The Republic Of The Marshall Islands

Green Climate Fund Programme

GREEN CLIMATE FUND

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ACKNOWLEDGMENTS

The Republic of the Marshall Islands (RMI) GCF Country Programme takes into account stakeholder input, other national strategic plans such as the National Strategic Plan and the Tile Til Eo 2050 Climate Strategy, RMI pipeline projects including the National Adaptation Plan (NAP), Readiness and other climate change projects and programmes being implemented in RMI.

The RMI GCF Country Programme was developed by Pacific Science Solutions (PSS), Melbourne, Australia for the RMI Government under its GCF engagement Readiness Project, with support from the Secretariat of the Pacific Regional Environment Programme (SPREP). The document was drafted in collaboration with the RMI National Designated Authority (Mr Clarence Samuel), GCF Readiness Coordinator (Ms Lani Milne) and the PSS national consultant (Ms Brooke Takala) and was guided by the GCF country programme development guide. The cover photograph was taken by Ms Lani Milne.

FOREWORD

The Republic of the Marshall Islands has long been a leader in global efforts to limit climate change. We are proud of our contribution to the Paris Agreement and to many subsequent international attempts to address this enormous challenge. We have committed our country to rapid reductions in our already very small contribution to humanity's greenhouse gas outputs, beyond what is asked of us by the rest of the world. In doing so, we hope to encourage other countries to embrace ambitious targets for reduction of their own emissions. At the same time, we are realistic in accepting that climate change is already affecting us, and that we must adapt to it and counter its impacts on our people and our livelihoods as much as we can.

The Marshall Islands is one of the world's most vulnerable countries to the heating of the atmosphere and the warming and acidification of the Earth's oceans. Our islands are small, low-lying, and remote from markets and although they have sustained us for millennia, they have few natural resources beyond what we need for subsistence. We depend on our development partners, particularly the United States of America, for many essentials, not least the means to observe accurately and analyse the progress of climate change and its impacts on our country.

Marshall Islands Governments have undertaken extensive consultations across all levels of society to develop policies and priorities for both mitigation of our contribution to climate change and adaptation to its unavoidable impacts. Some of these priorities are already being addressed through projects and programs and through the implementation of new policies. The Green Climate Fund supports this work through its Readiness Program.

The approval of this Country Programme by the Green Climate Fund will enable the Marshall Islands to plan the capital works and comprehensive structural changes we need to make. Access to this important international funding source will make possible the efficient implementation of our science-informed policies, through planned no-regrets action to reduce our emissions, and to protect and enhance our lives, assets and livelihoods.

I am pleased to endorse this national response to the Green Climate Fund's invitation on behalf of the Government of the Marshall Islands

The Honorable Christopher J. Loeak
Minister-in-Assistance to the President and Environment

ACRONYMS & ABBREVIATIONS

ADB	Asian Development Bank
AE	Accredited Entity
ADFD	Abu Dhabi Fund for Development
CI	Conservation International
CP	Country Programme
CCA	Climate Change Adaptation
CCD	Climate Change Directorate
CMI	College of the Marshall Islands
COFA	Compact of Free Association
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
CTF	USA Compact Trust Fund
DIDA	Division of International Development Assistance
DM	Disaster Management
DRM	Disaster Risk Management
DRM NAP	National Action Plan for Disaster Risk Management 2008-2018
DRR	Disaster Risk Reduction
EA Form	GCF Eligibility Assessment Form
EEZ	Exclusive Economic Zone
ENSO	El Niño – Southern Oscillation
EPA	Environmental Protection Authority
FAO	Food and Agricultural Organization
FDI	Foreign Direct Investment
GCF	Green Climate Fund
GDP	Gross Domestic Product
GGS	Green Growth Strategy
GHG	Greenhouse Gas
GIZ	Development assistance provider for the German Government
GNDI	Gross national disposable income
GNI	Gross national income
GoRMI	Government of the Republic of the Marshall Islands
ICT	Information and Communications Technology
IMF	International Monetary Fund
IOM	International Organisation for Migration
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
ISAAC	Institutional Strengthening in Pacific Island Countries to Adapt to Climate Change
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
JNAP	Joint National Action Plan
KAJUR	Kwajalein Atoll Joint Utilities Resources
KfW	German Government-owned development bank
MAWC	Majuro Atoll Waste Company
M&E	Monitoring and Evaluation
MCT	Micronesian Conservation Trust
MoFAT	Ministry of Foreign Affairs and Trade

MIMRA	Marshall Islands Marine Resources Authority
MISSA	Marshall Islands Social Security Administration
MoFBPS	Ministry of Finance, Banking and Postal Services
MoHHS	Ministry of Health and Human Services
MoCIA	Ministry of Culture and Internal Affairs
MNRC	Ministry of Natural Resources and Commerce
MWIU	Ministry of Works, Infrastructure and Utilities
MWSC	Majuro Water and Sewer Company
NAMA	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Plan
NDA	RMI National Designated Authority for interaction with the GCF
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organisation
NOAA	National Oceanic and Atmospheric Administration
NOL	No Objection Letter to the Green Climate Fund
OCS	Office of the Chief Secretary
ODA	Official Development Assistance
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PMO	Project Management Office
PMU	Program Management Unit
PRIF	Pacific Regional Infrastructure Facility
RMI	Republic of the Marshall Islands
RMIEPA	RMI Environmental Protection Authority
SDGs	UN Global Sustainable Development Goals
SDP	Strategic Development Plan
SIDS	Small Island Developing States
SOE	State Owned Enterprise
SPC	The Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
TTEC	Tile Til Eo Committee
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollar
WB	World Bank
WHO	World Health Organization
WMO	World Meteorological Organization
WRI	World Resources Institute
WSO	Weather Service Office
WUTMI	Women United Together Marshall Islands

COUNTRY PROGRAMME (CP) DEVELOPMENT AND IMPLEMENTATION

PURPOSE OF THE COUNTRY PROGRAMME

The key purpose of the Marshall Islands' Country Programme (CP) is to enable the Marshallese climate action aspirations to be realised by identifying short-term and long-term projects, programmes and investment priorities. The CP outlines the Marshall Islands' national priorities and presents opportunities for the preparation of GCF funding proposals leading to transformational impacts.

The document ensures GCF funding proposals are aligned with GCF investment priorities and with national priorities identified in RMI's climate change frameworks and policies. The priorities and projects in the CP are drawn from a range of stakeholder consultations and review of approved national policies and strategies: Tile Til Eo (TTE) – the 2050 Climate Strategy, the National Adaptation Plan (NAP), the Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2014–2018 (JNAP) and the National Strategic Plan 2020–2030 (NSP). As much as possible, this CP is aligned with the priorities already identified and being implemented through the country's NDC Partnership Plan 2019–2021.

DEVELOPMENT OF THE COUNTRY PROGRAMME

This document was prepared under the direction of the National Designated Authority (NDA) for interaction with the GCF, the GCF Readiness Coordinator and the Secretariat of the Pacific Regional Environmental Programme (SPREP), and has been developed in line with the GCF Initial general guidelines for CPs (adopted by the Board and contained in annex XVII to decision B.08/11, paragraphs (i) and (ii)).

Stakeholder engagement is essential to the development of the Marshall Islands CP and its project proposals, ensuring country ownership of the Programme and activities at all levels, from community groups to local and national government agencies. This process was launched in a facilitated Whole of Government inception workshop on 7 August 2019. Formal stakeholder one-to-one interviews and consultation workshops with diverse, representative groups were held from 6 to 8 November 2019[1]. Stakeholders were asked to help review and critique previous development activities and to provide historical background and local knowledge to the identification of priority areas for climate-related interventions. Stakeholder engagement was conducted in stages to allow reiterative review and prioritisation by the people who will be affected by decisions.
These consultations, several discussions with the NDA and a review of key national climate change policies and frameworks identified the following priority themes.

Mitigation	Adaptation
Decarbonizing Energy	Resilient Infrastructure
Waste Management	Food Security
	Water Security
	Health

Several draft Project Concept Notes addressing these themes are accessible on the GCF RMI website. Against each theme, the CP itself includes two sections on projects. The first section 'Pipeline Projects' nominates early priority projects for further development by GoRMI and an Accredited Entity and submission to the GCF, as well as other early priority projects for consideration by the GCF or other donors. The second lists, 'Current projects' in implementation which are within or complementary to that theme, and pipeline projects.

[1] The full version of the Stakeholder Engagement Plan and the Stakeholder Consultation Report are available from the Government of RMI (GoRMI).

Stakeholder recommendations for the GCF

Stakeholders highlighted multiple areas of concern in relation to climate change—Food/Water Security, Community Resilience and Education, Energy Stability, Risk Management, Ocean Resource Management, Resilient Infrastructure—that could be the focus of GCF projects. Consistently raised priorities are as follows:

Mitigation

Energy:

- Move to renewable energy source (solar PV) as per RMI Electricity Roadmap
- Establish low carbon sea transport, noting the development of a sustainable sea transport project through the Micronesian Center for Sustainable Transport (MCST)
- Phase out use of kerosene for cooking (decarbonize this activity by using LPG and efficient biomass stoves). Noting that Kio Club is near completion for distribution of 'smokeless stoves' on most outer islands; all outer islands have solar systems.

Waste Management:

- Foster innovative approaches to solid waste management including reclaimed land as wave breaks
- Reduction and use of land fill, noting Majuro Atoll Waste Company (MAWC) is currently undertaking a sustainable waste disposal project with guidance from the RMI Environmental Protection Authority (EPA).

Adaptation

Food Security:

- Promote food security by fostering climate change-resilient agriculture.

Water Security:

- Establish alternative water supplies to improve water security on outer islands.

Cross Cutting:

- Conduct a critical assessment of existing climate change policies and agreements
- Improved outer island health centers: climate and climate change-related events including drought, floods and destructive storms elevate the incidence of disease and injury. Outer island health centers need more resources and support to deal with existing demand and the impacts of extreme events.
- Establish more Reverse Osmosis (RO) units in outer island communities: most existing wells are now brackish because of saltwater intrusion.
- Give precedence to the procurement of radio equipment for programming on awareness and training on issues exacerbated by internal migration and climate change

- Provide in-country training opportunities on issues related to the incremental impacts of climate change and response measures (cross cutting with community resilience)

- Develop and implement capacity building and in-house advisors on the financial implications of climate change including strategic planning and responses to reduce shocks and vulnerabilities, and innovative mechanisms

- Restoring the jonner forests: re-planting jonner forests is widely seen as vital for lessening the impacts of king tides and coastal erosion

- Conduct Gender Equality Training: education and training on gender equality in the context of climate change is essential to the successful delivery of programme and project outcomes.

Key Stakeholders

During the in-country consultations, numerous national stakeholders were identified from Marshall Islands' government agencies, NGOs, CSOs and others who could be involved either directly or indirectly in projects outlined in the CP.

Stakeholder	Description
Council of Chiefs	The Council of Iroij is the upper house of RMI's bicameral parliament, comprised of 12 Chiefs, who advise the Presidential Cabinet and review legislation affecting customary law or any traditional practice. The Council is very influential in government and society and its endorsement ensures access to officials and community groups.
Climate Change Directorate	CCD's mandate is to assist RMI to strengthen its institutional and procedural mechanisms to meet its climate change obligations through an inclusive and participatory approach based on good governance; knowledge sharing; and proactive communities to build resilience and adapt to the changing climate.
Tile Til Eo Committee	The TTEC provides oversight of the RMI response to climate change and to the reduction of climate and disaster risk for the well-being of the people of RMI.
Division of International Development Aid	DIDA is RMI's aid coordination agency and is located within the Ministry of Finance. DIDA represents RMI to the ADB and the World Bank and oversees the management of externally funded activities.
All Ministries and Government Departments	The work of all RMI Government Ministries will be affected by the increasing heating of the ocean and atmosphere, and other impacts associated with climate change (may include Ministry of Health and Human Services (MOHHS), Public School System (PSS), Ministry of Natural Resources and Commerce (MNRC), Ministry of Finance). The Government of RMI is a primary beneficiary of all GCF interventions in RMI: the activities' objective is to facilitate changes that enable government agencies to increase the Marshall Islands' resilience to climate change impacts. The support of senior ministry officials will be essential to the success of interventions. They must be able to see tangible benefits for their departments from implementation of activities.

Island communities	Communities are one of the ultimate beneficiaries of all Programme interventions. The GCF Programme will increase their resilience to climate change impacts.
NGOs, civil society, church groups, island disaster committees	Civil society organisations will benefit from opportunities to expand work they already do with communities, build on successful pilot projects and to extend the range of their activities. The GCF's focus on vulnerable people and gender equality will expand opportunities for marginalized groups to influence activities.
Marshall Islands Red Cross Society (MIRCS)	MIRCS sits auxiliary to the Government and acts as a first responder in any disaster situation. It is also active in youth involvement for CC adaptation measures. It has Emergency Response Teams (ERTs) situated on eleven outer islands, plus the four urban centres.
Women United Together Marshall Islands (WUTMI)	WUTMI has chapters on nearly all outer islands and conducts grass-roots work within communities. The Programme's gender focus will expand opportunities for women to influence activities.
Public media	The Marshall Islands has three main radio stations: one government-run; one privately operated; and one faith-based. The national radio station (V7AB) reaches nearly all outer islands and is the main source of news for the outer islands and urban centres. Cell phones are widely available and in use on some outer islands and the urban centres. Outer islands without cell service have access to DAMA lines.
Private sector	RMI's private sector is concentrated in commercial and artisanal fishing, construction, small commercial crop growers and subsistence agriculture.
Academic institutions	The College of the Marshall Islands, the University of the South Pacific, and other international academic institutions can contribute to research and development on climate change adaptation and mitigation, and exchange and disseminate knowledge through specific courses, publications, national dialogues and public forums.

IMPLEMENTATION AND MONITORING AND EVALUATION OF THE COUNTRY PROGRAMME

The implementation of the CP will be facilitated through institutional arrangements explained in RMI's country specific GCF handbook. Potential projects should be vetted by the Government of RMI (GoRMI) in partnership with Accredited Entities against the priority themes outlined in this CP. The process for developing proposals for consideration by the Tile Til Eo Committee and for applying to the GCF for funding is described in the handbook.

The CP is a living document and will be updated every three years, to monitor its progress and to ensure that the proposed pipeline projects are addressing emerging priorities. This CP outlines projects currently being implemented and proposed in priority sectors and proposes four pipeline projects, based on current priorities nominated by GoRMI.

The RMI GCF handbook states that the NDA will oversee the implementation of all GCF activities implemented in RMI and conduct monitoring and evaluation of the CP's implementation. The Project Review Committee (PRC), a multi-stakeholder Committee chaired by the NDA, supports the NDA in GCF operations, including evaluating and appraising GCF project ideas, concept notes and funding proposals

and evaluating national entity accreditation applications. The handbook describes the overarching role of the Tile Til Eo Committee (TTEC) in providing strategic planning, and approval, oversight and leadership of GCF activities.

The PRC will monitor the implementation of the projects presented in the CP and report on their progress to TTEC. Pipeline projects will be updated by the NDA to ensure they reflect current GoRMI priorities. Three-yearly updates of the CP will include new projects, reports on the implementation status of projects and changes to the framework of national policies and strategies related to climate change.

Regular engagement with the GCF and accredited entities is important to monitor the progress of implementation of this CP. The PRC may require a detailed Monitoring and Evaluation Framework (MEF) to be developed, identifying objectives, outcome and outputs that will be monitored against specific indicators. The MEF can include a timeline for monitoring and reporting, and trigger points to prompt actions such as evaluations and revisions.

For the M&E process, key questions to be considered are:

Stakeholders' engagement in developing projects and initiatives

- What is the level of engagement with accredited entities?
- How are affected communities /beneficiaries involved in project planning and development?
- What is the level of progress in each programming area?
- What new/additional actions are required for adaptation or mitigation?

Country Programme's adaptation and mitigation updates

- Any GCF new developments impacting the CP?
- Any changes in the national context impacting the CP?
- Roles of stakeholders in monitoring and updating the CP?
- Actions and responsibilities to be reflected in the CP?
- Findings of any national and global stocktake?

Progress Reports

- Is there a need for regular monitoring/progress reports on GCF engagement in RMI?

Photo: Christopher Johnson

SECTION A: COUNTRY INFORMATION

PART 1: COUNTRY PROFILE

Geographical location	RMI is part of the Micronesian group of islands, near the equator in the Pacific Ocean, a little west of the International Date Line. It shares maritime boundaries with Wake Island to the north, Kiribati to the southeast, Nauru to the south, and the Federated States of Micronesia to the west. Its atolls lie on ancient, submerged volcanoes rising from the ocean floor, and the highest point on any of its islands is 10 metres above sea level.
Land and ocean area	The atolls and islands form two groups: the Ratak (sunrise) and the Ralik (sunset) archipelagos. The two island chains lie approximately parallel to one another, running northwest to southeast, and have a total land mass of 181 km^2. The country consists of a total of 29 atolls and five individual islands within an area covering about 470,000 km^2 of the Pacific Ocean. RMI's Exclusive Economic Zone (EEZ) covers about 1,900,000 km^2 of ocean. It has the largest proportion of its territory made of water of any sovereign state, at 97.87%. The largest atoll, with a land area of 16 km^2, is Kwajalein. It surrounds a 1,700 km^2 lagoon. The capital and largest city is Majuro. Twenty-four of the atolls and islands are inhabited. The remaining atolls are uninhabited due to poor living conditions, lack of rain or nuclear contamination.
Population[2] **Source: UN**	Estimated population in 2018 of 58,413. The UN indicates a population density of 295 people per km^2 and its projected 2020 population is 59,190. About 70% of the population lives either on Kwajalein in the western group or in the capital, Majuro, in the eastern group[3]. The population density in Majuro is about 2850 people per km^2.
Types of climate[4]	RMI has a tropical maritime climate and its average temperature is relatively constant year-round. Both Majuro and Kwajalein have a dry season from around December to April and a wet season from May to November, but average rainfall varies greatly from north to south of the group of islands. The atolls to the north receive less than 1250 mm of rain each year and are very dry in the dry season, while atolls closer to the equator receive more than 2500 mm each year. The climate varies considerably from year to year due to the El Niño-Southern Oscillation (ENSO). Conditions during La Niña years are generally wetter than normal. El Niño events tend to bring warmer than normal wet seasons and warmer, drier dry seasons. Typhoons (tropical cyclones), droughts and storm waves are the extreme events that most impact the Marshall Islands. In 2015, Typhoon Nangka cost RMI more than 3% of its GDP in a single night. Following severe El Niño events, rainfall can be reduced by as much as 80%. Prolonged droughts are devastating to subsistence farmers and gardeners, and quickly cause water stress in urban centres. RMI declared a State of Disaster in 2013 and 2016 as a result of prolonged and unseasonal droughts, estimated to cost about USD4.9 million. As king tides become more frequent and intense, salt water is increasingly seeping into freshwater lenses, creating urgent challenges for the islands.

[2] https://data.worldbank.org/indicator/SP.POP.TOTL?locations=MH
[3] Pacific Community, 2016, Global Climate Change Alliance: Pacific Small Island States – Volume 2: Country Reports.
[4] PCCSP, 2013, available at <https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/PCCSP_Vol2_Ch7_Marshallislands.pdf> [June 2020]

GHG emissions profile [5]	102.68 kilotons of CO_2 in 2014; 1.80 metric tons per capita; 0.00001% of global greenhouse gas emissions[6]; increase since 2010: 0%.
Key emitter sectors [7]	RMI's GHG emissions derive from four key sectors: electricity generation; transportation (land and sea); waste; and cooking and lighting.
Key climate risks [8]	Based on conservative projections, by 2080, for RMI: • Surface air temperature and sea-surface temperature are projected to continue to increase (very high confidence) • Annual and seasonal mean rainfall is projected to increase (high confidence) • El Niño and La Niña events will continue to occur in the future, but there is little consensus on whether these events will change in intensity or frequency • The intensity and frequency of days of extreme heat are projected to increase (very high confidence) • The intensity and frequency of days of extreme rainfall are projected to increase (high confidence) • The incidence of drought is projected to decrease (moderate confidence) • Tropical cyclone numbers are projected to decline in the tropical North Pacific Ocean basin (0–15°N, 130°E –180°E) (moderate confidence) but the projections indicate a shift in tropical cyclone intensity, with "relatively fewer cyclones with medium intensity, and increased frequencies of both weaker and very intense cyclones" • Ocean acidification is projected to continue (very high confidence) • Mean sea-level rise is projected to continue (very high confidence).
Vulnerable sectors	Climate change will exacerbate existing pressures on marine, coastal and land areas from agriculture, sanitation, coastal and marine management, land use and livelihood practices. Vital infrastructure such as harbours, cyclone shelters, clinics and water supplies are likely to need upgrading to withstand the anticipated increase in the strength of cyclones and the height of storm surges. Coastal erosion and inundation causing salination of arable land will affect food security. Warmer, more acidic water will harm reef ecosystems and coastal fisheries. Rising temperatures and reduced access to fresh water will affect human health and disease vectors may change their ranges. Changes to ocean temperatures are expected to affect pelagic fisheries, and may reduce the value of vessel day fishing licences in RMI's EEZ.
NDA	Director, Climate Change Directorate (CCD)
Regional AEs	SPREP, SPC, MCT
International AEs	UNDP, UNEP, ADB, World Bank, WHO, FAO, IUCN

[5] https://www.macrotrends.net/countries/MHL/marshall-islands/carbon-co2-emissions
[6] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf [June 2020]
[7] Source: RMI Second National Communication (August 2015)
[8] PCCSP, 2013, available at <https://www.pacificclimatechangescience.org/wp- content/uploads/2013/06/PCCSP_Vol2_Ch7_Marshallislands.pdf> [June 2020]

BACKGROUND

The Republic of the Marshall Islands (RMI) is a nation of atolls and islands about halfway between Hawaii and Australia, just north of the equator in the Pacific Ocean. It is a group of 29 major islands and atolls, of which 22 are inhabited, spread out in an archipelago of two parallel chains, the eastern *Ratak* (sunrise) chain and the western *Ralik* (sunset) chain[9]. The average elevation of its islands is about two metres above sea level and the highest recorded point in the group is ten metres above sea level.[10] RMI's exclusive economic zone covers 1.9 million km^2 of ocean, though its total land area is only 181 km^2, and its population about 58,413 in 2018.[11] About 70% of its people live either on Kwajalein in the western group or in the capital, Majuro, in the eastern group.[12]

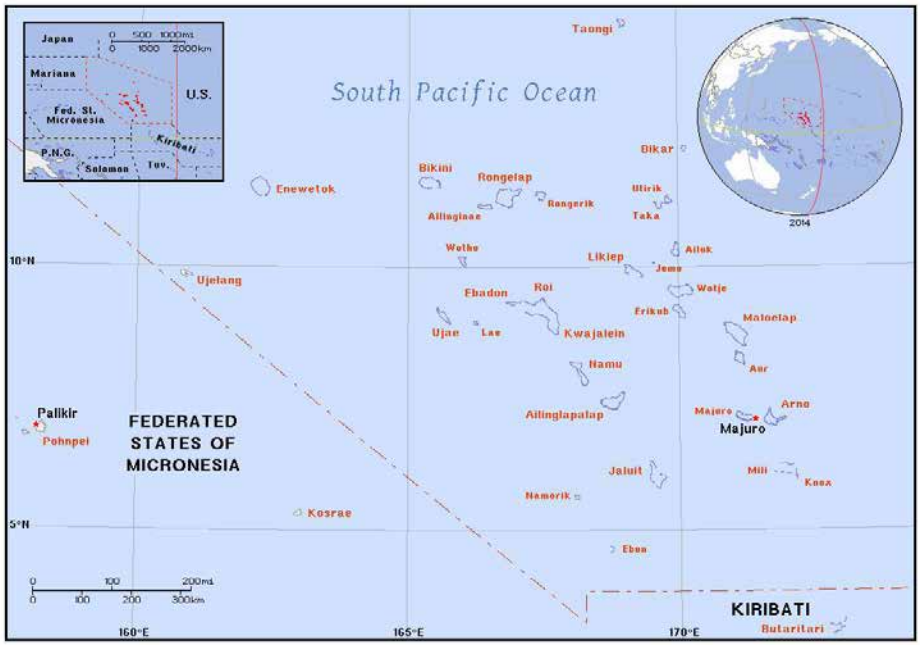

Figure 1: Map of RMI (Source: Ian Mackay)

Our forefathers are believed to have come to the Marshall Islands in the second millennium BCE. "Marshallese culture has been shaped by a unique atoll environment, vast marine resources, and geographical remoteness. Colonial interventions, natural hazards, disaster events, and the onset and intensification of anthropogenic climate change have challenged the inbuilt resilience of both the Marshallese environment and its people. Today, the Republic of the Marshall Islands and the large ocean states of the Pacific region collectively face a range of interlinked challenges and threats associated with economic development, cultural redefinition, the volatility of global politics, and fundamental changes to the Pacific environment and climate." [13]

RMI and other Micronesian islands were claimed variously by Spain, Portugal, Germany and Japan from the 16th century, but from 1946 were held by the United States of America. The Marshall Islands is now an independent parliamentary republic with a close relationship with the United States, formalised in a Compact of Free Association (CoFA), which initially provided USD 1 billion during 1986–2001, and was renegotiated to provide USD 1.5 billion in direct US assistance from 2003–2024. Under the amended Compact, the US is also funding, jointly with the Marshall Islands, a Trust Fund for the people of the Marshall Islands that will provide an income stream beyond 2024 when direct Compact aid is to end.[14] The US Ronald Reagan Missile Test Site at Kwajalein Atoll provides key income to the RMI economy and is estimated to deliver about one-third of RMI's economic activity[15].

[9] Secretariat of the Pacific Community, 2016, Global Climate Change Alliance: Pacific Small Island States – Volume 2: Country Reports.
[10] GFDRR, the World Bank, April 2011, "Vulnerability, Risk Reduction and Adaptation to Climate Change" Climate Risk and Adaptation Country Profile.
[11] The World Bank, 2018, available at <https://data.worldbank.org/country/marshall-islands?view=chart> [August 2019].
[12] Secretariat of the Pacific Community, 2016, Global Climate Change Alliance: Pacific Small Island States – Volume 2: Country Reports.
[13] Pacific Islands Forum Secretariat, Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2014-2018, Implementation Progress Review, March 2018
[14] RMI will continue to receive annually declining grants averaging USD 45 million (26 percent of GDP as of FY2012) until FY2023. A Compact Trust Fund (CTF) is being built up to provide funding from FY2024 onwards. (Government of RMI, 2013, IMF Country Report No. 14/26; RMI Staff Report for the 2013 Article IV Consultation.)
[15] Government of the Republic of the Marshall Islands, 2007, National Action Plan for Disaster Risk Management 2008–2018.

In search of economic opportunities, people have been steadily migrating from the outer atolls and islands to the two urban centres of Majuro and Kwajalein, and migration from Marshall Islands to the United States is also thought to be accelerating[16]. The 2011 census[17] records a total of 53,158 people lived in the Marshall Islands, while 22,434 Marshallese lived in the United States.[18]

CLIMATE VARIABILITY AND TRENDS

Climate of the Marshall Islands [19]

The Marshall Islands' average temperature is relatively constant year-round. Changes in the temperature from season to season are relatively small at around 1°C (2°F) and strongly tied to changes in the surrounding ocean temperature. Both Majuro and Kwajalein have a dry season from around December to April and a wet season from May to November, but rainfall varies greatly from north to south of the group of islands. The atolls to the north receive less than 1250 mm (50 inches) of rain each year and are very dry in the dry season, while atolls closer to the equator receive more than 2500 mm (100 inches) of rain each year.

The climate of RMI is influenced by two main climate features, the Intertropical Convergence Zone (ITCZ) and the Pacific Warm Pool (refer to Figure 2). ITCZ brings rainfall to the Marshall Islands throughout the year. This band of heavy rainfall is caused by air rising over warm water where winds converge, resulting in thunderstorm activity. It extends across the Pacific just north of the equator and is most intense and closer to the Marshall Islands during the wet season.

The West Pacific Monsoon (WPM) moves north to mainland Asia during the Northern Hemisphere summer and south to Australia during the Southern Hemisphere summer. The seasonal arrival of the monsoon usually brings a switch from very dry to very wet conditions. The WPM brings wetter conditions in the Marshall Islands when it is over the country.

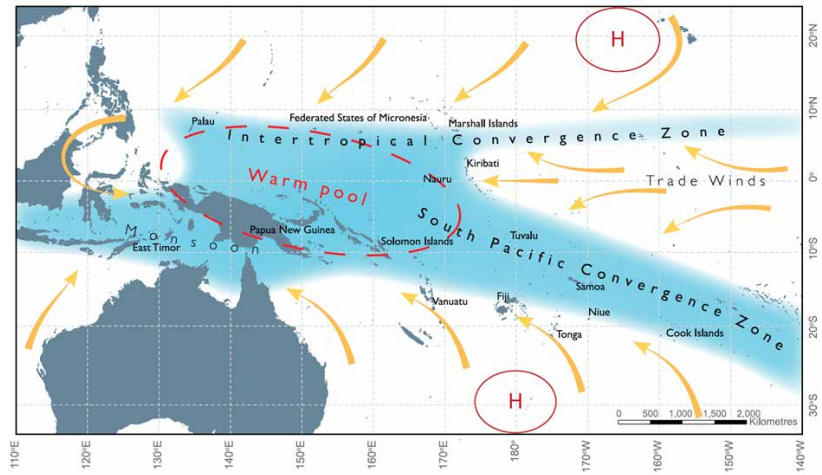

Figure 2: Climate in the Pacific: A regional summary of new science and management tools (Source: PACCSAP)

The climate of the Marshall Islands varies considerably from year to year due to the El Niño-Southern Oscillation (ENSO). ENSO has a major influence on sea levels across the Pacific: during La Niña events, strengthened trade winds push more water toward the west resulting in a higher than normal sea surface in the western tropical Pacific, and lower than normal levels in the east. Conversely, during El Niño events, there is a lowering of sea level in the west and a rise in the east. There are two extreme phases of the El Niño-Southern Oscillation—El Niño and La Niña—and a neutral phase. Conditions during La Niña years are generally wetter than normal. El Niño events tend to bring warmer than normal wet seasons and warmer, drier dry seasons.

[16] SPC, 2011, Government of the Republic of the Marshall Islands 2011 Census.
[17] https://rmieppso.org/social/census-report
[18] Climate Migration and Cultural Preservation: The Case of the Marshallese Diaspora, Heslin, A, https://link.springer.com/chapter/10.1007/978-3-319-72026-5_16 [June 2020]
[19] Climate statistics and analysis are drawn from: PCCSP, 2013, available at <https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/PCCSP_Vol2_Ch7_Marshallislands.pdf> [June 2020], updated in 2015, as used in IPCC AR5.

A summary of the impacts of ENSO events in RMI during November to April is outlined in the following table.[20]

Region	El Niño	Extreme El Niño	La Niña
North (Kwajalein)	Lower than normal sea level More intense cyclones	Lower than normal sea level More intense cyclones	No consistent impact on rainfall Higher than normal sea level
South (Majuro)	Lower than normal sea level More intense cyclones	Very dry Lower than normal sea level	Dry Higher than normal sea level

Other impacts of El Niño are weaker trades winds which occasionally may turn to westerlies, warmer temperatures at and below the sea surface, and increased risk and frequency of tropical cyclones forming closer to islands.

Typhoons (tropical cyclones), droughts and storm waves are the extreme events that most impact the Marshall Islands. Typhoons affect the Marshall Islands late in the wet season (June to November). In the 33-year period between the 1977 and 2010 seasons, 78 typhoons developed or crossed into the Marshall Islands Exclusive Economic Zone, an average of 22 typhoons per decade. The number of typhoons varies widely from year to year, with none in some seasons but up to 11 in others. During an El Niño event the sea surface temperatures increase in and to the east of the Marshall Islands and this allows more intense typhoons to form. In 2015, Typhoon Nangka caused damage costing RMI more than 3% of its GDP in a single night. [21]

"Most of these cyclones did not generate damage on the RMI atolls, although since 1988, 10 cyclones have hit RMI, directly affecting 20,300 people, indirectly affecting 32,300 people and generating more than US$645 million damages."[22]

Droughts generally occur in the first four to six months of the year following an El Niño. Following severe El Niño events, rainfall can be reduced by as much as 80%. The dry season begins earlier and ends much later than normal during an El Niño. Prolonged droughts are devastating to subsistence farmers and gardeners, and quickly cause water stress in urban centres. RMI declared a State of Emergency and then of Disaster in 2013 and 2016 because of prolonged and unseasonal droughts. The Post Disaster Needs Assessment (PDNA) from the 2016 drought estimated the total economic losses to be approximately USD4.9 million, with agriculture being the single most affected sector. Impacts included disruptions of national production flows (agriculture, education and industrial sectors), and higher costs of production (electricity, water, sanitation and commercial sales of bottled water and transport cost). These economic effects are equivalent to 3.4% of RMI's gross domestic product (GDP) for 2015.

Long-term Climate Trends

Temperature

"Average temperatures have increased at a rate of between 0.1°C and 0.2°C per decade throughout the Pacific Islands during the 20th Century. Changes in temperature extremes have followed those of average temperatures."[23]

[20] CSIRO, Australian Bureau of Meteorology and SPREP, 2015. Climate in the Pacific: A regional summary of new science and management tools. El Niño covers all the years of El Niño, and Extreme El Niño includes only the years 1982/3 and 1997/8.
[21] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf
[22] GoRMI, Climate Science Stocktake and gaps for the RMI NAP, 2020
[23] IPCC, 2013, Climate Change 2013: The Physical Science Basis. Chapter 14 (pp1275–1276).

Notably, annual mean temperature increased at a rate of 0.14 °C per decade in the period 1951 – 2015 for the Pacific region. The rate of warming has increased in more recent years: 0.12 °C per decade over 1983 – 2015, compared with 0.09 °C per decade over 1951 – 1982. [24]

Seasonal trends in extreme temperature indices for the Marshall Islands indicate warming across the board. Based on 1951 – 2015 period, the trends in annual extreme temperature indices per decade for the Marshall Islands[25] are as follows:

- Increase in highest daily maximum (daytime) temperatures by 0.19 ˚C
- Increase in highest daily minimum (night-time) temperatures by 0.14 ˚C
- Lowest daytime and night-time temperatures also have increased by 0.06 ˚C and 0.17 ˚C
- Increase in the number of days greater than or equal to 30 ˚C by 13 days
- Decrease in the number of cool days (maximum temperature < 10th percentile)
- Decrease in the number of cool nights (minimum temperature < 10th percentile)
- Increase in the number of warm days (maximum temperature > 90th percentile)
- Increase in the number of warm nights (minimum temperature > 90th percentile)

Rainfall

Total annual rainfall trends for the longest available rainfall records show a decline to the north of the ITCZ just west of the International Date Line (IDL). This pattern of change is generally reflected in March – May and September – November, and to a lesser extent over December – February.[26]

There are almost no statistically significant trends in any of the seasonal extreme rainfall indicators at Majuro, with the exception of a decline in the number of consecutive wet days during March to May for the period 1951 – 2015. However, they mainly suggest a possible decrease in extreme rainfall. Overall, it can be concluded that there is no discernible climate change signal in seasonal rainfall extremes for the period 1951 – 2015 at the Marshall Islands. Based on the 1951 – 2015 period, significant rainfall trends per decade for the Marshall Islands[27] are as follows:

- Decrease in the number of consecutive dry days, possibly indicating in increase in the occurrence of days with small rainfall totals
- Decrease in the total rainfall derived from very wet days (daily rainfall > 95th percentile), amounting to 56 mm per decade
- Decrease in the total wet day rainfall (daily rain ≥ 1 mm), of around 90 mm per decade.

Sea Level

Satellite records indicate that global averaged sea level has been rising at 3.2 ± 0.4 mm/year since 1993.[28] The IPCC Fifth Assessment Report notes that "Rates of sea level rise over broad regions can be several times larger or smaller than the global mean sea level rise for periods of several decades, due to fluctuations in ocean circulation. Since 1993, the regional rates for the Western Pacific are up to three times larger than the global mean, while those for much of the Eastern Pacific are near zero or negative."[29]

Over a longer time period, the tide gauge records in the tropical Pacific region shows that the average rate of relative sea level rise (relative to land) – and corrected for glacial isostatic adjustment and atmospheric pressure effects – was 2.0 mm/year between 1950 and 2001. The estimate of relative sea level rise for Majuro (the relative reconstructed trend) was 2.3 mm/year.[30]

[24] McGree, S. et al. 2019. Journal of Climate. Recent Changes in Mean and Extreme Temperature and Precipitation in the Western Pacific Islands
[25] Australian Bureau of Meteorology, 2020. About Pacific Climate Change Data. Available at: http://www.bom.gov.au/climate/pccsp/about- pi-climate-data.shtml
[26] Australian Bureau of Meteorology and CSIRO, 2011. Climate Change in the Pacific: Scientific Assessment and New Research, Volume 1: Regional
[27] Australian Bureau of Meteorology, 2020. About Pacific Climate Change Data. Available at: http://www.bom.gov.au/climate/pccsp/about- pi-climate-data.shtml
[28] CSIRO, Australian Bureau of Meteorology and SPREP, 2015. Climate in the Pacific: A regional summary of new science and management tools
[29] IPCC, 2013, Climate Change 2013: The Physical Science Basis. Chapter 13 (pp 288,1148).
[30] Church, J.A. et al. 2006. Global and Planetary Change. Sea-level rise at tropical Pacific and Indian Ocean islands

CLIMATE PROJECTIONS

"The most vulnerable atoll nations like my country already face death row due to rising seas and devastating storm surges"[31] *– President Hilda Heine in 2020*

Climate projections for RMI are the outcome of research conducted by the Australian Bureau of Meteorology (BoM) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in 2011 and updated in 2015. This research has enabled the IPCC to report on climate changes in the Pacific for the first time in its Fifth Assessment Report (AR5). Findings relate to sea level rise and coastal erosion and inundation, disrupted rainfall patterns and more extreme weather events.[32]

Temperature

The IPCC's Fifth Assessment Report (AR5) states that the change in global surface temperature by the end of the 21st century is likely to exceed 1.5 °C relative to 1850 to 1900 for all emission scenarios (very low, low, medium and high). Furthermore, it is "virtually certain that there will be more frequent hot and fewer cold temperature extremes over most land areas on daily and seasonal timescales as global mean temperatures increase."

In the Marshall Islands by 2090, a warming of 2.2 – 4.2 °C is projected for a high emission scenario while a warming of 0.5 – 1.2 °C is projected for a low emission scenario.[33]

Rainfall [34] [35]

Average annual rainfall is projected to increase in most areas of the western tropical Pacific as surface temperatures increase. From November to April, rainfall is projected to increase along the equator, including the north-east near the Marshall Islands. Rainfall during all seasons is also projected to increase.

Long-term average rainfall is projected by almost all models to increase, with most models projecting an increase in rainfall in both the wet and dry seasons. There will still be wet and dry years and decades, due to natural variability, but the long-term average is expected to be wetter.

Sea Level

The IPCC notes that "Rates of sea level rise over broad regions can be several times larger or smaller than the global mean sea level rise for periods of several decades, due to fluctuations in ocean circulation. Since 1993, the regional rates for the Western Pacific are up to three times larger than the global mean, while those for much of the Eastern Pacific are near zero or negative."[36]

Extreme sea levels are also increasing, driven primarily by the underlying increase in mean sea level. There is significant interannual variability of sea level in the Pacific region related to the El Niño Southern Oscillation (ENSO) cycle.

"Sea levels have risen and vary across the Pacific with large-scale climate processes. Extreme sea levels are caused by a combination of long-term sea level rise from climate change and short-term climate variability factors, such as combined effects of king tides, storm surge and associated wind-wave setup."[37]

31 https://www.news.com.au/technology/environment/marshall-islands-facing-death-row-after-waves-batter-capital/news-story/8d5f8a202d9af11a61eeaa38ae0a378e
32 https://www.pacificclimatechangescience.org/wp- content/uploads/2014/07/PACCSAP_CountryReports2014_Ch7MarshallIs_WEB_140710.pdf [June 2020]
33 Australian Bureau of Meteorology and CSIRO, 2014. Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports
34 IPCC, 2013. Climate Change 2013: The Physical Science Basis
35 CSIRO, Australian Bureau of Meteorology and SPREP, 2015. Climate in the Pacific: A regional summary of new science and management tools
36 IPCC, 2013, Climate Change 2013: The Physical Science Basis. Chapter 13.
37 Government of Australia, 2014, PCCSP Report – Executive Summary.

"A particular risk for atoll countries is storm surge—abnormally high water levels generated by severe storms and cyclones. A surge forms when strong winds over the ocean combine with low pressure to drive water onshore. Storm surges can produce sea levels much higher than normal high tides, resulting in extreme coastal and inland flooding… they can raise water levels by 20 feet or more above mean sea level. As a result of global sea level rise, storm surges that occur today are eight inches [200mm] higher than they would have been in 1900."[38]

Even a small increase in sea level can have devastating effects on coastal habitats farther inland. It can cause destructive erosion, wetland flooding, aquifer and agricultural soil contamination with salt, and lost habitat for fish, birds, and plants. Increased sea levels coinciding with tropical cyclones contribute to more powerful storm surges that can strip away everything in their path. "Recent observations and projections of sea level show that eustatic sea-level rise (SLR) by the end of the 21st century could exceed 2.0 m above 2000 levels. Although the precise rates and elevations of SLR by 2100 are uncertain, the existing models all suggest that eustatic sea level will be significantly higher by the end of the century and that it will have a profound impact on low-lying coastal areas. Projections indicate that these effects will be amplified in the tropics, where sea level will be higher than the global average…. In addition, the majority of carbonate islands are positioned on coral reefs, where measured vertical reef flat accretion rates [2 to 6mm/year] are up to an order of magnitude slower than the rates of projected SLR [8 to 20mm/year]. Projected SLR will, thus, outstrip new reef flat accretion, resulting in a net increase in water depth over atolls' reefs."

Based on Storlazzi's *et al* study, projections indicate that the Marshall Islands would be flooded annually by the 2060s for the high emission combined with ice-sheet collapse climate scenario, the 2070s time frame for the high emission scenario only, and sometime after the 2110s for the medium emission scenario.

"Since the beginning of the industrial era, oceanic uptake of CO_2 has resulted in acidification of the ocean; the pH of ocean surface water has decreased by 0.1 (high confidence), corresponding to a 26% increase in acidity, measured as hydrogen ion concentration. There is medium confidence that, in parallel to warming, oxygen concentrations have decreased in coastal waters and in the open ocean thermocline in many ocean regions since the 1960s, with a likely expansion of tropical oxygen minimum zones in recent decades." Ocean acidification and deoxygenation continues to increase in response to human activities.

Tropical Cyclones

There is still an unresolved issue with a realistic projection for tropical cyclone activities at a regional spatial scale. This partly due to large variations in modelling results and partly due to model deficiencies in representing the large-scale environmental conditions that are known to influence tropical cyclones, including patterns of variabilities such as ENSO and large-scale climate features such as the SPCZ. [41]

Climate projections for tropical cyclones in the northern Pacific indicate a non-significant increase in the future frequency of cyclones in the northern Pacific. They further indicate a shift in tropical cyclone intensity, with "relatively fewer cyclones with medium intensity, and increased frequencies of both weaker and very intense cyclones". Furthermore, "a slight reduction in the overall frequency combined with an increased proportion of the most intense cyclones means that most locations in the Pacific will have a higher chance of experiencing severe winds." [42]

A more recent study of tropical cyclone projections for the north-western Pacific reported that the number of tropical cyclones is likely to decrease at Kwajalein (RMI), but fewer and stronger storms are likely to occur.[43]

[38] United States of America, U.S. Climate Resilience Toolkit Storm Surge, available at <https://toolkit.climate.gov/topics/coastal/storm-surge> [August 2019].
[39] Storlazzi et al., 2018. Most atolls will be uninhabitable by the mid-21st century because of sea-level rise exacerbating wave-driven flooding. Science Advances 4, eaap9741
[40] IPCC, 2019, Special Report on the Ocean and Cryosphere in a Changing Climate.
[41] Brown, J.R. et al. 2011. Journal of Climate. Evaluation of the South Pacific Convergence Zone in IPCC AR4 Climate Model Simulations of the Twentieth Century
[42] CSIRO, Australian Bureau of Meteorology and SPREP, 2015. Climate in the Pacific: A regional summary of new science and management tools
[43] Widlanksy, M.J. et al. Weather, Climate and Society. Tropical Cyclone Projections: Changing Climate Threats for Pacific Island Defence Installations

In Summary

Research by BoM and CSIRO generated the following predictions for RMI to 2100:[44]

- Surface air temperature and sea-surface temperature are projected to continue to increase (very high confidence).
- Annual and seasonal mean rainfall is projected to increase (high confidence).
- El Niño and La Niña events will continue to occur in the future, but there is little consensus on whether these events will change in intensity or frequency.
- The intensity and frequency of days of extreme heat are projected to increase (very high confidence).
- The intensity and frequency of days of extreme rainfall are projected to increase (high confidence).
- The incidence of drought is projected to decrease (moderate confidence).
- Tropical cyclone numbers are projected to decline in the tropical North Pacific Ocean basin (0–15ºN, 130ºE –180ºE) (moderate confidence).
- Ocean acidification is projected to continue (very high confidence).
- Mean sea-level rise is projected to continue (very high confidence).

CSIRO notes that the above projections are not perfect representations of the real world. "As such, there will always be a range of uncertainty in climate projections. The existence of uncertainty is common to all areas of science and does not negate the usefulness of model projections."[45]

DEVELOPMENT PROFILE

From 1947 the Marshall Islands was administered by the United States as part of the Trust Territory of the Pacific Islands. In 1986 the Compact of Free Association (CoFA) between RMI and the US was signed into law, formalising the fiscal and strategic relationship between the two countries. The CoFA gave RMI access to some US domestic programs, including disaster response and recovery and hazard mitigation programs under the Federal Emergency Management Agency, and services provided by the National Weather Service and the Federal Aviation Administration. In 2004, the Compact was renewed for 20 years, after two years of intensive negotiation, and the new Compact provides about USD 1.5 billion in funding. The grants provided under the Compact will continue until fiscal year 2023, decreasing annually, but offset by increasing contributions to a trust fund that is intended as a source of revenue after the grants end in 2023. Foreign grants fund more than two-thirds of government expenditure, mostly provided by the United States, but with additional inputs from the International Monetary Fund, the World Bank, the Asian Development Bank, and the governments of Belgium, France, Germany, the Netherlands, Korea, Japan and the Republic of China (Taiwan)[47]. Most of the assistance from these sources takes the form of technical assistance loans and grants (ADB), funding of infrastructure development projects (Japan), and supplementation of the national budget (ROC)[48].

The Compact is designed to gradually reduce US support over the course of the 20 years while facilitating the development of a viable private sector and encouraging foreign investment. The assistance provided under the Compacts has enabled the RMI Government to provide public and other services and as a result, public sector and public enterprise expenditures dominate economic activity. In August 2020, the US announced it would hold talks with RMI (and with Palau and the Federated States of Micronesia) on agreements to amend the Compact of Free Association[49].

[44] PCCSP, 2013, available at <https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/PCCSP_Vol2_Ch7_Marshallislands.pdf> [August 2019]
[45] Government of Australia, 2014, PCCSP Report – Executive Summary.
[46] https://www.cia.gov/library/publications/the-world-factbook/geos/rm.html
[47] OECD, Geographical Distribution of Financial Flows to Developing Countries 2019
[48] https://www.pacificclimatechange.net/node/53
[49] https://www.state.gov/first-round-of-2020-compact-negotiations-with-the-republic-of-the-marshall-islands-and-the-federated-states-of- micronesia-and-compact-review-discussions-with-palau/

The RMI Government has established and is implementing a Public Financial Management Reform Roadmap.[50] However, "[b]ased on the IMF and RMI Peer Review reports (2012), achieving long-term budgetary self-reliance and sustained growth remains a challenge. Under the baseline projection, sluggish growth and fiscal adjustment imply a large projected revenue shortfall in 2023 when Compact grants are set to expire. Closing this revenue gap would require a fiscal adjustment of around 4% of GDP over the medium term. Comprehensive public sector and structural reforms would be required to achieve this adjustment. These depend on ongoing efforts to unlock private sector growth. These include: (i) implementation of tax reform; (ii) targeted expenditure cuts; (iii) accelerated reforms of the state-owned enterprises (SOEs); and (iv) removal of obstacles to private sector development. At the same time external finance coordination, high level endorsed medium term budget planning, and a single simplified system for reporting across sectors are recommended by the Peer Review, along with other steps such as oversight of the development banks suggested by the IMF. The dependence of the RMI government on external funding assistance from the USA and other countries poses significant issues regarding the sustainability of national development efforts. The challenge RMI faces is how to coordinate external donor priorities and agendas along with its own national priorities and initiatives." [51]

International support will remain important as RMI implements its National Strategic Plan 2020–2030 (NSP). "The NSP is designed as a framework to coordinate the articulated long-term development goals and objectives of the RMI government at the national level. The NSP will be used by government leaders as the Roadmap for development and progress in the long-term (2020–2030) and will be continually updated for use in meeting longer term objectives as the RMI moves forward with meeting national priorities and development objectives." [52]

The NSP 2020–2030 is structured around 5 pillars: social and culture; environment, climate change and resilience; infrastructure; economic development; and governance. It will inform annual planning and budget development both nationally and for each ministry, and development partners will be required to align their programs with RMI's national policies and strategic policy objectives.

ECONOMY

Compact grants and lease payments for the use of Kwajalein Atoll as a US military base are vital to RMI's economy. Agricultural production, primarily subsistence, is concentrated on small farms, and exports of coconuts and breadfruit make a small contribution to GDP. Industry is limited to handicrafts, tuna processing, and copra. A small private sector provides goods and services to the domestic market as well some tourism, shipping and construction services. Out-migration contributes to the ongoing decline of the outer islands' economies, increasing income inequality between the urban and outer atoll and island populations. In the urban areas of Majuro and Ebeye there is a concentration of highly paid public servants but the ADB estimates that two thirds of outer islanders live on less than USD1 per day. COFA and federal funding largely benefit urban areas, and nuclear compensation and lease payments benefit communities on a limited number of islands,[53] while there is a continuing decline in the price of copra (formerly the economic mainstay of the outer islands) and a lack of low-skilled jobs in both urban and rural areas.[54] The islands and atolls have few natural resources, and imports exceed exports. [55]

RMI also depends substantially on fisheries activity and rent receipts for the use of easements in Majuro and Ebeye[56]. The overall Marshall Islands economy relies very little on tourism and visitor arrivals—the hotel and restaurant sector represents only 2.3 percent of GDP.[57] There is a consistent trade imbalance in favour of the United States and Japan, and newer partners including Australia and the Republic of China/ Taiwan.[58]

[50] https://rmi-mof.com/pfm-reform/1about-pubic-financial-management-pfm/
[51] https://www.pacificclimatechange.net/node/53
[52] https://rmieppso.org/national-plan/rmi-national-strategic-plan
[53] ADB, 2003, Priorities of the People, Hardship in the Marshall Islands.
[54] Government of the Republic of the Marshall Islands, 2007, National Action Plan for Disaster Risk Management 2008–2018. 55 https://www.cia.gov/library/publications/the-world-factbook/geos/rm.html
[56] Assessing the Impact of COVID-19 on the Marshall Islands Economy, available at <https://RMI_EconFiscalImpact_COVID-19_April2o2o_Web.pdf> [June 2020].
[57] https://www.guampdn.com/story/news/local/2020/06/22/guam-coronavirus-economic-impact-fsm-palau-marshall-islands/3239824001/ 58 https://www.pacificclimatechange.net/node/53

Disruption to the global economy caused by Covid-19 will exacerbate pre-existing economic issues for RMI. "RMI suffers from a weak fiscal position in FY2019 with a deficit of USD 6.7 million, reflecting the large subsidy paid to copra producers, transfers to MISSA[59] and contributions to the Compact Trust Fund. In FY2020 a reduced fiscal deficit of USD 4.1 million or 2 percent of GDP is projected. FY2020 projections are consistent with the FY2020 appropriations bill. While a similarly large transfer to copra producers of USD 9 million is forecasted, the FY2020 budget includes reductions in transfers to MISSA and to the Compact Trust Fund. The FY2020 budget has thus reduced contributions that in prior budgets were designed to maintain the value of financial assets or national wealth, but in FY2020 were redirected to reduce the deficit and support a weak fiscal position. Current projections indicate tax collections will fall by 4.1 percent or 2.0 percent of GDP. While reductions in collections of the wages and salaries tax and of import taxes are small, there is a large projected reduction in collection of the Gross Revenue Tax of 12 percent." [60]

The fisheries industry in RMI has several components: household subsistence, aquarium fish exports, the tuna loining plant and Pan Pacific purse seine operations, shore-based support (MIFV)[61] to the longline industry and the operations of the Marshall Islands Marine Resources Authority (MIMRA).[62]

RMI is one of the eight Parties to the Nauru Agreement (PNA), instigated by the Forum Fisheries Agency in 1982 and built upon in subsequent years. Managed by a separate PNA Office since 2010, the Agreement has coordinated access to fisheries in a combined 4.5 million km^2 of the Pacific Ocean, preventing destructive fishing methods and over-exploitation by foreign fishing nations. The Palau Arrangement Purse-seine Vessel Days Management Scheme controls the number of days commercial fishing can be conducted and FFA supports PNA countries in negotiating licenses. The Parties also derive revenue from their provision of observers on commercial fishing vessels, who ensure compliance with the terms of license agreements in their EEZs. The rapidly growing source of income from the Vessel Day Scheme of the Parties to the Nauru Agreement[63] is very important, but is vulnerable to climate change impacts: warming oceans are expected to affect the range and behaviour of pelagic fish[64]. In recognition of its potential, RMI proposes to encourage private sector development and investment in fisheries-related activities such as greater transhipment, onshore fish processing and vessel support services.[65]

Commercial fishing will be affected by restrictions on travel to prevent the transmission of Covid-19. "At the current time, the RMI has been allocated about 3,000 fishing days of Party Allowable Effort under the PNA. Of this, about 800 days remain unsold for calendar year 2020. The low prices of tuna experienced at the beginning of the year coupled with travel restrictions have reduced demand for vessel days and there is significant risk that some of these days may remain unsold by year end, or that recent prices of around USD 11,000 a day will need to fall. MIMRA has indicated that it will be able to meet its obligations to government throughout FY2020 with a budgeted transfer of USD 30 million, perhaps requiring a drawdown of accumulated MIMRA reserves. For FY2021 this Technical Note assumes that the VDS rate will drop to the floor price of USD 8,000 for those days that are sold on a bilateral basis. This would result in a reduction in MIMRA revenues of about USD 4 million. An estimated loss of a further USD 1 million from the temporary closure of the observer program will further impact the reserves. Reflecting these changes, the fishing fee revenue available to the RMI government is projected to decline from USD 30 million in FY2020 to USD 26 million in FY2021." [66]

"While household fishing is not projected to decline and may well increase, export of aquarium fish is currently reported to be down 50 percent. Pan Pacific has indicated both the loining plant and purse seiners are expected to be down by 30 percent in FY2020. While both are expected to improve in FY2021, they are still likely to remain 10 percent below the FY2019 level. The shore-based transhipment service for export of sashimi grade tuna is also projected to be down by 50 percent.

[59] MISSA: Marshall Islands Social Security Administration
[60] Assessing the Impact of COVID-19 on the Marshall Islands Economy, available at <https://RMI_EconFiscalImpact_COVID- 19_April2o2o_Web.pdf> [June 2020].
[61] The Marshall Islands Fishing Venture
[62] MIMRA: the Marshall Islands Marine Resources Authority
[63] PNA revenue to countries has risen from $US60 million to US$500 million since PNAs implementation. (Radio New Zealand, Seven PNA members extend vessel day scheme), 2017
[64] https://phys.org/news/2019-04-climate-redistribute-tuna.html
[65] https://rmieppso.org/national-plan/rmi-national-strategic-plan
[66] Assessing the Impact of COVID-19 on the Marshall Islands Economy, available at <https://RMI_EconFiscalImpact_COVID- 19_April2o2o_Web.pdf> [June 2020].

The value added of MIMRA is projected to decline by 10 percent in both FY2020 and FY2021 reflecting the temporary closure of the observer program which monitors the fish catch of the purse seine fleet."

"Overall, the Marshall Islands is projected to experience a 6.9 percent decline in GDP and a loss of 716 jobs. The projected impact on tax revenues, employment, and job loss coupled with potential significant reductions in fisheries revenues may result in a sizeable fiscal shock in the range of USD 14 million to USD 20 million, larger than previous fiscal downturns experienced by the Marshall Islands."[67]

Tourism

Tourism has potential to contribute to GNP, but limited infrastructure poses barriers to private sector development. Rising sea level and changes to rainfall patterns are already affecting the availability of freshwater in RMI's atolls, and ocean warming is damaging the reef ecosystems which are RMI's greatest attraction for visitors.

As of June 2020, RMI has avoided any confirmed incidences of Covid-19, through its early and strict imposition of preventive measures. "The economy relies very little on tourism and visitor arrivals; nevertheless, the projected economic consequences of the COVID-19 pandemic are significant. The longer COVID-19 threatens the people and the fragile health system of the RMI, the greater the indirect effects on the government's fiscal position... In this Technical Note, it is assumed public health restrictions on arrivals will remain through FY2021 and a return to normal access and post-pandemic economic activity begins in October 2021… Tourism is not large in the RMI and the hotel and restaurant sector accounts for only 2.3 percent of Gross Domestic Product (GDP). The two main hotels are now running virtually empty and output is thus close to zero. Current GDP estimates indicate that 50 percent of the restaurant sector is dependent on visitors, with no current demand from this component. Local restaurant demand reflects the level of demand in the economy… The hotel and restaurant sector is projected to lose 228 jobs given the near absence of commercial flights into the RMI."[68]

[67] https://www.guampdn.com/story/news/local/2020/06/22/guam-coronavirus-economic-impact-fsm-palau-marshall-islands/3239824001/
[68] Assessing the Impact of COVID-19 on the Marshall Islands Economy, available at <https://RMI_EconFiscalImpact_COVID-19_April2020_Web.pdf> [June 2020].

PART 2: NATIONAL RESPONSE TO CLIMATE CHANGE

UNFCCC SUBMISSIONS

2018 NATIONALLY DETERMINED CONTRIBUTION (NDC)

In November 2018, the Marshall Islands became the first country to submit its second communication to the UNFCCC—its Nationally Determined Contribution (NDC)—setting itself a revised, more ambitious and binding target of reducing greenhouse gas emissions to at least 32% below 2010 levels by 2025 and to at least 45% below 2010 levels by 2030.

It communicated a new indicative target to reduce its GHG emissions by at least 58% below 2010 levels by 2035 and reaffirmed its aspiration to achieve net zero GHG emissions by 2050 at the latest. In its NDC, the Marshall Islands also committed to:

- produce a National Adaptation Plan (NAP) by the end of 2019 that:
  - sets out milestones to adapt to the impacts of climate change and transition to climate resilience,
  - suggests implementation measures and
  - includes a plan to generate financing.
- submit an Adaptation Communication to the UNFCCC by 2020.

The development of the NAP has been delayed by the advent of Covid-19 but is in progress.

The following table, from RMI's Indicative Nationally Determined Contribution (2015), summarises the country's main emissions sources and mitigation actions.

SECTORAL MIX OF RMI'S ANTHROPOGENIC GHG EMISSIONS	SPECIFIC SECTOR ACTIONS TOWARDS MEETING RMI'S INDCs
Electricity generation (54%)	Ground and roof mounted solar with associated energy storage.
	Ongoing demand-side energy efficiency improvements (e.g. prepayment meters, end user efficiency Improvements).
	Supply-side energy efficiency improvernents (e.g. new engines and system upgrades, heat recovery from engines).
	Small scale wind-powered electricity generation.
	Additional OHO reductions may become possible through the use of new technologies allowing the extraction of ocean energy for power generation.
Land and sea transport (12%)	Replanting and expansion of coconut oil production for use use in electricity and transport sectors blended with diesel.
	Vehicle inspections and maintenance.
	introductIon of electric vehicles and emission standards for current vehicles.
	Introduction of soler-charged electric lagoon transport.
Waste (23%)	Reduction In methane production in landfills through pre-sorting of waste and entrapment of methane.
Other sectors (Cooking and lighting) (11%)	Transition to electric and solar cook stoves from LPG cook stoves.
	Reduction of kerosene for lighting in outer atolls.

Figure 3: RMI's GHG emission sectors and related NDC actions (Source: RMI INDC)

2018 TILE TIL EO (TTE) – 2050 CLIMATE STRATEGY

Tile Til Eo (TTE) – the 2050 Climate Strategy,[69] published in 2018, is an annex to the NDC and is RMI's long-term, low greenhouse gas emission, climate-resilient development strategy under the Paris Agreement. It provides the social, environmental and economic context for the NDC and a long-term vision. It discusses the factors the country will be focusing on as it works towards its mitigation and adaptation objectives—protection of the environment, human rights and health, and advancing gender equity. Its purpose is "to outline a long-term pathway for RMI to achieve its objectives for net zero emissions and 100% renewable energy, as well as to facilitate adaptation and climate resilience in a way that ensures the future protection and prosperity of the country and its women, men and youth."[70]

Mitigation

TTE explores three potential scenarios for achieving the Marshall Islands' climate change mitigation objectives. The three possible scenarios relate to levels of ambition in reaching the intermediate targets and ultimately net zero emissions, and to the levels of national and external funding available:

- a "Moderate" enhanced ambition Scenario, more ambitious than RMI's NDC, but aiming at targets technically and economically feasible within currently available resources;
- an intermediate "Significant" enhanced ambition Scenario, with the same goals as the Lighthouse Scenario, but aiming for achievement over a period 15 years longer, because insufficient funds are available; and
- a "Lighthouse" enhanced ambition Scenario, which is technically feasible but will require external funding.

Figure 4 below provides a snapshot comparison of scenarios by sector and year. It illustrates RMI's expectation that external resources will be essential to rapid progress, particularly in the reduction of emissions from electricity generation. It also shows GoRMI's commitment to using its own resources to undertake more than is required of it under the Convention.

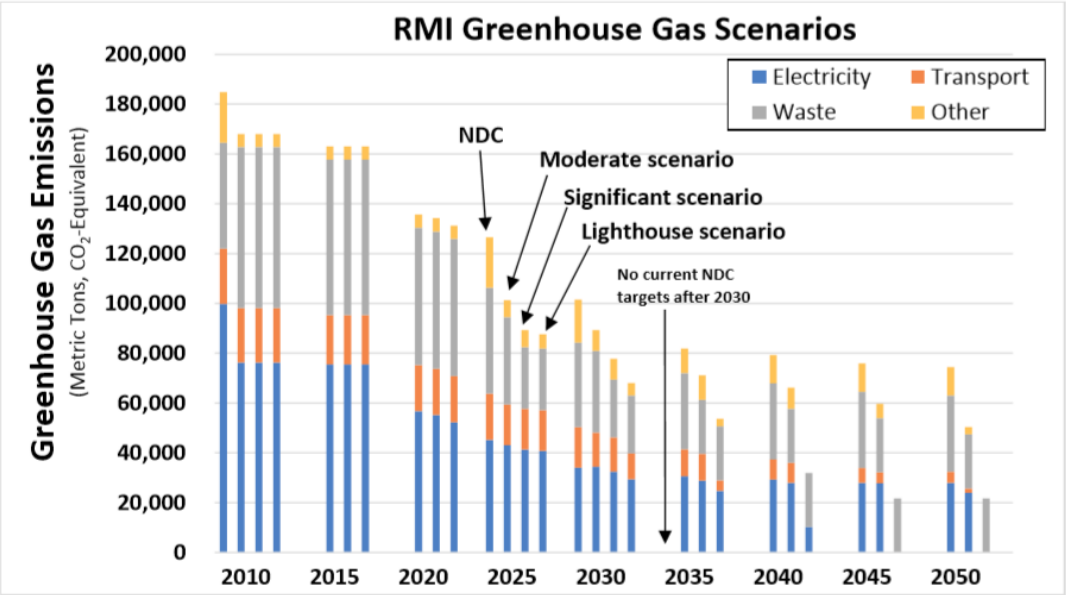

Figure 4: RMI Greenhouse Gas Scenarios by sector and year (Source: GoRMI, 2018)

[69] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf
[70] GoRMI, Tile Til Eo: 2050 Climate Strategy, "Lighting the Way", September 2018

Each GHG sector is addressed in the TTE through headline recommendations, summaries, assumptions, scenario information and potential measures and next steps. The TTE discusses in detail the structural barriers to achieving its mitigation goals for each sector and makes recommendations for systemic changes that address them. It also provides detailed recommendations for concurrently improving transparency, human rights and gender equity, health, education and public awareness.

The Marshall Islands is a leader among SIDS on mitigation, committing to rapid emissions reduction and taking early action to achieve its goals. "Following a global fuel price spike in 2008, RMI declared a National Economic Emergency and has since then rapidly embraced renewable energy technologies and taken huge strides in energy efficiency. For example, more than 90% of the country's outer islands have now been completely solarized."[71] RMI's post-2020 "…NDC was ground-breaking in that it contained the first economy-wide absolute GHG emissions reduction target against a base year by a developing country."[72]

In relation to mitigation, the TTE identifies electricity generation, waste management and transport as its first targets and the sectors where already available technology can make deep cuts to emissions.

Adaptation

In relation to adaptation to climate change, TTE discusses protection, elevation, consolidation and relocation: these proposed measures demonstrate RMI's clear understanding that further negative impacts on its islands and atolls are now certain. The NDC (2018) "commits to producing a National Adaptation Plan (NAP) by the end of 2019 at the latest that sets out short, medium and long-term milestones to adapt to the impacts of climate change and transition to climate resilience, suggests implementation measures and includes a plan to generate the necessary financing."[73] GoRMI commits to submitting an Adaptation Communication to the UNFCCC by 2020 at the latest.

The process for developing the two documents has been held up by Covid-19's restrictions on travel and direct consultation, and as a result the NAP is at an early stage. GoRMI expects to complete it in 2021.

OTHER POLICY DOCUMENTS

2018 JOINT NATIONAL ACTION PLAN ON CLIMATE CHANGE ADAPTATION AND DISASTER RISK MANAGEMENT 2014-2018 (JNAP)

Since 2018 several important documents have been developed by GoRMI relating to climate change mitigation and adaptation.

RMI's **Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2014-2018 (JNAP)** was one of the initiatives, generated by Pacific countries and organisations, that contributed to the development of the *Framework for Resilient Development in the Pacific* (FRDP) in 2016. The FRDP has been recognised internationally as the first regional framework to provide high-level guidance on the integration of climate and disaster risk management into development decision-making.

The JNAP outlines RMI's risk profile, provides a rationale to support the integration of climate change adaptation and disaster risk management work, highlights the linkages to international and regional frameworks, and sets out objectives and key result areas for implementation as follows:[74]

1. Establish and support an enabling environment for improved coordination of disaster risk management /climate change adaptation in the Marshall Islands

[71] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf
[72] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf
[73] GoRMI, Nationally Determined Contribution to the UNFCCC, 22 September 2018
[74] Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2014-2018

2. Public education and awareness of effective CCA and DRM from local to national level

3. Enhanced emergency preparedness and response at all levels within the Marshall Islands

4. Improved energy security, working towards a low carbon future for the Marshall Islands

5. Enhanced local livelihoods and community resilience for all Marshall Islands people

6. Integrated approach to development planning including consideration of climate change and disaster risks"[75]

2018 JNAP REVIEW

The JNAP is credited with improving awareness and understanding in RMI of the interrelated risks and opportunities inherent in climate change and risk reduction. Its goals and objectives have helped guide both the development of new policies and the alignment of donor funding with national priorities. Its impact and effectiveness as a policy tool was evaluated in 2018, in consultation with national and external stakeholders.

The **JNAP Review**[76] found "the JNAP's ability to make meaningful overall changes to RMI's policy environment was significantly restricted by a lack of ownership which limited the required political momentum to drive the plan at the political level. This factor, coupled with a lack of dedicated additional resources to socialize and embed the plan into cross-government planning processes, inhibited the overall ability of the JNAP to deliver decisively against its goals at an operational level… The review process also identified general challenges that are perceived as underlying barriers to the establishment of an enabling environment for cross-government policy, such as the JNAP, within the institutional structures of the RMI Government. These core barriers were identified as 1) the institutional structure of government portfolios and sectors, 2) a lack of productive interagency and inter-stakeholder communication, 3) human resource challenges, and 4) financial restrictions and uncertainty." [77] The Review also noted duplication of objectives across the goals and a lack of priority order to the activities. It provides a useful identification of challenges, recommendations for reform and proposed focal areas for consideration in planning cross-sector policy and implementation.


Photo: Lani Milne

[75] Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2014-2018
[76] Pacific Islands Forum Secretariat, Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2014-2018, Implementation Progress Review, March 2018
[77] Pacific Islands Forum Secretariat, Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management 2014-2018, Implementation Progress Review, March 2018

The review uses the DPSIR[78] framework to provide information on the key drivers behind disaster risk reduction and climate change adaptation as follows[79]:

Development-Pressure-State-Impact-Response Approach (DPSIR) Matrix			
Drivers and Pressures	**State Changes**	**Impacts**	**Responses**
Internal Migration	Increasing population in Ebeye and Majuro	Environmental degradation, increased demand for water, loss of buffer zones due to development, increased health risks, lack of jobs, pressure on public infrastructure.	Improve information required to plan for expected changes to populations on Ebeye and Majuro. Develop land settlement options and procedures to limit unsustainable pressure on the environment and the development of highly vulnerable settlements. Engage with land owners to communicate expected migration pressures and develop options to collaborate around solutions
Migration	Reduction of resident population	Cultural degradation, human capacity reduction, changes to traditional leadership dynamics. Reduced pressure on atolls and government services.	Improve information on migration and formalize systems for supporting and tracking migration and migration intent. Formalize an expected migration scenario and work towards specific strategic targets to enable planning the construes migration as a form of adaptation.
Sea Level Rise	Increased erosion rates, increased saltwater intrusion, increased risk of inundation, increased risk of disaster events	Damage to infrastructure and environmental assets, reduced agricultural productivity, increased risk of inundation related disaster events, high economic costs	Formalize sea level rise scenarios and socialize expected risks with all stakeholders. Develop and finalize all relevant plans, procedures, and operational guidelines for disaster response operations. Invest in soft and hard infrastructure solutions. Prioritize non-regret and flexible adaptation methods. Invest in risk transfer instruments. Empower communities to perpetuate long term preparedness initiatives.
Drought	Reduction in available freshwater for agriculture and human consumption	Loss of food security, high economic costs and impacts on GDP, increased health risks linked to sanitation, disruption to education and livelihoods, increased vulnerability of the poor, decline in living standards and wellbeing, environmental degradation	Maximize water security through investment, management, coordination, and prioritization at all levels. Continue to develop drought resistant agricultural methods.

Extreme Rainfall Events	Flooding and Inundation, Increasing risk of Disaster Events	Damage to infrastructure, health hazards, increased incidence of water borne disease, damage to soils and agriculture, environmental degradation	In addition to infrastructure improvements addressing coastal impacts, improve drainage and implement strategic methods for maximizing benefit and minimizing damage from heavy rainfall.
Increased Average Temperature	Increased heat stress on coral reefs, human settlements, and terrestrial ecosystems. Ocean Acidification, Coral Bleaching	Detriment to human health, changes to fishery dynamics, loss of livelihoods linked to agriculture and local fisheries, loss of natural reef barriers increasing vulnerability of the atoll environment, increased evaporation rates and reduced water storage, damage to hard infrastructure, increased energy costs and dependence on air-conditioning, increased national emissions	Continue to invest in preventative action through the Ministry of Health and community-based health clinics. Work with regional stakeholder to improve predictions around tuna fishery dynamics. Invest in natural coastal management solutions where possible to reduce further damage to vulnerable reefs. Engage support from research institutions to help improve marine ecosystem monitoring.
Financial Volatility	Uncertainty in Planning	Reduced strategic responses and preemptive actions to reduce risk. Increased risk of financial shocks. Increased economic and social vulnerability	Engage support to develop models and mechanisms that promote greater financial certainty and reduce dependency on volatile sources of international aid. Work with regional partners to develop new methods for stabilizing international finance flows. Look to engage early with the potential benefits of carbon offset schemes linked to the international aviation and shipping industries.
Land-use change	Increased use of cements and hard infrastructure, loss of natural habitats and ecosystems	Loss of buffer zones and natural absorptive capacity leading to increased risk of flooding, increased vulnerability, increased risk of heat stress due to loss of natural barriers, loss of natural fresh water lens, damage to reefs and reduced potential to support traditional livelihoods, reduction in human benefits from ecosystem services.	Improve regulation and planning through continued engagement with landowners. Reduce ad-hoc development in RMI's main population centers through new zoning regulations and the enforcement of building codes. Strengthen policy that protects important ecosystem services and ensure that development processes consider these services within cost benefit analysis.

The JNAP review also provides an excellent overview of RMI's national policy context as of 2018, illustrating the way in which national, regional and international plans/policies have complemented each other and evolved over time[80].

[80] GoRMI 2018, JNAP Review

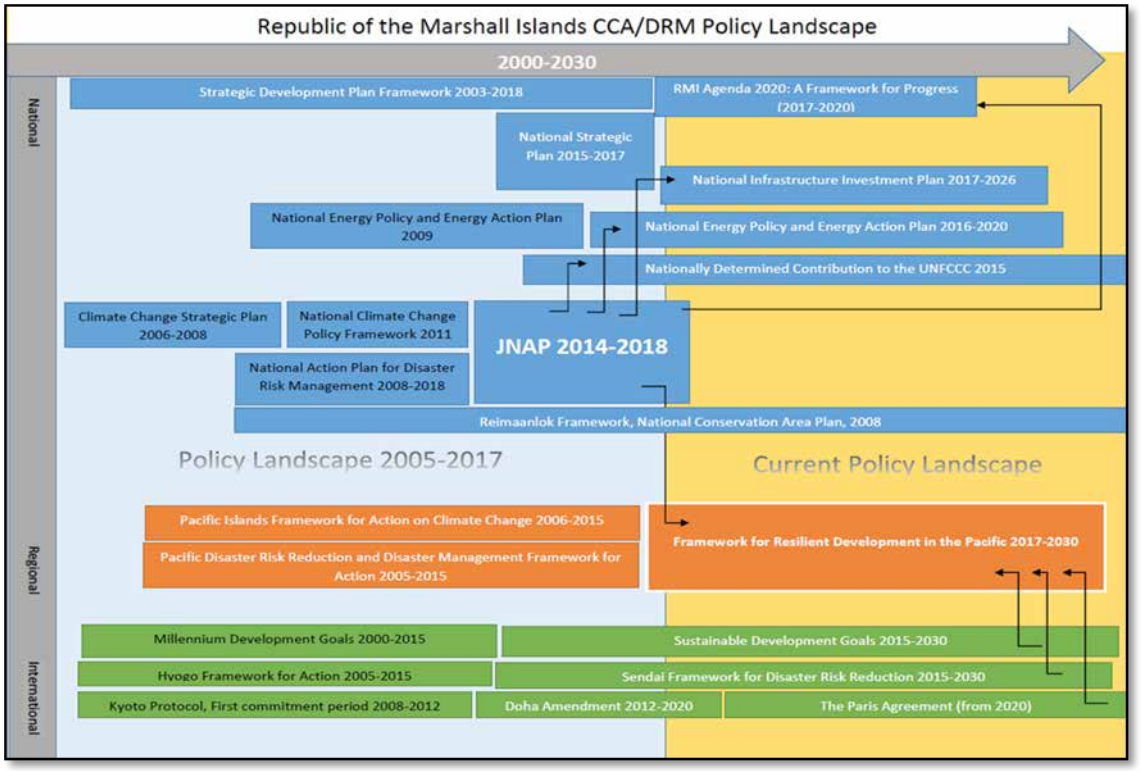

Figure 5: RMI Policy Landscape (Source: JNAP Review)

RMI NDC PARTNERSHIP PLAN

The NDC Partnership Plan for RMI was formally launched at COP 24 and it was developed to progress implementation of the key recommendations and priorities articulated in RMI's Climate Strategy 2050. Consequently, after stakeholder consultations through the two climate change dialogues, six priority outcomes were approved for implementation and funded with partner support, through the NDC Partnership Plan modality. The six priority outcomes currently being implemented through the Partnership Plan are:

1) Accelerated cost-effective transition to a net-zero carbon future, with sustainable development benefits for all

2) Resilient national development pathways envisaged in the context of climate change impacts

3) Gender and Human Rights considerations and measures integrated throughout climate change response

4) Strengthened capacity of citizens, public and private sectors to contribute to NDC implementation

5) Whole of Government policy coordination and effective climate finance management, and

6) Strengthened position as a global leader on high ambition for climate action.

In addition, the RMI NDC Partnership Plan has been integrated into the RMI Structure for Integration and Coordination of Climate and Resilience Activity where the Cross Cutting Working Group utilises the Plan as its workplan to progress input of cross cutting areas into the work of the two main workstreams of mitigation and adaptation. Under this Coordination Structure, the other two Working Groups are

Adaptation and Mitigation. The Cross-Cutting Working Group manages the implementation of the Plan and utilises development partner support from the NDC Partnership to strengthen coordination and implementation of these critical cross cutting areas and ensure they are mainstreamed accordingly to mitigation and adaptation issues. The cross-cutting areas currently driving the support of the Cross-Cutting Working Group specifically focus on the following with targeted workplans and taskforces already set up:

- Women's issues and gender
- Vulnerable Groups
- Youth and Children
- Health Services
- Education Services
- Outer Island Engagement
- Capacity Building
- Climate Financing and financial services
- Global Leadership & Advocacy
- Monitoring the implementation of the 2050 Climate Strategy

The NDC Partnership Plan and the work of the Working Group is aligned to policy objectives articulated in the RMI NSP 2030. It is envisaged that, through strengthened coordination via the Coordination Structure and successful implementation of projects and activities articulated in the Plan by the Working Group, collaboration with the GCF Country Programme will also be aligned and strengthened. An overarching implementation and monitoring framework for the Climate Strategy 2050 is currently being progressed through support from the Pacific NDC Hub and GIZ. This is part of the NDC Partnership assistance and is fast tracking much of this critical work, as requested through the RMI Climate Action Enhancement Package (CAEP).

NATIONAL STRATEGIC PLAN 2020-2030

RMI's National Strategic Plan (NSP) is its overarching government planning and budgeting guide for the 10 years from 2020. It is the outcome of a national consultative process among government ministries and agencies, non-governmental organisations, the private sector and all relevant stakeholders. It is to be used by government leaders as the roadmap for development and will be regularly updated.

The NSP is organised around five pillars: a social and cultural pillar; an environment, a climate change and resiliency pillar; an infrastructure pillar; an economic development pillar; and a good governance pillar. It provides a comprehensive list of the critical issues RMI faces and a pragmatic assessment of the constraints affecting government interventions.

It notes the threat posed by climate change to every aspect of Marshallese lives and livelihoods and the need to build resilience. It proposes immediate investment in coastal protection; climate-proofing critical infrastructure; food, water, and health security; and early warning systems and disaster risk-reduction measures. Across all sectors it advocates active management to coordinate donor inputs, use of a gender responsive and human rights-based approach, a focus on fiscal and financial resilience, the

use of innovative financing instruments, and facilitating the development of the private sector.

The NSP will be complemented by a National Monitoring and Evaluation Framework, which will be used to measure progress and to inform the regular assessment and revision of the Strategic Plan.

DEVELOPMENT OF THE NATIONAL ADAPTATION PLAN (NAP)

The RMI NAP development process began when the 2050 Climate Strategy for RMI was published in September 2018. The Strategy dealt mainly with mitigation issues, addressing the Nationally Determined Contribution's emission targets, but also called for the urgent development of a National Adaptation Plan to address the impacts of climate change, which RMI expects to be critical.

The World Bank PREP II project has allocated USD1.5million to further the development of the NAP, with inputs from Melbourne University and the ADB. Briefing papers for consultative workshops highlight the need for RMI to develop its plan in self-determination, exercising a fundamental human right. GoRMI is involving, to the fullest extent practicable, the people affected by climate change impacts in the development of the Plan.

GoRMI expected to complete the NAP by 2019. The process has been delayed by a dengue outbreak in 2019 and Covid-19, both of which have limited travel and consultation options, However, the first stage has been undertaken—the completion of the Outline Form for RMI's Climate Change NAP, using the UNFCCC's LDC 'Technical Guidelines for the national adaptation plan process'.

The Technical Guidelines suggest four elements and 17 steps: the steps and outputs have been simplified to meet the particular situation and development needs of the Marshall Islands. The four Parts of the NAP will:

- In Part 1 present the current situation of RMI in the context of resilience and climate change (statement of situation, existing policies, issues to adapt to climate change and gaps and perceived development needs and vulnerability to climate change);
- In Part 2 detail the climate change scenarios, statement of vulnerabilities and assess adaptation options relevant to the RMI's context;
- In Part 3 present an implementation plan for the selected adaptation options, including the role of the different sectors and the funding strategy and mechanisms as well as a capacity building plan; and
- In Part 4 detail the monitoring and evaluation plan for the implementation of the NAP.

Noting RMI's extreme vulnerability (particularly to sea level rise and drought) and its significant resource constraints, the 21 Sections in within these four Parts allow each Section to be individually scoped for support. The NAP will also support broader development issues addressed under the National Strategic Plan and Sector Plans. As of August 2020, GoRMI expects to finalise its National Adaptation Plan by late 2021.

2020 RMI GCF HANDBOOK

RMI's Green Climate Fund Handbook (in draft as of October 2020) provides a thorough, accessible, step by step, end to end explanation of the process of applying for GCF funding in English and Marshallese. Directed at easing and clarifying the demanding application process for GoRMI officials and national stakeholders, it gives an overview of the GCF, describes the institutional requirements, and explains how to conduct effective stakeholder engagement. It covers the development of a proposal and the process for submitting it, and the process through which national entities gain accreditation.

The contents of the handbook will not be repeated here but of importance to this Country Programme is the information on:

1. Key National Stakeholders

a. The National Designated Authority (NDA)

b. The Tile Til Eo Committee (TTEC)

c. The Project Review Committee (PRC)

2. The GCF development process

3. Overview of the RMI GCF project cycle

4. Annexes

a. National project idea template

b. Stakeholder guide for completing project idea template.

PART 3: PRIORITY THEMES FOR GCF INVESTMENT

RMI's national priorities for climate mitigation and adaptation are derived from key climate change related documents—national strategies and plans and communications to the UNFCCC—and from in-country stakeholder consultations, as described in Part 4. The priorities cover several sectors and enabling pillars. In accordance with RMI's UNFCCC submissions and commitment to net zero emissions by mid-century, energy is considered the top priority. The other themes are of equal importance and will be addressed in partnership with appropriate Accredited Entities.

In its communications to the UNFCCC, RMI has focussed on mitigation, in order to play its part in limiting climate change and as a form of advocacy to encourage other countries to commit to equally ambitious targets. Its national strategies recognise the critical importance of adaptation to the unavoidable consequences of locked in warming for the Marshall Islands.

GoRMI's mitigation priorities are:

- Electricity generation
- Waste management
- Domestic transport by land and sea.

GoRMI's adaptation and resilience priorities are:

- Coastal protection
- Climate-proofing critical infrastructure
- Food and water security
- Health

The threats to these intertwined sectors are understood, and articulated in key national documents, but they share a lack of detailed data to inform the development of effective, no-regrets interventions. The NSP, TTE–2050 Climate Strategy and NDC Partnership Plan call for further analysis of risks and consolidation of existing information.

Across all priority sectors, GoRMI will build capacity at all levels of government and in communities through education, training and public awareness activities. The coordination of climate finance and the development of innovative financing mechanisms will be particularly important. All proposed programs and projects will analyse the implications of activities for gender sensitivity and equity and for recognition of human rights.

GoRMI is acutely aware of the existential risks to its atolls and islands and has been a leader in global advocacy for more than 20 years. It has stated that recent data on ice loss at the poles and uncertainty about the impact on sea level rise this century oblige the Government to consider worst case scenarios for RMI.

As a component of its long-term adaptation plans, RMI is considering issues such as:

- What resources, including sand and aggregate, are available – and what amounts are sustainable – for coastal protection and other adaption and disaster risk reduction infrastructure projects?
- How will sea level rise impact RMI's claim to its sovereign territory, exclusive economic zone, and the resources within its current boundaries?
- If Marshallese relocate to other countries, what are the most appropriate places and means of resettlement? What rights and status would they have?
- Should establishing resettlement communities be considered as an option to preserve the Marshallese language and culture?[81]

[81] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf

With other atoll nations, GoRMI may seek support to have these issues explored by the United Nations, but their strong preference is to stay in their ancestral homes. GoRMI notes that migrating "would destroy the legacy our forefathers have worked hard to build, a Marshallese heritage. Such a scenario raises complex questions regarding our sovereignty and territorial integrity. Our children would only look into a dream of what was a Sovereign Nation, "Ad Jolet Jen Anij". Thus, we must do everything we can to prevent this from happening. We must ensure our voices are heard to have these drastic cuts in global emissions that threaten such dramatic local impacts on us."[82]

IMPACTS AND RISKS OF CLIMATE CHANGE TO RMI

The current and projected impacts of climate change on the Marshall Islands exacerbate the difficulties of achieving resilient development. RMI's innate physical vulnerability to natural climate hazards, the scarcity of land and resources, the complexities of the land tenure system and the lack of land-use regulation, all make planning for a range of different potential climate futures challenging. Uncertain external funding adds further difficulty.

Catastrophic risk modelling by the World Bank for RMI in 2011 predicted that over a 50 year period there is a 50% chance of RMI's experiencing losses from a natural disaster event that will exceed USD 53 million and a 10% chance of experiencing a loss exceeding USD 160 million.[83]

Increased hydro-meteorological extremes in the form of extreme rainfall and extended drought periods are a major challenge for atoll nations. RMI experienced an extended drought between 2015 and 2016 driven by an intense El Nino event resulting in USD 4.9 million in economic losses from disruptions to national production and higher production costs. The economic losses were felt across agricultural, industrial, education, electricity, water, sanitation, commerce, and transport sectors.[84]

Increased rainfall and higher temperatures are expected to create favourable conditions for water-borne disease. Flood and inundation risk linked to heavy rainfall and tidal variations will continue to impact upon the populations of RMI's atolls. Continued ocean acidification risks further degradation of the natural coastal protection provided by coral reefs which, with other coastal habitats, naturally reduce coastal impacts as they serve to dissipate storm wave power and reduce wave height.[85]

Ocean warming is expected to drive Skipjack Tuna eastward towards RMI's EEZ, potentially having a positive impact on RMI's commercial fishing industry in the short term. Big Eye tuna are likely to move further eastward, resulting in short- and long-term changes to RMI's income from fisheries. [86]

Wet season rainfall supplies the majority of freshwater to the RMI. However, El Niño conditions in this part of the Pacific can shift rainfall patterns, bringing significantly less rainfall than in normal years and leading to drought conditions. Droughts are especially damaging in the atolls lacking sufficient rain-water harvesting/storage capacity to withstand dry periods, as is the case with most of the outer atolls of the dry North (Utrik, Ailuk, Likiep, Wotho, Lae, and Namu). [87] The El Niño event of 1997/98 was one of the most pronounced drought periods in RMI, bringing only 8% of normal rainfall in a four-month period, severely impacting Laura island's fresh-water lens and leading the Government to declare the entire archipelago a disaster area. More frequent El Niño events could increase the intensity and occurrence of these drought events, with important implications for disaster management and response in the RMI.[88] Climate change is likely to make access to freshwater, already in limited supply, a very serious issue.[89] The impacts of these changes represent a very significant risk to the Marshall Islands, and its ability to respond effectively to minimise or avoid the risk is minimal.

[82] GoRMI, National Climate change policy framework, 2011
[83] http://documents.worldbank.org/curated/en/645321583440184225/pdf/Project-Information-Document-Integrated-Safeguards-Data-Sheet-Pacific-Resilience-Project-II-under-the-Pacific-Resilience-Program-P172014.pdf
[84] http://documents.worldbank.org/curated/en/645321583440184225/pdf/Project-Information-Document-Integrated-Safeguards-Data-Sheet-Pacific-Resilience-Project-II-under-the-Pacific-Resilience-Program-P172014.pdf.
[85] Reguero, B.G., Beck, M.W., Agostini, V.N., Kramer, P. and Hancock, B., 2018. Coral reefs for coastal protection: A new methodological approach and engineering case study in Grenada. Journal of environmental management, 210, pp.146-161. 86 https://oceanfish.spc.int/en/ofpsection/sam/508-tuna-fisheries-assessment-report-no-19
[87] USGS Scientific Investigations Report 2005-5098. Effects of the 1998 Drought on the Freshwater Lens in the Laura Area, Majuro Atoll, Republic of the Marshall Islands.
[88] Columbia University , Center for International Earth Science Information Network, available at < http://www.ciesin.org/ > [August 2019]
[89] Mellgard P, 2015, Available at <https://www.huffingtonpost.com.au/entry/marshall-islands-climate-change_n_56796928e4b06fa6887ea12c> [June 2020]

MITIGATION PRIORITY THEMES

DECARBONIZING ENERGY

Although RMI's total greenhouse gas emissions are negligible on a global scale, its Nationally Determined Contribution and its Second National Communication to the UN Framework Convention on Climate Change (UNFCC) propose very ambitious targets for reduction. Clean energy underpins climate-smart infrastructure development, but RMI remains highly dependent on imported petroleum fuels for both electricity generation and transportation—progress in changing this will make a major contribution to achieving NDC targets.

Fossil fuel imports are estimated to cost at least 10% of RMI's GDP, representing a high proportion of total imports and a significant national expense. In fact, the cost of energy for RMI and other Pacific island countries is among the highest in the world—two or three times as much as other regions—because their markets are small and they are very geographically remote.[90] The fuel needed to import diesel and to transfer it to outer islands is itself a significant cost. Almost 90% of national energy needs are currently met by imported petroleum products. 77% of RMI's CO_2 emissions are the result of combustion of imported fossil fuels in five sectors: electricity generation, land transport, sea transport, kerosene for lighting on outer islands and LPG, butane and kerosene for cooking.

Reliance on fossil fuel imports threatens RMI's energy security, making it susceptible to fuel price spikes and geopolitical shocks.[91] Lacking any known fossil fuel reserves of its own, RMI cannot protect itself from high and volatile fuel prices. After the fuel price spike in July 2008, the RMI Government declared a state of economic emergency and it has since overseen a rapid expansion of investment in renewable energy generation, supplementing the existing diesel-powered grids on the urban islands. The installation of renewable energy (solar power) infrastructure in most of RMI's outer islands is contributing to achieving the country's mitigation goals, but RMI's main towns still rely on fossil fuels.

The use of solar photovoltaic (PV) electricity systems is the most common form of Renewable Energy (RE) proposed for RMI. Solar PV can be scaled to some extent to meet a range of demands but its efficiency is subject to the level of cloud cover and it can only operate during daylight hours.[92] "Energy production – including the efficiency of production – is highly sensitive to meteorological and climate events. The efficiency and effectiveness of renewable energy systems in particular must take into account local climatic conditions during both their design and operation. For example, information on solar radiation and wind fields is required for the development of solar and wind power."[93]

Climate change will almost certainly affect energy demand and determine what options are most efficient and reliable for RMI. The impact of climate change specifically on wind and solar power generation is still being researched and must overcome the challenge of modelling wind and cloud cover changes at appropriate spatial scales before informed decisions can be made.[94]

Electricity: The Marshall Islands Energy Company (MEC) "is the sole provider for generation and transmission of electricity on the atolls of Majuro, Jaluit and Wotje; and is responsible for the installation and maintenance of solar power on the outer islands. MEC's principal line of business also includes buying and selling of petroleum products. For Ebeye, KAJUR[95] is the sole provider for generation and transmission of electricity. MEC and KAJUR are under the oversight of a Combined Utility Board of Directors."[96]

The Tile Til Eo notes "…RMI has already taken significant steps to reduce its GHG emissions. Its emissions peaked in 2009, and the National Energy Policy and Energy Action Plan identifies a comprehensive list of strategies to further reduce GHG emissions.

[90] UNEP, UN DESA and FAO, 2012. SIDS-Focused Green Economy: An Analysis of Challenges and Opportunities
[91] GoRMI, Tile Til Eo, 2018
[92] SPREP, Pacific Roadmap for Strengthened Climate Services 2017-2026.
[93] WMO, Pacific Climate Rationale, 2020
[94] United States Environmental Protection Agency, Climate Impacts on energy, 2016
[95] Kwajalein Atoll Joint Utilities Resources
[96] GoRMI, National Infrastructure Investment Plan, 2016

To maintain this momentum, this 2050 Strategy recommends undertaking studies and pilot projects, which focus on the actions with the highest potential to transform RMI's energy usage and accelerate the shift away from emissions-intensive practices, towards net zero emissions by 2050. With strategic and adaptive management, RMI can achieve significant emissions reductions and solidify its climate leadership position. In its 2009 and 2016 National Energy Plans, RMI outlined national goals for energy use that move the country toward achievement of its 100% decarbonization vision by 2050. The electricity sector has by far the greatest potential to rapidly reduce RMI's GHG emissions in line with its 2025 and 2030 NDC targets." [97]

Tile Til Eo anticipates RMI's pathway to a sustainable green energy mix and to further decarbonising the electricity generation sector will be set out in the RMI Electricity Roadmap. Tile Til Eo notes that transition to renewable energy may present net cost savings in future, from reduced imports of fossil fuels.

Domestic transport by land: The land transport sector is the responsibility of the Ministry of Transport, Communication and Information Technology (MOTC) which develops and maintains the roads. The Ministry of Works, Infrastructure and Utilities (MWIU) develops and maintains buildings or infrastructure, including bridges and storm drains.[98] The Tile Til Eo notes that to move towards net zero GHG emissions in this sector better data, amongst other things, will be needed, as there is considerable uncertainty as to what proportion of imported fossil fuels is used for domestic land transport.[99] Electrification of RMI's vehicle fleet and encouraging alternatives to the use of private cars are being considered.

Domestic transport by sea: The Ministry of Transport, Communication and Information Technology (MOTC) is responsible for the "development and regulation of a safe, dependable and coordinated network of transportation systems, for air and sea transport… the RMI Ports authority is responsible for the development, maintenance and operations of all sea ports. RMI has two wharfs located in Majuro, Uliga Dock (domestic) and Delap Dock (international), and one in Ebeye. The international wharf, however, is not equipped with shore or mobile cranes, making it necessary for vessels calling into port to have their own equipment."[100]

Domestic shipping is estimated to be responsible for around a third of RMI's fuel consumption and in the Tile Til Eo several short to medium interventions for achieving a low-carbon pathway for domestic sea transport are outlined. These include improved docking facilities to reduce the amount of time (and fuel) required to load/unload ships, changes to operations and ship design, as well as fuel switching/mixing.[101] "These efficiency improvements can also provide economic benefits through avoided costs from fuel imports. A pathway to full decarbonization for sea transport, however, appears to be infeasible in the medium term." [102]

RMI is the world's second biggest flag registry and the only country to explicitly include domestic shipping in its 2025 NDC. It is a leader in encouraging efforts to decarbonise international shipping at the International Maritime Organization (IMO).[103]

[98] GoRMI, CCD, 2020
[99] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf 100 GoRMI, National Infrastructure Investment Plan, 2016
[101] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf
[102] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf
[103] https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf

DECARBONIZING ENERGY PIPELINE PROJECTS

Below is a list of projects that RMI will consider implementing under the theme of decarbonizing energy. They represent potential early priorities but cannot represent the full breadth of potential projects under this theme and should not be seen to constrain RMI's future requirements.

EARLY PRIORITY

		Project/Programme
Title		Outer Island Solar Generation in the Marshall Islands
Accredited Entity		TBA
Results Areas – Please indicate the targeted results areas that the proposed project/ programme address		Reduced emissions from: ▶ Energy access and power generation ☐ Low emission transport ☐ Buildings, cities, industries and appliances ☐ Forestry and land use Increased resilience of: ☐ Most vulnerable people and communities ☐ Health & well-being, & food and water security ☐ Infrastructure and built environment ☐ Ecosystems and ecosystem services
Brief description of project/programme (max. 50 words)		The proposed project will facilitate the implementation of 100% renewable energy (solar powered substations) on Wotje and Jaluit Atolls in RMI. It will provide greater access to energy, economic security and improved air quality for the residents of these islands. Further, the project will directly contribute towards RMI's efforts in realising their Nationally Determined Contribution (NDC).
Investment criteria		
a.	**Climate impact potential**	In order to achieve their Nationally Determined Contribution (NDC) target of reducing GHG emissions by 32% below 2010 levels by 2025, RMI's electricity sector will need to use fewer than 2.9 million gallons of gas by 2025. As such, the proposed project will contribute significantly to reducing emissions and thereby achieving this target. Exact estimates of the amount of emissions to be reduced as a result of its implementation will be outlined in further project phases. Additionally, air quality will be improved as a result of reduced diesel and fossil fuel consumption.
b.	**Paradigm shift potential**	Moving from reliance on diesel fuel to renewable energy will be a paradigm shift for RMI. This project will enable inhabitants on some of the most densely populated Atolls in RMI (and the world) to utilise a less volatile and more reliable energy source. Other islands in RMI have already transitioned to renewable energy with success and this project represents a scaling up of this work.

c.	**Sustainable development potential**	This project represents an investment in energy security for RMI, which is an economic requirement. It facilitates self-sufficiency in the electricity and fuel sectors. Adverse impacts such as the 2009 declaration of emergency following variations in international oil prices will be more easily avoided, thereby reducing RMI's overall economic vulnerability. Additionally, an environmental co-benefit will be an improvement in air quality following the reduction GHG emissions. Lastly, improved access to energy constitutes a social co-benefit for the residents of the identified islands.
d.	**Needs of the recipient**	To meet RMI'S 2050 goal of net zero emissions, 100% renewable energy is essential across RMI and will require the support of GCF to achieve.
e.	**Country ownership**	In order to achieve their Nationally Determined Contribution (NDC) target of reducing GHG emissions by 32% below 2010 levels by 2025, RMI's electricity sector will need to use fewer than 2.9 million gallons by 2025. As such, the proposed project will contribute significantly in reducing emissions and thereby achieving this target. Exact estimates of the amount of emissions to be reduced as a result of its implementation will be outlined in further stages. The project is also driven by the national Electricity Roadmap specifically the section on technology pathways for outer islands, 2050 Climate Strategy, and draft Energy Bill and its implementation will help achieve a range of goals identified within these policies. Furthermore, the initial feasibility study for outer island solar generation was completed in coordination with local expertise and in consultation with the relevant stakeholders.
f.	**Efficiency and effectiveness**	In terms of environmental effectiveness, the project will contribute significantly towards realising RMI's Nationally Determined Contribution (NDC) and reducing energy consumption by 2.9 million gallons by 2025. Estimates of the total cost per tonne of CO_2 that will be reduced through project implementation will be provided in later GCF stages. Additionally, the total amount of the GCF's contribution as a percentage of the total funding required for the implementation of the project is 95%. The remaining finance will be provided by the GoRMI.
Financing/Cost information		
i.	**GCF financing**	$10 million
ii.	**Co-financing or other (if any)**	No co-financing required under GCF SAP
Total project financing/ cost		$10 million
Terms (grant, loan etc.)		Grant
Action plan		
Project/Programme preparation support		An initial feasibility study has already been undertaken by World Bank, which will inform the development of the concept note.
Policy and/or regulatory challenges and how those are going to be addressed		• Challenges include a lack of funding and an absence of technical expertise. • Policy and regulatory challenges to be addressed through Cabinet endorsement of National Energy Bill.
Accreditation		N/A
Readiness needs		N/A

OTHER EARLY PRIORITIES

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
World Bank/TBA	Centralized renewable energy in Wotje and Jaluit atolls	The project aims to advance national energy security through sustainable, clean, and reliable solar sources in atolls of Wotje and Jaluit, whose large boarding schools create demand during school terms.	$10,000,000	MEC	Draft GCF concept note	National
ADB	GCF Pacific Renewable Energy Investment Program	Completion of distribution network replacement and upgrading (5m) in Majuro Installation of efficient diesel generation (4m) in Majuro Installation of 2 MW solar PV panels in Majuro	20 million USD	MEC	In-development (Pre GCF concept note)	Regional
SPREP (GCF)	Building indigenous community resilience with low emission sea transportation in the Micronesian region	The project will mainstream and implement low emissions sea transport in Micronesia. Component 1: Reduce and avoid carbon dioxide equivalent emissions through a transformation in the sea transport sector. Component 2: Strengthen indigenous community resilience through a transformation in the sea transport sector to manage climate risk	$50 million	CCD	Draft GCF Concept Note	Sub-Regional

DECARBONIZING ENERGY CURRENT PROJECTS

Below is a list of projects that RMI are currently implementing under the theme of decarbonizing energy.

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
ADB	Technical Assistance	Investment plan, master planning., tariff review and analysis	750,000USD	MEC	In implementation 2017	National
ADFD (IRENA)	RMI Renewable/ Hybrid Micro- grid project	RMI Renewable/ Hybrid Micro-grid. Solar PVs installation in Ebeye, Wotje, Jabor, and Rongrong	11 million USD (loan)	EPD	Approved	National
EU EDF 11th	Renewable Energy and Energy Efficiency Project	To focus on the implementation of RMI National Energy Plan (NEP) and Action Plan via sector budget support contract. Specifically: Reducing generation, transmission, and distribution losses, primarily in the Majuro network. Increasing energy generated through renewable resources.	9.1 Million Euro in total Renewable Energy and Energy Efficiency: 8 Million euro Support Measures to NAO: 700,000 Euro Support measures to civil society: 400,000 Euro.	MOF, EPD, (R&D)	In implementation (2017-2020)	National

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
GIZ	Low Carbon Sea Transport Project	Low Carbon Sea Transport. Specifically: Assessment of options for low- carbon propulsion technologies. Retrofitting MISC's ships with the selected propulsion technologies and tested	9.5 million Euro	MOTC	In Implementation (2017-2022)	National
ICDF (Taiwan)	Loan for purchasing home solar units for residents of Majuro and Ebeye	Financing to homeowners for renewable energy products. Specifically: Phase 1. Energy efficiency program for households Phase 2. PV system installation on house	4 million USD (loan)		In implementation	National
JICA	Hybrid Power Generation System in the Pacific Island Countries	The project for introduction of Hybrid Power Generation System in the Pacific Island Countries (regional). Specifically: appropriate and economical system for O&M of diesel generators, methodology for appropriate planning and O&M of RE	TBD	KAJUR MEC	In implementation 2017 - 2022	Regional
World Bank	RMI Sustainable Energy Development Project (SEDP)	To invest in renewable energy project to increase the RE share. Component 1: RE investments Component 2: Efficiency improvements for the utilities, supply and demand sides management program Component 3: TA, capacity building, sector planning and studies. Specifically: • Grid tie PV generation installed at various locations in Majuro • Power transmission system to distribute RE generation • Battery energy storage system • Technical assistance • One or two generators for Majuro to support ne RE operation • One or two generators for Ebeye to support RE operation • PMU assistance • Investigate and design hybrid power systems for Wotje, Jaluit, Rongrong, others • Energy efficiency studies	$34 million PPA: $600,000	MEC	In implementation (2017-2024)	National

WASTE MANAGEMENT

The Government of RMI acknowledges that while it is difficult for a Pacific SIDS to meet the GCF metrics to be considered for a mitigation project on waste, this theme remains an important country priority. If GoRMI would like to move forward with a waste project, it is aware of the need to demonstrate a clear understanding of the sources and breakdown of the waste material to accurately calculate the emission reduction potential.

The Majuro Atoll Waste Company (MAWC) is responsible for solid waste management in RMI and oversees the National Waste Management Strategy (NWMS). "The NWMS focuses on all types of solid waste including residential, commercial, institutional and industrial sources and medical waste from the hospitals and dispensaries. It also covers scrap metal, used oil, used lead acid batteries, and e-waste." MAWC manages the dump on Majuro Atoll and oversees the private sector manager of the hazardous medical waste incinerator.

The Environmental Protection Authority (EPA) administers and enforces the Ozone Layer Protection Regulations (2004) and the Pesticides and Persistent Organic Pollutants (POPs) Regulations (2004) in accordance with the Montreal Protocol and the Stockholm Convention. The EPA is also responsible for monitoring and enforcing regulations regarding sewage and sewer facilities.

MAWC operations are overseen by its board of five directors, who are representatives of the Ministry of Works, Infrastructure and Utilities, the Majuro Atoll Local Government, Marshall Islands Chamber of Commerce, Marshall Islands Visitors Authority, and Marshall Islands Conservation Society. GoRMI's objective in establishing the Board was to bring waste management under a single authority to improve accountability and the quality of service delivery.

The solid waste management challenges on Majuro have been acknowledged for decades and are shared by other atoll countries. In the spirit of Refuse, Reuse, Reduce and Recycle, RMI has succeeded in diverting significant components of the waste stream from the existing dump, through medical waste incineration, reuse of oil for power generation, segregation of waste for export, and composting of green waste. In 2018, GoRMI introduced a five cent deposit return for aluminium cans, glass drink bottles and PET bottles and a deposit fee of six cents for canned and bottled beverages that importers pay to the national government on arrival of drinks in the country. Discouraging the import of non-biodegradable packaging could also be relatively straightforward.

Building on these initiatives, particularly the composting of green waste, which is the major source of GHG (methane from decomposition) from waste, can generate worthwhile reductions. RMI's TTE 2050 Climate Strategy notes that dealing with methane from organic waste would contribute to RMI's climate change mitigation goals. Introducing well-managed composting by households is challenging, but successful projects in other countries provide useful lessons. Large scale municipal composting can be more efficient, but it requires the development of socially accepted financial instruments to cover the costs of collection and public education on waste sorting. Both are long term undertakings. Demand for finished compost is likely to be adequate, from forest regeneration projects and food security agro-forestry and horticulture activities.

These diversion activities are important components of an integrated solid waste management plan and reduce the volume being dumped, but RMI's large population centres will always produce intractable waste which must be disposed of by burning, exporting or storing in landfill. GoRMI has investigated waste to energy options, and the Majuro Atoll Waste Company has considered building an incineration facility to address its space constraints. The potential downsides of both options are well understood and not easily addressed. The Environment Impact Assessment for a new solid waste disposal facility on a section of Majuro's ocean-side reef flat describes a possible landfill / reclamation solution with a 25–30 year life. The current ad hoc systems are expensive to operate, making it difficult to source funds for trialling innovative solutions.

"Waste accounts for nearly a quarter of RMI's total GHG emissions, and if the country is to move towards net zero GHG emissions, this sector will need to be addressed. However, the waste sector is by far the most difficult of RMI's sectors to decarbonize. As such, given that most of RMI's GHG emissions reductions potential for its 2025 and 2030 NDC targets will be delivered through the energy sector, the country should not look to the waste sector as a significant contributor to reduce GHG emissions in the short to medium term. Rather, planning out to 2030 should focus on social benefits and the wider environmental advantages of dealing with the RMI's significant and growing waste problem. Having said that, dealing with waste and reducing GHG emissions in an economically feasible way are not mutually exclusive. Planning for this sector should therefore align and be consistent with RMI's 2050 goal."

The Tile Til Eo recommends that the many waste studies conducted in RMI, which have generated a wealth of data, be consolidated. "An overarching study could be launched, and a comprehensive policy consequently developed based on the study's conclusions." The study should evaluate options, considering RMI's economic circumstances and climate change projections. It should include assessment of options for resourcing the operations of a comprehensive solid waste management system that distributes costs equitably and avoids creating perverse incentives for uncontrolled dumping.

WASTE MANAGEMENT PIPELINE PROJECTS

Below is a list of projects that RMI will consider implementing under the theme of waste management. They represent potential early priorities but cannot represent the full breadth of potential projects under this theme and should not be seen to constrain RMI's future requirements.

EARLY PRIORITY

	Project/Programme
Title	Waste Sector Emissions Reduction
Accredited Entity	TBA
Results Areas – Please indicate the targeted results areas that the proposed project/ programme address	Reduced emissions from: ☐ Energy access and power generation ☐ Low emission transport ▶ Buildings, cities, industries and appliances ☐ Forestry and land use Increased resilience of: ☐ Most vulnerable people and communities ☐ Health & well-being, & food and water security ☐ Infrastructure and built environment ☐ Ecosystems and ecosystem services
Brief description of project/ programme (max. 50 words)	This project will support emissions reduction in the waste sector by improving the management of domestic waste through diversion, waste sorting and recycling. Large-scale composting of organic waste will reduce the volume of the waste stream. These interventions will reduce methane emissions generated through the biodegradation of mixed waste at municipal and informal disposal sites. It will also strengthen RMI's management of waste, chemicals, pollutants and nuclear radiation.

Investment criteria		
a.	**Climate impact potential**	Waste generates about a quarter of RMI's GHG emissions. The diversion of organic waste from disposal sites where it generates methane will begin to reduce emissions from this difficult source. Further emission reductions will be achieved through (i) replacement of high embedded-carbon chemical fertilisers with municipal compost; (ii) improved carbon sequestration in soils through the application of compost and (iii) in the case of home-composting, reduction of emissions from transporting organic waste to the disposal site. Co-benefit: improved public health as a result of improved waste collection services, improved water quality, enriched soil which is scarce in atoll or coral islands.
b.	**Paradigm shift potential**	Improved technologies for treatment of waste will likely revolutionise how organic waste is treated for medium- and long-term solutions. Lessons learnt from pilot programs will build institutional knowledge, contributing to the creation of an enabling environment where indigenous knowledge and technological innovation complement each other and are proven to work, encouraging replication throughout RMI.
c.	**Sustainable development potential**	Economic co-benefits include the creation of jobs, social co-benefits include improved health and safety, improved food security, improved sanitation. Environmental co-benefits include improved waste management practices through new and improved standards and good practices from lessons learned and programs. Gender empowerment through shared responsibilities and employment opportunities.
d.	**Needs of the recipient**	Waste management is very challenging for atoll countries, and waste contributes about a quarter of RMI's GHG emissions. RMI cannot develop innovative approaches, in part because current ad hoc systems are expensive to manage.
e.	**Country ownership**	The projects objectives to support emissions reduction in the waste sector are in line with the following policies (which were undertaken via government and community stakeholder engagement): • NSP 2020 • 2050 Climate Strategy–Tile Til Eo, • NDC • NEMS 2017-2020
f.	**Efficiency and effectiveness**	The actual cost per tonne of CO_2 will be provided during the feasibility study phase.

Financing/Cost information		
i.	**GCF financing**	$45 million
ii.	**Co-financing or other (if any)**	$5 million
Total project financing/cost		$50 million
Terms (grant, loan etc.)		Grant
Action plan		
Project/Programme preparation support		Pilots conducted in other Pacific atoll environments will be used as the basis for determining feasible options and for lessons learnt from planning and implementation.
Policy and/or regulatory challenges and how those are going to be addressed		Revise existing policies to align with new proposed activities to strengthen waste management compliance.
Accreditation		N/A
Readiness needs		N/A

OTHER EARLY PRIORITIES

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
SPREP/SPC (TBA)	Waste Sector Emissions Reduction	This project will support emissions reduction in the waste sector by improving the management of domestic waste through diversion, waste sorting and recycling. Large-scale composting of organic waste will reduce the volume of the waste stream.	$50,000,000	MAWC	Draft GCF concept note	National

WASTE MANAGEMENT CURRENT PROJECTS

Below is a list of projects that RMI are currently implementing under the theme of waste management.

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
ADB	Solid Waste Management	The project will improve the management of solid waste in Ebeye and Kwajalein Atoll through reduction by a recycling program of waste produced, strengthening of waste collection services, and improvement of the waste disposal operation. The project will also assist the Kwajalein Atoll Local Government to design and implement institutional reforms required to ensure the financial and technical sustainability of the SWM system. The project will include an intensive and long-duration community awareness and education program on the need for improved hygiene and effective hygiene practices.		KALG	Initial Poverty and Social Analysis	Kwajalein Atoll

ADAPTATION PRIORITY THEMES

RESILIENT INFRASTRUCTURE

Infrastructure management is the responsibility of the Ministry of Works, Infrastructure and Utilities (MWIU) in RMI. MWIU is responsible for implementing the 2017-2026 National Infrastructure Investment Plan (NIIP) which provides the planning and investment strategies on all capital and maintenance infrastructure projects, as well as ensuring the sustainability of new investments.

Strategic areas outlined in the NIIP are Transport (Air and Sea), Energy, Waste and Sanitation, Solid and Hazardous Waste Management, Information and Communications Technology (ICT) as well as Climate Change Adaptation (CCA) and Disaster Risk Management (DRM).

The NIIP's primary objective for CCA is to strengthen climate resilient investments in shoreline protection and early warning systems, and to provide financial protection to RMI. These Infrastructure projects will increase the capacity of national and local government to prioritise resilient investments that support adaptation to climate change and reduce disaster risk. Communities living near or using infrastructure in coastal areas exposed to storm surges, erosion, king tides and sea level rise will benefit from the reduced risk of damage, as shoreline protection is strengthened.

The NIIP has adopted several principles relating to CCA and disaster risk reduction in project planning: these are water conservation and rainwater harvesting, energy efficiency and climate proofing.

RMI's land masses are so narrow, most infrastructure is necessarily very close to the coastline, and therefore highly vulnerable to sea level rise. Infrastructure development offers the greatest potential for economic growth, effective public service delivery and strong adaptive capacity, but construction poses severe challenges to the protection of the natural environment. Infrastructure development must thus be undertaken with great caution.

Existing vital infrastructures such as harbours, roads, cyclone shelters, landfills, health centres and water supplies are likely to need upgrading to withstand the anticipated increase in the strength of cyclones and the height of storm surges.

At the time of writing in 2016, the NIIP proposed a total indicative envelope for climate change funding projected over FY2017 to FY2026 of US$39 million from the Green Climate Fund and the Adaptation Fund. Two infrastructure projects with a combined required capital funding of USD94 million were identified with a focus on investments in shoreline protection and climate change resilience. They were the RMI Coastal Resilience project, now complete, and the RMI Integrated Water Resilience Project which is still under way in Ebeye.

Photo: Christopher Johnson

RESILIENT INFRASTRUCTURE PIPELINE PROJECTS

Below is a list of projects that RMI will consider implementing under the theme of resilient infrastructure. They represent potential early priorities but cannot represent the full breadth of potential projects under this theme and should not be seen to constrain RMI's future requirements.

EARLY PRIORITY

		Project/Programme
Title		Majuro Communities & Outer Islands Coastal Adaptation
Accredited Entity		TBA
Results Areas – Please indicate the targeted results areas that the proposed project/ programme address		Reduced emissions from: ☐ Energy access and power generation ☐ Low emission transport ☐ Buildings, cities, industries and appliances ☐ Forestry and land use Increased resilience of: ▶ Most vulnerable people and communities ☐ Health & well-being, & food and water security ▶ Infrastructure and built environment ☐ Ecosystems and ecosystem services
Brief description of project/ programme (max. 50 words)		The project builds upon work undertaken by the GCF funded PREP project and will involve small scale coastal protection work (sea walls) for several outer islands and for numerous communities in Majuro. The Coastal Protection works will be designed to reduce the impacts of climate hazards such as rising sea levels, flooding, storm surge etc. The project will benefit vulnerable coastal communities in outer islands and Majuro helping them build climate resilience.
Investment criteria		
a.	**Climate impact potential**	The project will reduce the vulnerability of coastal communities across RMI to severe climate impacts such as rising sea levels, flooding, storm surge etc. by enhancing their adaptive capacity. The exact number of beneficiaries disaggregated by gender will be provided in further stages of the GCF process.
b.	**Paradigm shift potential**	Similar to the investments made by the GCF funded PREP project, this project will build upon the innovative technical modelling of the RMI coastline and will seek out new means for sourcing sustainable aggregate for use in construction of the coastal protection works.

c.	**Sustainable development potential**	As noted earlier this project represents a scaling up of the current GCF funded PREP project. It has an identifiable social and economic co-benefit through a decrease in migration from coastal communities to urban centres due to sea level rise. This has put pressure on the availability of agricultural land and the implementation of this project will help to address this by allowing coastal communities to remain within their localities. This will have a further social co-benefit of expanding job markets and job creation to coastal and maritime areas and ensuring that job markets in urban centres are not saturated. Additionally, this project provides environmental co-benefits through improved soil and water quality.
d.	**Needs of the recipient**	RMI is vulnerable to sea level rise due to its small land mass and topography. Significant damage to infrastructure is caused by climate hazards. The proposed project will address both of these needs as well as supporting the particularly vulnerable maritime and coastal communities from continued socio-economic pressures associated with climate change hazards.
e.	**Country ownership**	The projects objectives to build climate resilience especially in coastal areas are in line with the following policies (which were undertaken via government and community stakeholder engagement): • RMI NDC • RMI 2050 Climate Strategy • RMI NDC Partnership Plan • RMI forthcoming NAP
f.	**Efficiency and effectiveness**	As in the PREP project, a best practice coastal protection works design will be utilised. Estimates of the expected rate of return will be provided in later GCF stages. The total amount of the GCF's contribution as a percentage of the total funding required for the implementation of the project is 95%. The remaining finance will be provided by the GoRMI.
Financing/Cost information		
i.	**GCF financing**	$47.5 million
ii.	**Co-financing or other (if any)**	$2.5 million
Total project financing/cost		$50 million
Terms (grant, loan etc.)		Grant
Action plan		
Project/Programme preparation support		A pre-project feasibility study may have to be undertaken to ensure coastal adaptation measures are designed appropriately.
Policy and/or regulatory challenges and how those are going to be addressed		As this is a scaling up of a current project, policy and regulatory challenges have already been addressed.
Accreditation		N/A

Readiness needs	N/A

OTHER EARLY PRIORITIES

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
TBA	Majuro Communities & Outer Islands Coastal Adaptation	The project builds upon work undertaken by the GCF funded PREP project and will involve small scale coastal protection work (sea walls) for several outer islands and for numerous communities in Majuro. The Coastal Protection works will be designed to reduce the impacts of climate hazards such as rising sea levels, flooding, storm surge etc. The project will benefit vulnerable coastal communities in outer islands and Majuro helping them build climate resilience.	$50,000,000	MPW	In-development (Pre GCF concept note)	National

RESILIENT INFRASTRCUTURE CURRENT PROJECTS

Below is a list of projects that RMI are currently implementing under the theme of resilient infrastructure.

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
World Bank (GCF)	GCF Pacific Resilience Project Phase II for RMI	RMI Pacific Resilience Program Phase 2 (PREP Phase 2) To Strengthen Climate and disaster resilience with a particular attention to coastal protection. Component 1: Early Warning and disaster preparedness Component 2: Strengthening coastal resilience (Infrastructure) Component 3: Contingency Emergency Response	National IDA: 19.6 Million Regional IDA: 4 Million GCF: 25 million PPA: 500,00	MOF, MPW	In Implementation (2017-2022)	National

FOOD SECURITY

As RMI's Food Security Policy states, "Food security underpins all other development, as without it, food insecure people prioritize food and sustaining their own lives and those of their families over everything else." RMI's National Strategic Plan identifies universal access to nutritious, affordable food as one of the country's highest priorities. Food security is the responsibility of the Ministry of Natural Resources and Commerce and its Department of Agriculture, which is resourced at a level that limits its capacity to provide the comprehensive advisory services and capital works communities need.

The Marshall Islands are naturally tropical forested ecosystems, mostly converted to agro-forest over the millennia since settlement by the Marshallese people. About 3000 years ago, early settlers of the Marshall Islands replaced parts of the indigenous forest with introduced food trees—breadfruit, pandanus and banana—establishing an ecological balance, providing reliable food sources and preventing the loss of soil. Perennial crops such as taro, tropical fruits and fibre and medicinal plants were grown among the trees, selectively bred for the highly alkaline, infertile coralline atoll soils. Mangroves and other native species formed wind and salt-tolerant 'jonner' forests on the ocean sides of islets, protecting shorelines and limiting salt spray intrusion into the productive areas. Reef ecosystems and coastal fisheries were highly productive. This balance was sustained until the 1860s, when copra became a major industry and coconut plantations began to replace traditional forests, but most Marshallese families continued to grow much of their own vegetables and fruit.

Over the past four or five decades, food production and consumption patterns have changed markedly in the Marshall Islands, from largely self-sufficient subsistence agriculture to a significant reliance on imported foods, particularly in high density population centres where arable land is scarce. This change is associated with poorer nutrition for many children, a rise in lifestyle diseases and obesity among adults, greater use of diesel for food transport, increased volumes of intractable packaging waste, conversion of sustainably managed agro-forests to monocultures, and the loss of traditional knowledge about resource management.

Over the same period, human pressures on the Marshall Islands' coastal waters and coral reef ecosystems have increased. Agricultural and sewage run-off, removal of coastal forests and over-fishing are reducing the availability of a major source of protein. Invasive species threaten the productivity of both terrestrial and marine ecosystems. Climate change is exacerbating these existing stressors on marine, coastal and land resources.

Income inequality is severe in RMI and the ADB estimates two thirds of the people in outer islands live on less than USD1 per day. Poverty is driving migration to RMI's urban centres, which are already very crowded. RMI's most recent Demographic Health Survey in 2007 reports high rates of low birth weight, stunting and wasting of primary school age children, and risk factors for development of lifestyle diseases in adulthood. The Integrated Child Health and Nutrition Survey conducted in 2017 reported "Over one in three children in RMI is moderately or severely stunted with stunting classified as a high public health concern by the WHO. The prevalence of stunting increased with child age with critically high levels of stunting in children 12-35 months of age with over 40 percent of children stunted. Children under 5 in the poorest households in RMI were more likely to be moderately or severely stunted than children from other wealth index quintiles although prevalence of stunting was 20 percent in even the wealthiest households."

The security of RMI's food supply is dependent on its ability to pay for food imports and on reliable shipping services both to the RMI and within its island groups. In 2008, GoRMI recognised this vulnerability when global prices for food and oil increased sharply, and RMI's ability to pay for them did not. The Government has since developed inter-linked policies which, when implemented, would break cycles of resource degradation, alleviate poverty and improve the resilience of its population and environment to the impacts of climate change: the Food Security Policy (2013), the Agriculture Sector Plan (2021–2031), the Marshall Islands Organic Farmers Association Strategy, the State-Wide Assessment and Resource Strategy (2010) updated as the Forest Action Plan (2020), the Trade Policy, the Export

Strategy, the National Fisheries Development Policy, and others.

These key documents and RMI's overarching National Strategic Plan consistently highlight the importance of increasing local food production and ensuring an efficient national food distribution system. Many studies have been made of RMI's capacity to increase the productivity of both commercial and small-scale agriculture and horticulture, many pilot projects have been funded and many useful evaluations have been made of the results. The Food Security Policy and the Agriculture Sector Plan both draw on these evaluations to recommend some fundamental principles for successful interventions—for instance that cultural and culinary food preferences must be respected, that growers prefer 'organic' methods, and that growers should not be expected to bear the risk of innovations. They also note that strengthening food security has potential to contribute to both mitigation and adaptation goals by reducing the need to import and transport food.

High priorities for improving food security include:

- restoration of protective coastal forests, particularly near wider land masses with potential for agro-forestry
- introduction of regenerative agriculture, drawing on (and recording) traditional knowledge
- introduction of 'climate-smart' crop varieties and cultivation techniques
- public education on nutrition and the health benefits of traditional foods through community-based organisations, schools and public media
- demonstration of composting, to improve the fertility of gardens (and make productive use of green waste)
- negotiation of affordable transport to markets.

The Agriculture Sector Plan has detailed recommendations for advancing these activities.


Photo: Christopher Johnson

FOOD SECURITY PIPELINE PROJECTS

Below is a list of projects that RMI will consider implementing under the theme of food security. They represent potential early priorities but cannot represent the full breadth of potential projects under this theme and should not be seen to constrain RMI's future requirements.

EARLY PRIORITY

	Project/Programme
Title	Climate-resilient food security in the Marshall Islands
Accredited Entity	TBA
Results Areas – Please indicate the targeted results areas that the proposed project/ programme address	Reduced emissions from: ☐ Energy access and power generation ☐ Low emission transport ☐ Buildings, cities, industries and appliances ☐ Forestry and land use Increased resilience of: ▶ Most vulnerable people and communities ▶ Health & well-being, & food and water security ☐ Infrastructure and built environment ☐ Ecosystems and ecosystem services
Brief description of project/ programme (max. 50 words)	The project supports the Government of Republic of the Marshall Islands (GoRMI) in adapting to increasing climate risks, particularly more frequent and extreme droughts and increasing exposure of its arable land to salt incursion, which are affecting the country's food security. The proposed project aims to increase the resilience of the production of locally grown food, initially in two communities serving the main urban centre of Majuro. This will be done by: • Facilitating the use of climate-smart varieties of preferred crops and growing techniques by small scale farmers at Laura village on Majuro atoll and on Arno atoll. • Raising awareness of the nutritional value of traditional crops and increasing access to fresh produce. • Strengthening the technical capacities of regional, national and subnational agencies and key community stakeholders to address climate change impacts on agriculture and horticulture. The project will contribute to the achievement of a high priority objective identified in GoRMI's key climate change policies and strategies and has been developed through extensive consultation with government agencies, non-government organisations (NGOs), community-based organisations (CBOs) and beneficiary communities. It will directly benefit growers in a rural area of Majuro and on Arno atoll, as well as up to 50% of the ~40,000 people living in urban centres, that is the section of the urban population with low incomes and without access to formal public sector employment or arable land. It will reduce the import of foodstuffs, which requires the use of diesel for distribution, creates waste from packaging, and worsens RMI's trade deficit. The proposed project is aligned with RMI's Nationally Determined Contribution to the UNFCCC and its country work program with the GCF.

Investment criteria		
a.	**Climate impact potential**	The project will improve nutrition status, reduce reliance on imports and on fossil fuels for distribution, improve resilience of outer island communities to climate change and natural disaster impacts and reduce damage to coastal ecosystems from nutrient run-off.
b.	**Paradigm shift potential**	The project will improve standards of living in outer islands, reduce pressure to migrate to crowded urban centres, reduce reliance on imports and reduce waste generation, by supporting communities to recover and use indigenous food growing knowledge.
c.	**Sustainable development potential**	Improved resilience to economic shocks, potential to generate small income streams, regenerate arable land, and reverse soil degradation and loss, create ongoing employment opportunities for women. Social co-benefits: improved health and social inclusion.
d.	**Needs of the recipient**	Declining income from UN Compact grants and uncertain income from fishing vessel day licenses; consistent balance of trade deficit; vulnerability to external economic shocks, and severe weather and climate events; and as a country of atolls and low islands, extreme vulnerability to climate change. Most costs will be in set-up, limited need for ongoing inputs.
e.	**Country ownership**	Addresses a high priority food security need identified through community and other stakeholder consultations and in key RMI policy documents and strategic plans: • National Strategic Plan 2020–2030 • NDC to UNFCCC, 2050 Climate Strategy (Tile Til Eo), • Agriculture Strategy 2021–2031, • Food Security Strategy. Implementing partner: Ministry of Natural Resources and Commerce.
f.	**Efficiency and effectiveness**	Builds on success of work done at Laura farm by enhancing food security in RMI; includes ongoing assessment of changes, and of impacts on nutrition and food availability. The total amount of the GCF's contribution as a percentage of the total funding required for the implementation of the project is 85%. The remaining finance will be provided by the GoRMI.
Financing/Cost information		
i.	**GCF financing**	$9.5 million
ii.	**Co-financing or other (if any)**	$500,000 from GoRMI
Total project financing/cost		$10 million
Terms (grant, loan etc.)		Grant
Action plan		
Project/Programme preparation support		TBA
Policy and/or regulatory challenges and how those are going to be addressed		TBA
Accreditation		N/A
Readiness needs		N/A

OTHER EARLY PRIORITIES

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
World Bank/TBA	Climate-resilient food security in the Marshall Islands	In line with the Marshall Islands' Agricultural Strategic Plan, agriculture / horticulture support sub-centres will be established in at Laura village on Majuro atoll and on Arno atoll. The project will address a high priority food security need identified in key RMI policy documents and strategic plans. The project will directly benefit the ~4,000 people living in Laura and Arno and benefit up to 50% of the ~40,000 people living in urban centres by improving their access to fresh locally grown food. The project will be replicable for other atolls / islands with ready access to population centres and markets.	$10,000,000	MNRC	Draft GCF concept note	National

FOOD SECURITY CURRENT PROJECTS

Below is a list of projects that RMI are currently implementing under the theme of food security.

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
World Bank	Pacific Regional Oceanscape	To strengthen the management of selected Pacific Island oceanic and coastal fisheries, and the critical habitats upon which they depend to provide the basis for sustainable and increased economic benefits from the resources. Specifically: • Sustainable management of oceanic fisheries • Sustainable management of coastal fisheries • Sustainable financing of the conservation of critical fishery habitats	$8.58 Million	MIMRA	In implementation	National

WATER SECURITY

A country of atolls, the Marshall Islands has no rivers or streams. A convex-shaped layer of fresh groundwater floats above denser saltwater below the surface of its habitable islets and islands. This aquifer of fresh water is recharged by rainfall and in RMI's outer islands it is a principal source of water for drinking, washing and agriculture. Native forest ecosystems and traditional agro-forest management are both dependent upon and protective of the freshwater lens underlying atoll soils.

RMI's rainfall patterns vary greatly from north to south. "The atolls in the north receive less than 50 inches (1250 mm) of rain each year and are very dry in the dry season, while atolls closer to the equator receive more than 100 inches (2500 mm) of rain each year.… The climate of the Marshall Islands varies considerably from year to year due to the El Niño-Southern Oscillation… Conditions during La Niña years are generally wetter than normal. El Niño events tend to bring warmer than normal wet seasons and warmer, drier dry seasons."

Despite its relatively high average rainfall, RMI has experienced droughts causing significant hardship and damaging its economy. States of emergency were declared in 2013 and 2016, when droughts associated with strong El Nino events exhausted water storage, and desalination capacity proved inadequate. Thorough post-disaster assessments yielded analyses of the different vulnerabilities of water supplies for urban centres and outer islands and provided recommendations for practical remedies. The application of experiences from the 2016 and previous droughts means GoRMI is better placed to manage future droughts.

Reliable access to water varies between major population centres and remote outer islands: on Majuro island the MWSC, a State-Owned Enterprise (SOE) is responsible for a relatively complex water supply system, with multiple sources and treatment plants. Only about 25 percent of residential properties are connected to MWSC's piped water supply system—water is pumped for limited hours and not every day, supply is relatively expensive, and the water is often not potable. "A community survey undertaken by MWSC in 2016 found that 52% of residents use their own or neighbour's rainwater catchment for drinking water and 39% purchase bottled water for drinking water. There are at least eight commercial drinking water suppliers providing bottled drinking water."

In RMI's second largest city, Ebeye on Kwajalein atoll, the primary source of public water is desalination, which theoretically provides a drought-free supply. Rainwater harvesting is not as prevalent as in Majuro. "Kwajalein Atoll Joint Utilities Resources (KAJUR), the operating company, suffered a major failure of the energy recovery unit on the 0.6 MLd SWRO plant on 25th May 2016, which was equivalent to a "drought" for Ebeye." An Asian Development Bank project is working with RMI to improve water and sanitation systems in Ebeye, linking all households to upgraded freshwater and sewage facilities that reduce water leaks and sewage overflows.

"Water supply in the outer islands is very rudimentary, with most of the small communities using rainwater harvesting and/or shallow wells… Because of the relatively low standards for water management and the much lower rainfall in the northern atolls, water supply shortages develop very quickly during droughts. The 2016 drought impacted all outer islands but was more significant in the lower rainfall northern islands. Food shortages were prevalent, and supplies were shipped to the islands."

Ensuring water security in the Marshall Islands is likely to include high quality climate forecasting to allow effective planning for droughts and management of water resources during periods of low rainfall, improved water storage capacity and improved reticulation. Better water access and quality have potential to improve health and education outcomes throughout RMI and to mitigate the effects of drought on livelihoods, particularly for women. Infrastructure planning tends to be male dominated, including in the government agencies responsible for the sector, and in the sub-national and community level decision-making forums where men typically dominate. It will be important to ensure planning for water security is gender-informed and gender-sensitive.

The IPCC's Fifth Assessment Report (AR5) states that the response of the Inter-Tropical Convergence Zone (ITCZ), the South Pacific Convergence Zone (SPCZ) and the West Pacific Monsoon (WPM) to increasing temperatures will dictate how rainfall patterns will change in the tropical Pacific. Average annual rainfall is projected to increase in most areas of the western tropical Pacific as surface temperatures increase. From November to April, rainfall is projected to increase along the equator, in the north-east near RMI. In the north-western and near-equatorial regions of the Pacific, including RMI, rainfall during all seasons is projected to increase. Wet season increases are consistent with the expected intensification of the WPM and ITCZ.

However, contradictions between direct model outputs, multi-model ensemble projections and physical insights mean that the rainfall outlook is uncertain in regions directly affected by the SPCZ and the western portion of the ITCZ.[1] "Rainfall data since 1950 for Kwajalein show a decreasing trend in annual and seasonal rainfall. At Majuro, since 1950, there has also been a decreasing trend in annual and dry season rainfall but no trend in wet season rainfall. Over this period, there has been substantial variation in rainfall from year to year at both sites."

These uncertainties indicate no-regrets interventions would be advisable, such as restoration of coastal forests, protection of water lenses from pollution, and strengthening climate forecasting capacity, as well as the improvements to infrastructure already proposed or in progress.

Photo: Christopher Johnson

WATER SECURITY PIPELINE PROJECTS

Below is a list of projects that RMI will consider implementing under the theme of water security. They represent potential early priorities but cannot represent the full breadth of potential projects under this theme and should not be seen to constrain RMI's future requirements.

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
ADB	Sealing of Unsealed Areas of Airport Runway	Increase collection area by 15% and increase yield of collection area from 50% to 70%. Specifically: sealing the runway extension, connecting the new extension into the collection zone, reducing the permeability of the pavement surface all around the airport.	1,524,000	MWSC	A Priority List for Capital Funding has been sent to ADB. (2020-2022)	National
ADB	Non-Revenue Water Improvement Plan	The loss of water via leaks and illegal connections is minimized. Specifically: Technical assistance program sets up the plan, an external specialist contractor is engaged and provides training to MWSC staff for ongoing investigations.	1,679,000	MWSC	A Priority List for Capital Funding has been sent to ADB. (2018-2021)	National

WATER SECURITY CURRENT PROJECTS

Below is a list of projects that RMI are currently implementing under the theme of water security.

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
ADB	Ebeye Water Supply and Sanitation	To Improve access to safe water and improved sanitation services. Specifically: Secure and safe freshwater supplies Effective, efficient, and safe sewage services Enhanced hygiene awareness and improved hygiene behaviours Secure electricity supply for water and sewage operations.	19.020 Million (5m from ADB, 4m from Australia, 10.02 million from Compact grant)	KAJUR	In implementation (2016- 2021)	National
JICA	16 Million Gallon Reservoir	Increase raw water storage. Specifically: Improved and increased collection providing additional water for use	18,004,000	MWSC	In Implementation (2021-2025)	National
JICA	Treatment Plant C Refurbishment	Improved reliability of water treatment plant. Specifically: Mechanical and electrical overhaul, valve and pipe manifold replacement etc.	4,923,000	MWSC	In Implementation (2019-2023)	National
JICA	Treatment Plant Laura Refurbishment	Improved reliability of water treatment plant. Specifically: Replacement of existing 30,000-gallon reservoir with 100,000-gallon reservoir, new chemical storage building and install new abstraction gallery arm to optimize operation	744,000	MWSC	In Implementation (2019-2022)	National
JICA	Treatment Plant A Refurbishment	Improved reliability of water treatment plant. Specifically: Replacement of filters, total mechanical and electrical replacement, upgrade of pumps and replacement of chlorination system etc	656,000	MWSC	In Implementation (2019-2021)	National
JICA	Liners and floating covers to existing reservoirs	Improved performance and reliability reduce water loss. Specifically: Re-line res#1,2 and 6 to reduce leakage. Res#1,2,4,5&6 are covered to reduce evaporation losses. Rainwater will be collected on the covers at 90% efficiency	1,419,000	MWSC	In Implementation (2019-2022)	National

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
UNDP	Addressing Climate Vulnerability in the Water Sector (ACWA) in the Marshall Islands	The project aims to increase resilience of water resources for drinking and hygiene purposes in RMI. This will be done by: • Improving household and community rainwater harvesting and storage structures to increase resilience of water supply in all outer islands and atolls accounting for approximately 28% of RMI's population • Securing groundwater resources from contamination due to inundation caused by wave overtopping of seawater. • Strengthening the technical capacities of national and subnational institutions and key stakeholders to integrated climate change risks into water governance processes so that management of climate change risks are coordinated, effective, participatory, equitable, and sustained over the long-term when risks are expected to worsen.	19,000,000	MWSC	In implementation (2019-2026)	National
USDA	Delap Outfall Replacement	A replacement outfall is provided at Delap which allows sewage to be dispersed and assimilated into the environment, away from the coastline. Public health is significantly improved along the coastline at Delap. Specifically: A replacement outfall is to be constructed at the location of the existing outfall at Delap. The works are able to be designed and progressed when funding is available. Existing easements are in place for the outfall so landowner approvals would only be required for temporary works. Specialist works requiring suitably qualified contractors with marine experience.	6,200,000	MWSC	In implementation (2019-2021)	National

HEALTH

"Climate change is not just rising sea level and weather change. It's health, it's disease, and it's impacting people right now" – Jack Niedenthal, RMI Secretary of Health (2020)

At the start of 2020, RMI had been in a state of health emergency for seven months with disease outbreaks transported through food, water or by vectors. Over the last decade RMI has experienced "dengue fever (2011, 2019-2020, vector-borne), typhoid on Ebeye (2019, water-borne), rotovirus in Majuro (2018-19, food-borne), gastroenteritis (2016, water-borne), conjunctivitis (water-borne), hepatitis A (2016, food-borne), chikungunya (2015, vector-borne), Zika virus (2016, vector-borne), and influenza (2014, 2016, 2019, respiratory)."

The Ministry of Health (MOH) has primary responsibility for the health care system which "consists of two hospitals, one in Majuro and one in Ebeye, and fifty-eight (58) health care centers in the outer atolls and islands. The hospitals are equipped to provide mainly primary and secondary care and are limited in the ability to offer tertiary care. Patients needing additional care are usually referred to Honolulu or the Philippines. These referrals consume a large portion of the health sector budget."

Income inequality is severe in RMI and among its consequences are impaired physical and mental health and reduced life expectancy for many Marshallese people. RMI's most recent Demographic Health Survey in 2007 reports high rates of low birth weight, stunting and wasting of primary school age children, and risk factors for the development of lifestyle diseases in adulthood. The Integrated Child Health and Nutrition Survey conducted in 2017 reported "Over one in three children in RMI is moderately or severely stunted with stunting classified as a high public health concern by the WHO. The prevalence of stunting increased with child age with critically high levels of stunting in children 12-35 months of age with over 40 percent of children stunted. Children under 5 in the poorest households in RMI were more likely to be moderately or severely stunted than children from other wealth index quintiles although prevalence of stunting was 20 percent in even the wealthiest households."

Almost all Marshallese adults are literate and have access to an improved water supply, but life expectancy is low: 65.7 and 69.4 years for men and women respectively. Infant mortality is high at 33 per thousand births, as is under-5 mortality at 47 per thousand births. Malnutrition, respiratory diseases (including tuberculosis), vector-borne, water-borne and food-borne diseases are a significant burden on the Marshall Islands' public health care system. RMI has one of the highest rates of diabetes in the world and the impacts of nuclear and thermonuclear weapons tests conducted by the US between 1946 and 1958 continue to affect the health of Marshallese people. RMI's health sector budget accounts for nearly one-fifth of the national budget, with an estimated expenditure of less than USD700 per person.

The shift, from traditional diets of locally grown highly nutritious fruit and vegetable foods and fish, to imported foods, often processed and of low nutritional value, is a major factor in poor health outcomes for many Marshallese people. It contributes to compromised cognitive development and lowered educational outcomes in children.

Climate change—including acute impacts and slow-onset events—is further compounding the health of Marshallese people. At COP24 the WHO declared climate change is the biggest driver of global health challenges, and that the Paris Agreement is the most comprehensive commitment to health. WHO Director General Dr. Tedros Adhanom Ghebreyesus noted, "The evidence is clear that climate change is already having a serious impact on human lives and health. It threatens the basic elements we all need for good health – clean air, safe drinking water, nutritious food supply and safe shelter…"

The most obvious effects of climate change—specifically sea level rise and extreme and unseasonal droughts—affect human health by inundating freshwater storage and food gardens with salt, or by making water for drinking, washing and crops unavailable. Some of these impacts can be minimised if forecasts inform effective preparation, such as improving water storage and management and restoring protective coastal forests. Changes to the long-term climate—altered rainfall patterns, higher average

temperatures, more hot nights—are expected to increase the incidence of infectious diseases.

As noted in the 2016 Post-disaster Needs Assessment, GoRMI has in place a Hospital Preparedness Program (2016), a Pandemic Influenza Response Plan (2005), a Public Health Emergency Response Plan (2015), a health component to the National Emergency Response Plan (2010), and most recently drafted a COVID-19 response plan (2020), and has initiated stakeholder engagement on the impacts of climate change and health (2020). In spite of high cancer rates there are no current testing and treatment facilities in-country. Further complications to health response include the availability of local medicines during disaster events, as well as the difficulties in maintaining appropriate menstrual health management and maternal health support.

The impacts of climate change on mental health must also be addressed. Disaster events have profound impact on mental health, even leading to post-traumatic stress disorder. Intergenerational trauma from occupation and conflict, nuclear weapons and displacement are now compounded by climate change events ranging from epidemics and pandemics to king tides, drought, and typhoons.

At the first national climate change and health dialogue held in RMI in January 2020 the WHO noted the following themes:

- Recurring outbreaks of climate-sensitive diseases
- Lack of human resources across many sectors
- Challenge to maintain basic infrastructure needs in health facilities
- Limited awareness of health impacts of climate change

They also identified the following health sector needs:

- Establish a baseline to produce evidence-based solutions
- Build capacity for leadership and governance
- Strengthen climate and health early warning systems
- Consider the mental health impacts of climate change
- Develop sustainable business models for indigenous and traditional medicines and therapies.

There are currently no health projects in development for GCF funding.

CROSS CUTTING

Mitigation of and adaptation to climate change will require support for non-sector-specific investments in:

- Institutional strengthening
- Education and training on climate change
- Climate financing
- Climate variability and change research and development
- Early warning systems
- Disaster risk reduction and management
- Community resilience.

The table below outlines several cross cutting projects that contribute to the areas above. Through the RMI's Readiness Program, the GCF is funding capacity building and support for staff managing the readiness projects. GoRMI in partnership with donors is restructuring portfolios and strengthening sectors to support community resilience and CCA, DRR and DRM.

CROSS CUTTING PIPELINE PROJECTS

Below is a list of projects that RMI will consider implementing as cross cutting themes. They represent potential early priorities but cannot represent the full breadth of potential projects under this theme and should not be seen to constrain RMI's future requirements.

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
SPREP (GCF)	Enhancing climate resilient planning and decision making in the Republic of Marshall Islands	The project is focused on the use of applied research and Geographic Information System (GIS) to improve access to climate vulnerability and climate change impacts data and information, to establish island-specific and robust baselines from which to gauge projected climate change and effective responses. The project activities will include soft measures such as building national and local level capacity in gathering and using applied research, GIS, and climate vulnerability and climate impacts data and information as tools for informing decision making and planning for resilient development in RMI.	$12,000,000	CCD	Draft GCF Concept Note	National
SPREP (GCF)	Strengthened Weather and Climate Services for Resilient Development for Pacific Islands	The project is focused on the delivery of capacity development of National Meteorological and Hydrological Services (NMHS) and development of communication and knowledge products on weather, climate and hydrological information and services. It will enhance enabling environments such as weather, climate and hydrological services policy development and reviews to address climate services gaps and challenges for Pacific Island Countries (PICs) and the region.	$12,000,000	RMIWSO	Draft GCF Concept Note	Regional

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
SPREP (GCF)	GCF Readiness and Support 2	GCF Readiness Support for Objective 1: Capacity Building. Objective 5: Best practices with respect to institutional capacity building and coordination, direct access, and pipeline development are developed and disseminated to strengthen engagement by NDA, DAE(s), and delivery partners with the GCF.	$500,000	CCD	GCF Pipeline (2021-2023)	National
UNEP (GCF)	Enhancing climate information and knowledge services for resilience in 5 island countries of the Pacific Ocean	The programme will enhance timely, reliable and easily accessible climate and weather information to RMI stakeholders. Component 1: Strengthened climate information services covering oceans and islands supported by institutions, coordination mechanisms, policies and financial frameworks. Component 2: Observations, monitoring, modelling and prediction of climate and its impacts on ocean areas and islands. Component 3: Improved response capability and community resilience to climate risks. Component 4: Regional knowledge management and cooperation	$8,500,000	RMIWSO	Under review by GCF Board	Regional

CROSS CUTTING PROPOSED PROJECTS

Below is a list of projects that RMI are currently implementing under the theme of resilient infrastructure.

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
European Union (SPC)	North Pacific Readiness for El Nino (RENI) Project	Strengthen the implementation of a sustainable, multi-sectoral, multi-stakeholder approach to readiness for future El Nino events. 1. Uptake of key individual and community behaviours that support El Nino Resilience 2. Local area structural measures implemented to support El Nino resilience building in water and food security and paying special attention to the rights of women and vulnerable groups in outer islands. 3. National measures: institutional, planning, and technical implemented to support readiness for future El Nino events.	€4.5 million split between FSM, RMI and Palau. RMI €1.4 million	OCS NDMO	Inception period for consultation and design of activities. (2017-2020)	National
European Union (SPC, SPREP, USP)	Global Climate Change Alliance Plus (GCCA+) Scaling up Pacific Adaptation (SUPA)	Enhance climate change adaptation and resilience within ten Pacific island countries. The Specific Objective is to strengthen the implementation of sector based, but integrated, climate change and disaster risk management strategies and plans. This will entail 1. Knowledge management enhanced: An impacts database will be established to identify climate change adaptation interventions that have had a lasting impact. 2. Planning and decision making capacities for climate and disaster resilience strengthened at the sub-national government level and in communities applying participatory, gender sensitive and rights based approaches. 3. Strategic and local level interventions for climate change adaptation and mainstreaming scaled up in five key sectors.	Euros 0.8 million	To be determined depending on sector selected for focus.	In Implementation (2018-2022)	National

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
European Union (SPC, SPREP, USP)	Global Climate Change Alliance Plus (GCCA+) Climate Change in the Pacific - Africa, Caribbean, Pacific (CCiPACP)	The overall objective is to increase the resilience of Pacific ACP countries to climate change; the Specific Objective is to is to ensure better regional and national adaptation and mitigation responses to climate change challenges faced by African, Caribbean and Pacific countries at operational, institutional and financial levels. Specifically: 1. Regional organisations in the Pacific region have dedicated operational and institutional capacity serving the needs of Pacific ACP countries in relation to relevant Intra-ACP GCCA+ concentration areas, climate negotiations and the implementation of the Paris Agreement. 2. Regional climate change strategies have been strengthened. 3. Pilot adaptation projects have been scaled up. 4. Information shared to adapt/mitigate climate change. 5. Capacity of Regional organisations to support adaptation/ mitigation strengthened. 6. innovative involvement of public and private sector to make economies more climate resilient.	Euros 0.4 million		In Implementation (2018-2022)	National

Development Partners	Project Name	Objectives	Financial Amount (USD)	Implementing Ministry/ Agency	Current Status/ Phase	Scope
SPC	Global Environment Facility (GEF) Ridge to Reef Project	To test the mainstreaming of 'Ridge-to-Reef' (R2R), climate resilient approaches to integrated land, water, forest and coastal management in the PICs through strategic planning, capacity building and GEF Pacific National R2R IW Project local actions to sustain livelihoods and preserve ecosystem services. 1. Sustained community adoption of appropriate on-site waste management to reduce contaminant impacts on environmental and public health at Laura Village. 2. Integrating targeted scientific investigation on coastal and land ecosystem processes, local knowledge and strategic partnerships to strengthen knowledge base for key evidence based ICM planning and investment CC adaptation. 3. National and local management planning for integrated land, water. 4. Coastal management for sustainable livelihoods at Laura.	$200,000	RMIEPA	In Implementation (2015-2020)	National
SPREP	Inform Project	Building National and Regional Capacity to Implement Multilateral Environment Agreements (MEA) by Strengthening Planning and State of Environment Assessment and Reporting in the Pacific	$4,319,635	RMIEPA	In Implementation (2016-2020)	Regional
SPREP (GCF)	GCF Readiness and Support 1	GCF Readiness Support for Objective 1: Country Capacity Strengthened. Objective 2: Stakeholders engaged in consultative process. Objective 3: Direct access realised. Objective 4: Access to finance. Objective 5: Operating costs	$563,813	CCD	In Implementation (2018-2020)	National

PRIVATE SECTOR INVESTMENT

Private sector investment is concentrated in a few economic sectors: agriculture, fisheries and tourism with growth also occurring in the construction and retail sectors. The National Strategic Development Plan identifies the first three sectors as providing the strongest chance for sustained growth. All three sectors are highly dependent on a healthy and well-managed natural environment, which in turn, is highly vulnerable to climate change. For example, fisheries have high correlations of fish catch with sea surface temperatures and ENSO events—in the long term, pelagic fish may leave the region due to rising temperatures and if so, RMI would suffer severe economic setbacks. Reef fish stocks are expected to dwindle due to coral bleaching, reducing their value as a source of protein, an income source from aquarium species and a tourist attraction. Nature-based tourist operators are concentrated in the coastal zone, and are therefore vulnerable to sea-level rise, high seas/swell events, heavy rainfall and severe weather. Climate impacts include the potential of high sea-swell events to disrupt commercial transport access, posing a risk to both incoming people and supplies to the islands.

The impacts of climate change will multiply the existing difficulties for the private sector in conducting business and attracting investment—complicated regulatory systems, subsidising of some industries and land use constraints. Currently there is limited capacity for the private sector to engage in climate change adaptation and resilience building activities, but this will likely be addressed in future GCF readiness phases.

Photo: Jake Marote