4: During construction, standard measure shall be taken to locate and protect underground services from construction and operational vibration impacts.	Construction phase	Community liaison and mobilization officers	Maintain records

5.4 SURFACE WATER

5.4.1 Background

166. Fresh water is a very scarce resource in the Marshall Islands. There are no rivers, streams or lakes on any of the atolls. One atoll, Lib Atoll, has a brackish lagoon. Due to the nature of surface substrates on coral atolls, water generally percolates quite quickly into the soil and through to the underlying substrate, often accumulating as a freshwater lens that floats on the underlying saline water.

167. On outer islands, household catchments are the main source of drinking water, usually water tanks. Testing by the RMI EPA has shown that many household tanks contain contaminated water (Figure 8). The scarcity of fresh water, the high and increasing demand for fresh water, as well as the water quality issues, put an increasing pressure on both the population and the environment.

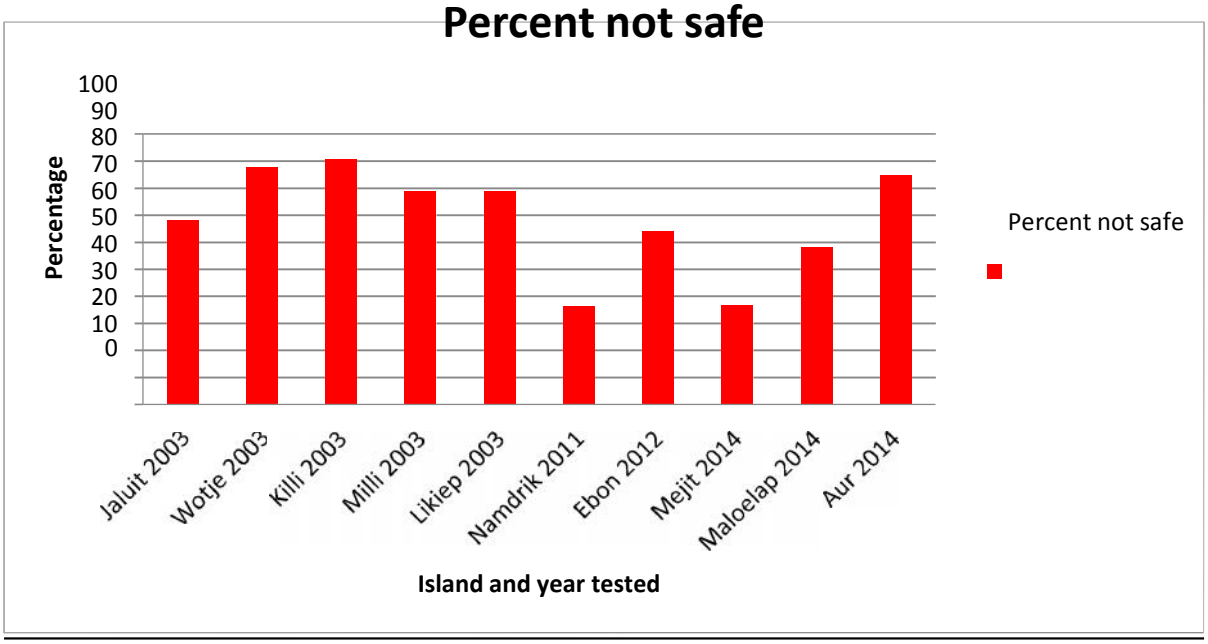

Figure 8 Percentage of unsafe water sampling in the outer islands. (RMI-EPA datasets, 2015)

168. The climate is tropical, hot and humid with the wet season lasting from May to November. The islands border the typhoon belt. The general weather pattern is regularly influenced by the movement of the ITCZ (Inter Tropical Convergence Zone) as well as irregularly by the El Nino Southern Oscillation (ENSO). Rainfall on the islands mostly reflects seasonal variability of the northeast trade winds. Weaker trades, from April to October, coincide with greater rainfall in those months, while stronger trade winds from November to March coincide with decreasing rainfall.

169. On a spatial scale, there is a large spread between rainfall totals between the northern and southern area of RMI, with the northern areas (represented by Utrik and Wotje) being significantly dryer than the south (Majuro and Kwajalein). General rainfall patterns vary within RMI along three zones; Zone 1 with atolls/islands located above 8' N latitude, Zone 2 with islands between 6' and 8' N latitude and Zone 3 with atolls/islands below 6' N latitude. During the dry periods, island in the northern Zones 1 and 2 often experience prolonged days without rain, and therefore are more vulnerable to drought (Figure 9).

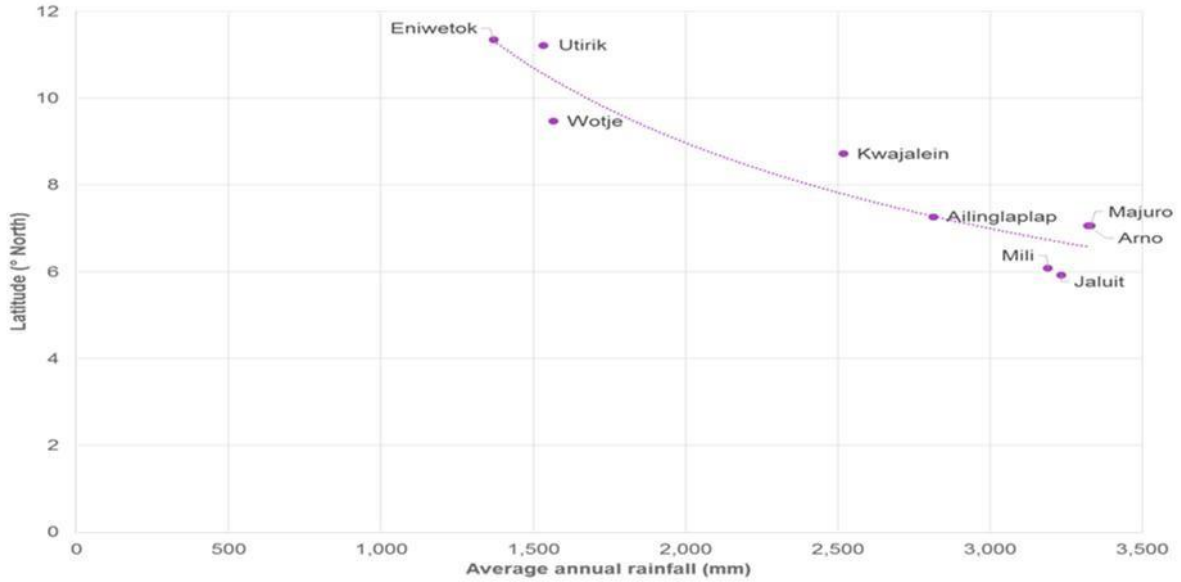

Figure 9 Annual rainfall patterns in RMI

5.4.2 Performance Criteria

170. As there are almost no surface water features on RMI, the activities recommended here and their performance is mainly targeting preventing contamination of runoff, which might impact groundwater, household environments and general environment.

171. The following performance criteria are set for the construction of the projects:

- no significant decrease in water quality as a result of construction and operational activities;
- water quality shall conform to any approval conditions stipulated by UNDP, OCS and/or other government departments, or in the absence of such conditions follow a 'no worsening' methodology; and
- effective implementation of site-specific EDSCPs.

5.4.3 Monitoring

172. Having water of a quality that is fit for purpose is important. Water quality can affect plant growth, livestock health, soil quality, farm equipment and domestic use. The quality of a water source is also variable depending upon weather and external inputs.

173. Being a maritime nation, salt spray inevitably ends upon the roofs of buildings and therefore in water that is collected. Evaporation increases the concentrations of salts while a flush of water dilutes salts. Monitoring should be done regularly and more frequently in summer or in periods of prolonged moisture stress.

174. Table 10 outlines the monitoring required.

5.4.4 Reporting

175. All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMFMP. The OCS must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded

Table 10 Water Quality Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
W1: Elevated suspended solids and other contaminants in surface water systems.	W1.1: Develop and implement a site specific Erosion, Drainage and Sediment Control Plan (EDSCP) to address drainage control, sediment and erosion controls and stockpiling of materials including soil during construction of all components of the projects. EDSCP measures to be inspected regularly to ensure all devices are functioning effectively.	Pre Earthworks	Community liaison and mobilization officers/Contractor	Initial set up and then as required with reporting to OCS and UNDP
	W1.2: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refuelling to be undertaken in areas away from water systems.	Entire construction and operation phase	All Personnel	Weekly with reporting to OCS and UNDP
	W1.3: Conduct regular surface and groundwater quality monitoring in location where the groundwater is likely to be impacted including assessing the changes to groundwater quality.	Entire construction and operation phase	Community liaison and mobilization officers	As required with reporting to OCS and UNDP
	W1.4: Construction materials will not be stockpiled in proximity to aquatic environment that may allow for release into the environment. Construction equipment will be removed from in proximity to the aquatic environment at the end of each working day or if heavy rainfall is predicted	Entire construction and operation phase	Community liaison and mobilization officers	Maintain daily records

5.5 EROSION, DRAINAGE AND SEDIMENT CONTROL

5.5.1 Background

5.5.2 Soils

176. Soils developed on the atolls are typically thin and poor. Atolls are generally composed of porous coral sediments. Drainage is generally not a major problem due to rapid perculation of liquids into the soil and substrate.

177. Soil erosion depends on several parameters such as type of soil, slope, vegetation, the nature of topography and rainfall intensity. The loss of soil stability and soil erosion can takes place due to the removal of vegetation cover, and numerous construction activities. It can cause the loss of soil fertility and induce slope instability.

178. Rainfall can have a significant impact on the ability to manage environmental impacts, particularly in terms of managing drainage, erosion and sedimentation. Therefore activities which involve significant disturbance of soil or operating with drainage lines and waterways should be planned to be undertaken during the driest months. It is also important to ensure that all required erosion and sediment control mechanisms are in place before the onset of the wet season.

179. The project will undertake construction of rainwater tanks, which will require preparation of a tank base and most likely stockpiling of materials prior to construction. These activities have the potential to cause erosion if not properly managed.

180. Activities that have the potential to cause erosion should be undertaken with the likely weather conditions in mind.

5.5.3 Performance Criteria

181. The following performance criteria are set for the projects:

- no build-up of sediment in the aquatic environments and/or surface and/or groundwater as a result of construction and operation activities;
- no degradation of water quality on or off site of all projects;
- all water exiting the project site and/or into groundwater systems is to have passed through best practice erosion, drainage and sediment controls; and
- effective implementation of site-specific EDSCP.

By following the management measures set out in the ESMFMP, construction and operation activities of the projects will not have a significant impact as a result of sedimentation across the broader area.

5.5.4 Monitoring

A standardised sediment control monitoring program has been developed for the projects (Table 11). The program is subject to review and update at least every two months from the date of issue. The field officer will be required to:

- conduct site inspections on a weekly basis or after rainfall events exceeding 20mm in a 24 hour period;
- develop a site-specific checklist to document non-conformances to this ESMFMP or any applicable EDSCPs; and
- communicate the results of inspections and/or water quality testing and ensure that any issues associated with control failures are rapidly rectified and processes are put in place to ensure that similar failures are not repeated.

5.5.5 Reporting

182. All sediment and erosion control monitoring results and/or incidents will be tabulated and reported as outlined in the ESMFMP. The OCS must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to erosion and sediment control is exceeded

Table 11 Erosion, Drainage and Sediment Control Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities	E1.1: Develop and implement an EDSCP for any surface works, embankments and excavation work, water crossings and stormwater pathways.	Construction phase	Contractor	Maintain records
	E1.2: Ensure that erosion and sediment control devices are installed, inspected and maintained as required.	Construction phase	Contractor	Maintain records
	E1.3: Schedule/stage works to minimise cleared areas and exposed soils at all times.	Pre and during construction	Contractor	Maintain records
	E1.4: Incorporate the design and location of temporary and permanent EDSC measures for all exposed areas and drainage lines. These shall be implemented prior to pre-construction activities and shall remain onsite during work	Pre and during construction	Contractor	Maintain records
	E1.5: Schedule/stage proposed works to ensure that major vegetation disturbance and earthworks are carried out during periods of lower rainfall and wind speeds.	Pre and during construction	Contractor	Maintain records
	E1.6: Strip and stockpile topsoil for use during revegetation and/or place removed soils back on to agricultural lands.	Pre and during construction	Contractor	Maintain records
	E1.7: Schedule/stage works to minimise the duration of stockpiling topsoil material. Vegetate stockpiles if storage required for long periods.	During construction	Contractor	Maintain records

	E1.8: Locate stockpile areas away from drainage pathways, waterways and sensitive locations.	Pre and during construction	Contractor	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities	E1.9: Design stormwater management measures to reduce flow velocities and avoid concentrating runoff.	Pre and during construction	Contractor & Community liaison and mobilization officers	Maintain records
	E1.10: Include check dams in drainage lines where necessary to reduce flow velocities and provide some filtration of sediment. Regularly inspect and maintain check dams.	Pre and during construction	Contractor & Community liaison and mobilization officers	Maintain records
	E1.11: Bunding shall be used either within watercourses or around sensitive/dangerous goods as necessary.	During construction	Contractor	Maintain records
	E1.12: Silt fences or similar structures to be installed to protect from increased sediment loads.	During construction	Contractors	Maintain records
	E1.13: Excess sediment in all erosion and sediment control structures (eg. sediment basins, check dams) shall be removed when necessary to allow for adequate holding capacity.	During construction	Contractors	Maintain records
E2: Soil Contamination	E2.3: Drainage control measures to ensure runoff does not contact contaminated areas (including contaminated material within the project footprints) and is directed/diverted to stable areas for release.	Construction phase	Contractor	Daily and maintain records
	E2.4: Avoid importing fill that may result in site contamination and lacks accompanying certification/documentation. Where fill is not available through on site cut, it must be tested in accordance with geotechnical specifications.	Construction phase	Contractor	Daily and maintain records

5.6 WASTE MANAGEMENT

5.6.1 Background

183. Collection of waste takes place only on the two main centres of Majuro and Ebeye.

184. As the implementing agency, the OCS advocate good waste management practice. The preferred waste management hierarchy and principles for achieving good waste management is as follows:

- waste avoidance(avoid using unnecessary material on the projects);
- waste re-use (re-use material and reduce disposing);
- waste recycling (recycle material such as cans, bottles, etc.); and
- waste disposal (all petruscible and/or contaminated waste to be dumped at approved landfills).

185. The key waste streams generated during construction are likely to include residual sediment and construction wastes such as:

- wastes from construction
- Various heavy vehicles and construction equipment will be utilised for the duration of the construction. Liquid hazardous wastes from cleaning, repairing and maintenance of this equipment may be generated. Likewise leakage or spillage of fuels/oils within the site needs to be managed and disposed of appropriately;
- non-hazardous liquid wastes will be generated through the use of workers' facilities such as toilets; and
- general wastes including scrap materials and biodegradable wastes.

186. Workers involved in construction and operational activities should be familiar with methods minimising waste and also clearing of vegetation to minimise the footprint to that essential for the works and rehabilitate disturbed areas. By doing these activities, the projects should minimise the impact of waste generated by the project.

5.6.2 Performance Criteria

187. The following performance criteria are set for the construction of the projects:

- waste generation is minimised through the implementation of the waste hierarchy (avoidance, reduce, reuse, recycle);
- no litter will be observed within the project area or surrounds as a result of activities by site personnel;
- no complaints received regarding waste generation and management;; and
- waste oils will be collected and disposed or recycled off-site, local oil companies or shipped for recycling.

5.6.3 Monitoring

188. A waste management monitoring program has been developed for the projects (Table 12). The program is subject to review and update at least every two months from the date of issue.

5.6.4 Reporting

189. The OCS as implementing agency must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to waste is exceeded.

Table 12 Waste Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WT1: Production of wastes and excessive use of resources	WT1.1: Preference shall be given to materials that can be used to construct the project that would reduce the direct and indirect waste generated.	Pre and during construction	Contractor	Maintain records
	WT1.2: Daily waste practices shall be carried out unless these are delegated to the activities of external waste management bodies.	During construction	Contractor	Daily and maintain records
	WT1.3: The use of construction materials shall be optimised and where possible a recycling policy adopted.	During construction	Contractor	Weekly and maintain records
	WT1.4: Separate waste streams shall be maintained at all times i.e. general domestic waste, construction and contaminated waste. Specific areas on site shall be designated for the temporary management of the various waste streams.	During construction	Contractor	Weekly and maintain records
	WT1.5: Any contaminated waste shall be disposed of at an approved facility.	During construction	Contractor	Weekly and maintain records
	WT1.6: Recyclable waste (including oil and some construction waste) shall be collected separately and disposed of correctly.	During construction	Contractor	Weekly and maintain records
	WT1.7: Waste sites shall be sufficiently covered to ensure that wildlife does not have access.	During construction	Contractor	Daily
	WT1.8: Disposal of waste shall be carried out in accordance with the Government of RMI requirements.	During construction	Contractor	Weekly and maintain records

	WT1.9: Fuel and lubricant leakages from vehicles and plant shall be immediately rectified.	During construction	Contractor	Daily and maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WT1: Production of wastes and excessive use of resources	WT1.10: Major maintenance and repairs shall be carried out off-site whenever practicable.	During construction	Contractor	Weekly and maintain records
	WT1.11: Where possible, fuel and chemical storage and handling shall be undertaken at central fuel and chemical storage facilities, such as petrol stations.	During Construction	Contractor	Daily and maintain records
	WT1.12: On-site storage of fuel and chemicals shall be kept to a minimum.	During Construction	Contractor	Daily, maintain records and report any incidents
	WT1.13: Any waste oils and lubricants are to be collected and transported to recyclers or designated disposal sites as soon as possible.	During Construction	Contractor	Daily and maintain records
	WT1.14: Any dangerous goods stored on site shall be stored in accordance with RMI regulations.	During Construction	Contractor	Daily and maintain records

5.7 Air Quality

5.7.1 Background

190. As a nation with little heavy industry and flat topography that is subject to oceanic winds, the air quality in the Marshall Islands is generally considered to be high. Localised sources of pollution include power stations, shipping fleets, motor vehicles, air craft and industries such as tuna processing facilities.

191. All construction activities have the potential to cause air quality nuisance.

192. The project areas are predominantly village or rural in character. Existing air quality reflects those environments, with dust being the main air quality nuisance.

193. Workers involved in construction and operation activities should be familiar with methods minimising the impacts of deleterious air quality and alternative construction procedures as contained in RMI legislation or international good practice.

5.7.2 Performance Criteria

194. The following performance criteria are set for the construction of the projects:

- release of dust/particle matter must not cause an environmental nuisance;
- undertake measures at all times to assist in minimising the air quality impacts associated with construction and operation activities; and
- corrective action to respond to complaints is to occur within 48 hours.

5.7.3 Monitoring

195. A standardised air monitoring program has been developed for the projects (Table 13). The program is subject to review and update at least every two months from the date of issue. Importantly:

- the requirement for dust suppression will be visually observed by site personnel daily and by OCS and UNDP staff when undertaking routine site inspections; and
- Vehicles and machinery emissions – visual monitoring and measured when deemed excessive.

5.7.4 Reporting

196. All air quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMFMP. The OCS must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to air quality is exceeded

Table 13 Air Quality Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
A.1 Increase in dust levels at sensitive receptors	A1.1: Implement effective dust management measures in all areas during design, construction and operation.	Pre and during construction	All Personnel	Daily and maintain records
	A1.2: Restrict speeds on roads and access tracks.	During construction	Contractor	Daily and maintain records
	A1.3: Manage dust/particulate matter generating activities to ensure that emissions do not cause an environmental nuisance at any sensitive locations	During construction	Contractor	Daily and maintain records
	A1.4: Construction activities should minimise risks associated with climatic events (check forecasts).	During construction	Contractor	Daily and maintain records
	A1.5: Implement scheduling/staging of proposed works to ensure major vegetation disturbance and earthworks are minimised.	Entire construction	Contractor	Daily and maintain records
	A1.6: Locate material stockpile areas as far as practicable from sensitive receptors. Cover if appropriate.	During construction	Contractor	Daily and maintain records
	A1.7: Source sufficient water of a suitable quality for dust suppression activities complying with any water restrictions.	During construction	Contractor	Daily and maintain records
	A1.8: Schedule revegetation activities to ensure optimum survival of vegetation species.	During construction	Contractor	Maintain records
	A1.9: Rubbish receptacles should be covered and located as far as practicable from sensitive locations	During construction	Contractor	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
A2. Increase in vehicle / machinery emissions	A2.1 Ensure vehicles/machines are switched off when not in use.	During construction	Contractor	Daily and maintain records
	A2.2 Ensure only vehicles required to undertake works are operated onsite.	During construction	Contractor	Daily and maintain records
	A2.3 Ensure all construction vehicles, plant and machinery are maintained and operated in accordance with design standards and specifications.	During construction	Contractor	Daily and maintain records
	A2.4 Develop and implement an induction program for all site personnel, which includes as a minimum an outline of the minimum requirements for environmental management relating to the site.	Pre and during construction	Contractor	Daily and maintain records
	A2.5 Locate construction vehicle/plant/equipment storage areas as far as practicable from sensitive locations.	During construction	Contractor	Daily and maintain records
	A2.6 Direct exhaust emissions of mobile plant away from the ground.	During construction	Contractor	Daily and maintain records

5.8 Social Management

5.8.1 Background

197. The 2011 census recorded the total population of the Marshall Islands as approximately 53,000.

198. The Marshall Islands was one of the fastest growing island nations with an annual growth rate of 4.2 % from 1980 to 1988. This slowed to 0.4% in the last decade (SOE 2016).

199. Based on the census report 2011, 74% of the population live in urban areas, which is high on a world basis. Internal migration from rural areas to the urban centres continues. Majuro, the largest urban centre, the next largest uban area is Ebye. The remaining population is spread throughout the atolls.

200. The average Marshallese household comprises of 7.2 members. Most households are headed by men (76%). In urban areas, 33 percent of households have nine or more members, compared with 25 percent in rural areas, indicating a need for housing in urban areas. Large household sizes and limited land area make for dense living conditions, with one quarter of all households using only one room for sleeping.

201. Large household size is not just a reflection of a growing population, but is also indicative of specific Marshallese cultural practices. Over 4 in 10 households included one or more children who stayed with neither their natural father nor their natural mother. The percentage is higher in rural areas (50% compared to 44%). Survey results (RMI DHS 2007) showed that almost one quarter (23.2%) of Marshallese children under 18 were not living with either parent.

202. The population of RMI is the second youngest in the Pacific Islands, with a median age of 19.2, with just over half of the country's population younger than 20 years of age (RMI DHS 2007[2]). The older age groups are very small in comparison, as can be seen in the population pyramid *Figure 10*). There are only slightly more men (51%) than women (49%), which is the same for both urban and rural areas. This age structure means that when the young population eventually reaches reproductive age, the result will be a high population growth rate for some years to come.

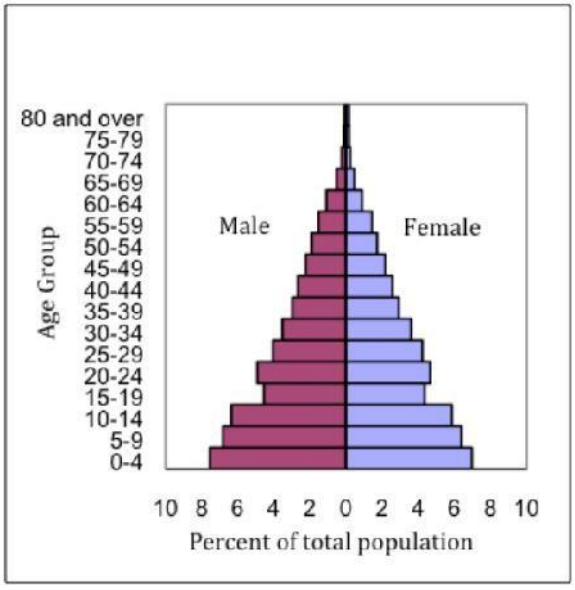

Figure 10 Population pyramid for RMI 2011 census

[2] Republic of the Marshall Islands 2007 Demographic and Health Survey

203. The project has been designed with the assistance of stakeholders and aims to provide benefits to the broader community. Notwithstanding, as with any project that involves construction, some dissatisfaction can occur and conflicts may arise. It is important that potential areas of tension are recognised early and appropriate actions taken to avoid or minimise conflict.

204. The project and its sub-projects do not require involuntary resettlement or acquisition of land although they may impact on land during construction activities which will be temporary in nature.

5.8.1.1 Cultural Heritage

205. Cultural history, folklore, assets and places are important matters for future planning. There is a need to understand the implications of cultural heritage assets on affecting future urban structure and land uses. Cultural heritage sites, areas, places and practices should be protected and celebrated via subsequent planning tools as an important feature of local identity and sense of place.

206. The culture, history and natural environment of the Marshallese cannot be separated because specific places, rocks, trees and animals have powerful cultural meaning. With over 3000 years of human habitation there are some very significant prehistoric sites. These include battle sites, burial sites and others that are central to local myths and legends. The management of natural cultural sites is coordinated at the national level by the Historic Preservation Office

207. The Marshallese people have long been cultivating the land for food, medicinal and other traditional purposes. The cultural change over the past 100 years is evidenced by Marshallese food sources. In the early 1900s, the Marshallese depended on local sources for most of their carbohydrate needs. The consumption of local root and tree crops (taro, breadfruit, banana, pandanus and arrow roots) has declined since the early 1900s. Coconut consumption in urban centres has also decreased. These traditional food sources have been replaced by food imports.

208. While no cultural heritage places, buildings and monuments are known to exist in areas where the project will be undertaken, further investigation of places and practices of cultural and historic heritage significance should be undertaken as part of the preparation process.

209. In the past, the people of the Marshall Islands used many methods to sustainably harvest natural resources. One of the methods remaining in use in some areas is *mo* – the traditional system to designate all or part of an island, or a reef area, as a restricted site. Special permission from the iroij was required to visit a *mo*. Harvesting from the *mo* was done for special occasions, or in times of famine. The rules and regulations for *mo* varied across the archipelago and often involved rituals and chants. There was a belief that failure to comply with the rules, rituals and chants could result in a bad storm for the homeward journey, or a tragic accident for a member of the visiting party.

210. Other methods for conserving natural resources included seasonal harvesting of different species, and other restrictions, such as those practiced on Wotje Atoll, where the size of coconut crabs was restricted and no females with eggs were to be taken. On some atolls *mo* are still known by the community and are respected. In other places (e.g. urban centres), the community has no living memory of *mo* and how this important method of conservation and sustainable use is being lost, along with the deep ecological understanding that accompanied it.

211. There are 118 prehistoric sites and 212 historic sites in RMI. Most have general management plans except for Jaluit Atoll.

5.8.2 Performance Criteria

212. The following performance criteria are set for the project:

- the community has been consulted and project elements have been designed with their informed consultation and participation throughout the project;
- all stakeholders are appropriately represented;

- avoid adverse impacts to local community during construction and operations and where not possible, minimise, restore or compensate for these impacts;
- cultural heritage is not adversely impacted;
- community health and safety is protected and overall well-being benefits derived from the project;
- complaint and grievance mechanisms are put in place and proactively managed; and
- long-term social benefits are achieved.

5.8.3 Monitoring

213. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.

214. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

215. OCS will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

5.8.4 Reporting

216. Records of all consultations are to be kept and reported on monthly basis.

217. The OCS must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.

Table 14: Social Management Measures

Issue	Control Activity (and Source)	Action Timing	Responsibility	Monitoring and Reporting
SM1: Changes or loss of access	SM 1.1: Carry out community consultation on the purpose and benefits of making changes to land use	Pre-construction	OCS/Project Team	Maintain records
	SM 1.2: Get community buy-in on any change of land use	Pre-construction	OCS	Maintain records
	SM 1.3: Ensure compliance with the Grievance Redress Mechanism process	Entire construction and operation phase	OCS	Maintain records
SM2: Public nuisance caused by construction/operation activities (eg noise, dust etc)	SM 2.1: Carry out community consultation prior to undertaking activities	Pre-construction	OCS	Maintain records
	SM 2.2: Implement appropriate management plans (refer to Noise, Air, ESCP, and Waste sections of ESMFMP)	Construction and operation	Contractor	Daily and maintain records
	SM 2.3: Ensure compliance with the Grievance Redress Mechanism process	All phases	OCS	Maintain records
SM3 Damage or disturbance to significant important Archaeological, Indigenous and/or Cultural Heritage during the earth	SM3.1 Should any important Archaeological, Indigenous and/or Cultural Heritage sites, immediately cease work within the area that the site has been observed and consult with the relevant Museum/traditional owner groups, UNDP, OCS and archaeologist available for implementation during construction	Pre and post construction	All personnel	Maintain records

disturbances and land clearing activities				

5.9 Emergency Management Measures

218. In the event of actions occurring, which may result in serious health, safety and environmental (catastrophic) damage, emergency response or contingency actions will be implemented as soon as possible to limit the extent of environmental damage.

219. The delivery organisation will need to incorporate emergency responses into the project complying with the requirements under the Occupational, Health and Safety Policy of the delivery organisation and the relevant RMI legislation.

5.9.1 Performance Criteria

220. The following performance criteria are set for the construction of the projects:

- no incident of fire outbreak;
- no failure of water retaining structures;
- no major chemical or fuel spills;
- no preventable industrial or work related accidents;
- provide an immediate and effective response to incidents that represent a risk to public health, safety or the environment; and
- minimise environmental harm due to unforeseen incidents.

5.9.2 Monitoring

221. An emergency response monitoring program has been developed for the projects (Table 15). The program is subject to review and update at least every two months from the date of issue. Importantly, visual inspections will be conducted by field officer daily with reporting to OCS and UNDP staff on a weekly basis (minimum) noting any non-conformances to this ESMFMP.

5.9.3 Reporting

222. The OCS and UNDP staff must be notified immediately in the event of any emergency, including fire or health related matter including those that have resulted in serious environmental harm

Table 15 Emergency Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1. Fire and Emergency management and prevention strategies implemented during construction activities	E1.1: Flammable and combustible liquids bunding/storage areas to be designed in accordance with appropriate international standards	Pre and during construction	Contractor	Daily and maintain records
	E1.2: Fire extinguishers are to be available on site	During construction	Contractor	Daily and maintain records
	E1.3: No open fires are permitted within the project area	During construction	Contractor	Daily and maintain records
	E1.4: Communication equipment and emergency protocols to be established prior to commencement of construction activities.	Throughout project	Contractor	Maintain records
	E1.6: Train all staff in emergency preparedness and response (cover health and safety at the work site). Coordinate with NDMO.	During construction	Contractor	Maintain records
	E1.7: Check and replenish First Aid Kits	During construction	Contractor	Weekly and maintain records
	E1.8: Use of Personal Protection Equipment	During construction	Contractor	Daily and maintain records

Appendix

Empowered lives.
Resilient nations.

Guidance for Submitting a Request to the Social and Environmental Compliance Unit (SECU) and/or the Stakeholder Response Mechanism (SRM)

Purpose of this form

- **If you use this form, please put your answers in bold writing to distinguish text**
- **The use of this form is recommended, but not required. It can also serve as a guide when drafting a request.**

This form is intended to assist in:

(1) Submitting a request when you believe UNDP is not complying with its social or environmental policies or commitments and you are believe you are being harmed as a result. This request could initiate a 'compliance review', which is an independent investigation conducted by the Social and Environmental Compliance Unit (SECU), within UNDP's Office of Audit and Investigations, to determine if UNDP policies or commitments have been violated and to identify measures to address these violations. SECU would interact with you during the compliance review to determine the facts of the situation. You would be kept informed about the results of the compliance review.

and/or

(2) Submitting a request for UNDP "Stakeholder Response" when you believe a UNDP project is having or may have an adverse social or environmental impact on you and you would like to initiate a process that brings together affected communities and other stakeholders (e.g., government representatives, UNDP, etc.) to jointly address your concerns. This Stakeholder Response process would be led by the UNDP Country Office or facilitated through UNDP headquarters. UNDP staff would communicate and interact with you as part of the response, both for fact-finding and for developing solutions. Other project stakeholders may also be involved if needed.

Please note that if you have not already made an effort to resolve your concern by communicating directly with the government representatives and UNDP staff responsible for this project, you should do so before making a request to UNDP's Stakeholder Response Mechanism.

Confidentiality If you choose the Compliance Review process, you may keep your identity confidential (known only to the Compliance Review team). If you choose the Stakeholder Response Mechanism, you can choose to keep your identity confidential during the initial eligibility screening and assessment of your case. If your request is eligible and the assessment indicates that a response is appropriate, UNDP staff will discuss the proposed response with you, and will also discuss whether and how to maintain confidentiality of your identity.

Guidance

When submitting a request please provide as much information as possible. If you accidentally email an incomplete form, or have additional information you would like to provide, simply send a follow-up email explaining any changes.

Information about You

Are you…

1. A person affected by a UNDP-supported project?

Mark "X" next to the answer that applies to you: Yes: No:

2. An authorized representative of an affected person or group?

Mark "X" next to the answer that applies to you: Yes: No:

If you are an authorized representative, please provide the names of all the people whom you are representing, and documentation of their authorization for you to act on their behalf, by attaching one or more files to this form.

3. First name:
4. Last name:
5. Any other identifying information:
6. Mailing address:
7. Email address:
8. Telephone Number (with country code):
9. Your address/location:
10. Nearest city or town:
11. Any additional instructions on how to contact you:
12. Country:

What you are seeking from UNDP: Compliance Review and/or Stakeholder Response

You have four options:

- Submit a request for a Compliance Review;
- Submit a request for a Stakeholder Response;
- Submit a request for both a Compliance Review and a Stakeholder Response;
- State that you are unsure whether you would like Compliance Review or Stakeholder Response and that you desire both entities to review your case.

13. Are you concerned that UNDP's failure to meet a UNDP social and/or environmental policy or commitment is harming, or could harm, you or your community? Mark "X" next to the answer that applies to you: Yes: No:

14. Would you like your name(s) to remain confidential throughout the Compliance Review process?

Mark "X" next to the answer that applies to you: Yes: No:

If confidentiality is requested, please state why

15. Would you like to work with other stakeholders, e.g., the government, UNDP, etc. to jointly resolve a concern about social or environmental impacts or risks you believe you are experiencing because of a UNDP project?

Mark "X" next to the answer that applies to you: Yes: No:

16. Would you like your name(s) to remain confidential during the initial assessment of your request for a response?

Mark "X" next to the answer that applies to you: Yes: No:

If confidentiality is requested, please state why:

17. Requests for Stakeholder Response will be handled through UNDP Country Offices unless you indicate that you would like your request to be handled through UNDP Headquarters. Would you like UNDP Headquarters to handle your request?

Mark "X" next to the answer that applies to you: Yes: No:

If you have indicated yes, please indicate why your request should be handled through UNDP Headquarters:

18. Are you seeking both Compliance Review and Stakeholder Response?

Mark "X" next to the answer that applies to you: Yes: No:

19. Are you unsure whether you would like to request a Compliance Review or a Stakeholder Response? Mark "X" next to the answer that applies to you: Yes: No:

Information about the UNDP Project you are concerned about, and the nature of your concern:

20. Which UNDP-supported project are you concerned about? (if known):

21. Project name (if known):

22. Please provide a short description of your concerns about the project. If you have concerns about UNDP's failure to comply with its social or environmental policies and commitments, and can identify these policies and commitments, please do (not required). Please describe, as well, the types of environmental and social impacts that may occur, or have occurred, as a result. If more space is required, please attach any documents. You may write in any language you choose

23. Have you discussed your concerns with the government representatives and UNDP staff responsible for this project? Non-governmental organisations?

Mark "X" next to the answer that applies to you: Yes: No:

If you answered yes, please provide the name(s) of those you have discussed your concerns with

Name of Officials You have Already Contacted Regarding this Issue:

First Name	Last Name	Title/Affiliation	Estimated Date of Contact	Response from the Individual

24. Are there other individuals or groups that are adversely affected by the project?

Mark “X” next to the answer that applies to you: Yes: No:

25. Please provide the names and/or description of other individuals or groups that support the request:

First Name	Last Name	Title/Affiliation	Contact Information

Please attach to your email any documents you wish to send to SECU and/or the SRM. If all of your attachments do not fit in one email, please feel free to send multiple emails.

Submission and Support

To submit your request, or if you need assistance please email: project.concerns@undp.org