Ocean Governance Management Plan: Kiritimati Island

MINISTRY OF FISHERIES AND MARINE RESOURCES DEVELPOMENT




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Acronyms

ALDFG	Abandoned, Lost and otherwise Discarded Fishing Gear
CBD	UN Convention on Biodiversity
CPPL	Central Pacific Producers Ltd
CZ	Coastal Zone
EC	European Commission
ETP	Endangered, Threatened and Protected species
FAO	Food and Agricultural Organization
FFA	(Pacific Islands) Forum Fisheries Agency
GCM	Global Climate Modelling
KIEP	Kiribati Integrated Environment Policy
KPA	Kiribati Port Authority
KTA	Kiribati Tourism Authority
MEL	Monitoring, Evaluation and Learning
MEP	Macalister Elliott and Partners
MERL	Monitoring, Evaluation, Research and Learning
MELAD	Ministry of Environment, Land and Agricultural Development
MFMRD	Ministry of Fisheries and Marine Resource Development
MLPID	Ministry of Line and Phoenix Islands Development
MLW	Mean Low Water
OGMP	Ocean Governance Master Plan
SIDS	Small Island Developing States
SML	Short, medium and long-term
SPC	The Pacific Community
TEU	*Twenty-foot equivalent unit*
TNA	*Training Needs Assessment*
UNEP	United Nations Environment Programme
WCU	Wildlife and Conservation Unit
WRCP	World Climate Research Programme

1. Executive Summary

Overview

This report is the final deliverable (Output 8) for this consultancy assignment.

The Pacific Islands Regional Oceanscape Program (PROP), led by the Ministry of Fisheries and Marine Resources Development (MFMRD) of the Government of Kiribati, in cooperation with the World Bank is timely in further progressing the effective management of Kiribati's oceanic and coastal fisheries. Kiritimati (Christmas Island) is an atoll located in the northern Line Islands in the Republic of Kiribati, and forms the focus of this assignment, specifically as component 2A of the PROP which seeks to support the strengthening of the ocean economy of Kiritimati. On this basis, the assignment at hand had 3 main outcomes, as follows:

- *Development of Kiritimati Ocean Resources Master Plan*
- *Development of Kiritimati Sport Fishing Management Plan*
- *Support implementation of the Draft Kiritimati Island Aquarium Trade Management Plan 2017*

So far, the following related deliverables have all been completed between Output 1:Inception report and Output 7: Stakeholder Engagement, the key results of which have been incorporated into this Master Plan where appropriate.

- *Review of the island development plans and strategies, associated policy and regional and international agreements.*
- *Management planning stakeholder engagement field mission*
- *Marine aquarium fish management plan*
- *Sport / recreational fishing management plan*
- *Capacity building plan to support the implementation of the above management plans*
- *Management plan training field mission*
- *Ocean Resources Master plan field mission*

Scope change for Master Plan

Originally, at the start of the assignment, an Ocean Resources Master Plan (ORMP) was to be developed. However, following a field mission in 2023, one key outcome identified from stakeholders was the need to ensure consistency in terminology and definitions across government, particularly in relation to the Master Plan, and how this also fits into the wider policy areas under development. In light of this, it was agreed during Government meetings in Tarawa that it would be beneficial to change the ORMP, to an Ocean Governance Master Plan (OGMP), which supports the wider developing policy areas, and specifically the strategic goal of Ocean Governance Policy, whereby

this particular deliverable would serve as a 'pilot' to inform the development of the Ocean Governance Policy.

In doing so, the vast majority of the scope in the TOR will remain in the OGMP with the exception of the macro-economic analysis of the sector, which, based on the assessment of development needs of ocean governance, and the lack of data to inform value chain analysis, the relevance/ value of this was questionable. Furthermore, since the sectors considered in the OGMP are at such a nascent point at present, any quantitative model of the current situation would be of limited value.

However, there is a clear need for capacity building and technical assistance to provide an understanding of the skills required to enable ocean governance and it was considered that this would add more value at present (suggested in the form of training materials and virtual training/capacity building), as a substitute for the macro-economic analysis.

Background

The coastal environment is a finite and highly dynamic zone, fulfilling multiple ecosystem service functions and containing an ever-increasing number and diversity of 'resources' globally. Contested by a wide variety of users, coastlines and near shore marine environments are experiencing multiple spatial conflicts, and a diversity of anthropogenic impacts.

The availability of institutional and resource capacity globally to deal with such issues is variable. Access to the funding, knowledge and skills necessary to enable effective policy, planning and process management represents a significant challenge, problems which are only exacerbated for small island developing states (SIDS).

The Republic of Kiribati faces both the need to increase use of ocean resources, as well as an imperative to strengthen the nation's ocean governance so as to protect and enhance marine ecosystems and ecosystem functioning. Reflecting this need, the Pacific Islands Regional Oceanscape Program (PROP), led by the Ministry of Fisheries and Marine Resources Development (MFMRD), is seeking to progress the effective management of the oceanic and coastal environment and strengthen the blue economy of Kiritimati Island, an atoll island located in the northern Line Islands.

This report presents an Ocean Governance Master Plan (OGMP) specifically designed for Kiritimati Island, out to a distance of 12 nautical miles from mean low water (MLW). The OGMP provides a framework for the delivery of 'good' ocean governance and is meant as a practical plan which defines interventions and actions over a 15-year period highlighting short (1-5 years), medium (5-10 years) and long-term (10 years +) actions. The accompanying implementation plan identifies resource implications and an indicative costing.

Ocean Governance

Governance not only refers to the development of policy and legislation, but also to how the political system solves conflicts between the different stakeholders; and the capacity

to effectively formulate and implement policies and institutional resources that govern the interactions among them. The efficacy of this is based on the traditions and institutions by which authority is exercised; the process by which governance is selected, monitored and replaced; the functioning and acceptance of authority; and the achievement of a consensus by democratic means.

In relation to the marine and coastal environment it must therefore engage leadership and facilitation to manage the marine environment for multiple resource use as well as enhancing and supporting the ecosystem health of marine systems and biodiversity. This requires careful planning based on sound scientific knowledge and understanding as well as the development of specific jurisdiction, roles, responsibilities, tools and mechanisms for regulation.

Multi-level ocean governance should recognise the interconnectedness of the ocean, be adaptive and iterative, coordinated across different levels (i.e., local, regional, national, global) and responsive to shifting ecological and climate dynamics. A transformed ocean governance system should therefore address the necessity to improve ecosystem resilience and ocean health, by managing marine resource access, and enabling just and effective decision-making.

Key principles of good ocean governance are identified as follows, all of which need to be embedded into the process:

- Participation
- Accountability
- Inclusivity and transparency
- Equity and human rights
- Ecosystem-based approach
- Evidence-based decision making
- Precautionary principle
- Integration – vertical and horizontal
- Adaptive and dynamic responsiveness

Whilst the OGMP for Kiritimati should deliver ocean governance that entails community involvement, co-collaboration, and context specific management and planning, it should also incorporate an understanding of shifting marine populations, transboundary management systems and the need to move towards comprehensive ocean governance that protects marine biodiversity in the face of climate change.

It therefore provides an opportunity for Kiribati to address the UN Sustainable Development Goals (UNSDGs), protect areas beyond national jurisdiction (ABNJ), and meet its multi-lateral international commitments to facilitate long-term ocean and human health.

Gap Analysis and Needs Assessment

As part of this work, gap analysis was conducted with regards to the existing management of the marine environment and highlighted a lack of strategic ocean governance policy and a lack of any identifiable marine spatial planning (MSP) measures, meaning that the management of marine issues in both Kiribati and Kiritimati is currently at its initial stages. In addition, there was poorly integrated management measures representing one of the key challenges for developing a joined-up system of ocean governance with the problem of policy and regulatory fragmentation often exacerbated in low-income countries and is even more problematic for SIDS. There were evident issues regarding a lack of **knowledge, expertise and capacity with the Relevant Authorities, whilst a there was also** lack of scientific data and information on key aspects of the use and management of the marine environment.

The capacity to monitor and enforce compliance of either fisheries or maritime regulations was weak, underpinned by a weak legal framework and driven by capacity issues such as inadequate resources, and a lack of knowledge and expertise. With regards to Kiritimati, a lack of suitable assets includes a patrol vessel that isn't suitable for rough seas restricting enforcement opportunities.

One of the key findings relates to the lack of stakeholder engagement and networking currently taking place between the RAs in relation to the management of the marine and coastal environment. One reason for this might lie in the lack of public understanding or awareness of issues relating to the marine environment, due to the behaviour of the community.

Based on the gap analysis there are a number of apparent development needs that should be addressed by the Master Plan. These are as follows:

- A new legal framework for ocean governance
- *Strengthen and integrate the institutional and regulatory framework*
- Climate ready capacity and resilience
- *Deliver capacity building through training and skills development*
- *Develop a robust system of data gathering and an accessible data platform*
- Stakeholder engagement and communication
- *Feasibility and market analysis of resource development options*
- *Infrastructural development and the technology supply chain*

Ocean Governance Master Plan

Th purpose of the OGMP is to provide a framework for the delivery of ocean governance in Kiritimati.

The OGMP identifies key steps to embed such a process including interventions and specific actions, as shown in the following table.

	Intervention	Action
1	Assign ownership of ocean governance and the OGMP	Conduct a strategic management review to determine ownership of ocean governance and the OGMP for Kiritimati
2	Embed leadership and facilitation into the process	Engage technical assistance to draft Secretariat terms of reference
		Formulate a Secretariat team and establish an ocean governance office
3	Enable a process of stakeholder engagement	Establish a Steering Group
		Validate the OGMP aim, vision and objectives
		Validate the stakeholder mapping and engagement process
4	Situation analysis, conflict and user interaction mapping	Conduct co-created user interaction map and matrix
5	Integration mapping	Conduct integration analysis - vertical and horizontal mapping
6	Institutional stocktake, capacity review and training needs assessment (TNA)	Technical assistance to conduct institutional review, including roles, responsibilities, jurisdictions.
		Technical assistance to conduct a training needs assessment
7	Capacity building: Ocean literacy and training	Technical assistance to develop an effective human resource development strategy aimed at delivering ocean governance.
		Technical assistance to develop a programme of ocean literacy for Kiritimati.
		Technical assistance to conduct a programme of targeted training to address the technical needs assessment.
8	Action Planning	Co-create a targeted, measurable and deliverable Action Plan.
9	Communication and Networking	Co-create and implement a Communication Strategy

10	Monitoring, Evaluation, Research and Learning (MERL)	Technical assistance to draft a MERL plan
11	Data collection and management	Technical assistance to identify research and data requirements.
		Technical assistance to review data collection and management.
12	Market analysis of key marine resources	Technical assistance to conduct market analyses of key marine resource sectors.
13	Feasibility analysis of resource development options	Technical assistance to conduct feasibility analysis of sectoral resource development options.
14	Scenario planning, management and testing	Technical assistance to conduct scenario planning and testing.
15	Marine Spatial Planning (MSP)	Technical assistance to develop MSP for Kiritimati.
16	Sustainable OGMP funding	Access PROP funding to facilitate ocean governance and OGMP.
		Seek private investment to fund resource development.

Implementation Plan

Implementation represents a key focus of the OGMP with the aim of producing a plan that is realistic and feasible. As such an implementation plan is included in the proposal which defines interventions and more actions for delivery over a 15-year period highlighting short (1-5 years), medium (5-10 years) and long-term (10 years +) actions. These have been discussed throughout this OGMP and are presented against an OGMP timeline, with key actions also considered with respect to resource requirements and an indicative costing as defined in terms of days.

It is recommended that a permanent civil servant role be developed to act as the 'lead' for a newly created 'Secretariat'. Ideally this Secretariat will be a 2 FTE person team, but this could be configured and supported in various ways with the decision to be determined by national government.

On this basis, it is estimated at approximately 500 days of external expertise will be required to deliver the OGMP plus the Secretariat. Based on this an indicative cost for delivery of the OGMP would be in the vicinity of US$500,000 though clearly this would be spread over the duration of the work. As specific actions have indicative estimates of resource requirement, these actions could be delivered as separate areas for project work based on prioritisation. Initial areas of work are recommended as follows:

- Action 9: Institutional review

- Action 10: Training needs assessment
- Action 13: Development of a programme of targeted training to address the TNA.

2. Introduction

2.1 Context

The coastal environment is a finite and highly dynamic zone, fulfilling multiple ecosystem service functions and containing an ever increasing number and diversity of 'resources' globally. Contested by a wide variety of users, coastlines and near shore marine environments are experiencing multiple spatial conflicts, and a diversity of anthropogenic impacts.

Ocean and coastal governance is concerned with managing the marine environment in ways that keep it healthy and productive, ensuring its resilience and capacity to deal with a mounting range of anthropogenic pressures. Given the need to balance our use of the marine environment, ocean governance therefore takes into account multiple economic, ecological and social objectives, aiming to reduce conflicts and promote coexistence and synergies. However, the development of ocean governance has lagged behind that of terrestrial systems, and faces numerous challenges, resulting from fragmentation, scale, uncertainty and capacity. For example, it is often driven by sectoral mechanisms in which different relevant authorities (RAs) preside over different activities across a range of different geographical scales. This can lead to conflicting roles and objectives, or gaps where there is a deficit of *de facto* management. The result is a lack of regulatory coherence and a failure of good governance.

Given the dynamism of the marine and coastal environment, ocean governance must also deal with uncertainties, exacerbated by factors such as climate change, in which a complexity of impacts result from changes to ocean currents, extreme temperature events, and a redistribution of species across wide geographical areas. As well as enabling a greater understanding of such threats, over the short, medium and long term, advances in science and technological are also driving an increasing use of the marine environment.

The availability of institutional and resource capacity globally to deal with such issues is variable. Access to suitable funding, knowledge and skills necessary to enable effective policy, planning and process management represents a significant challenge globally. These problems are only exacerbated for small island developing states (SIDS) throughout the global oceans.

The Republic of Kiribati is one such SID where there is both a need to support the nation's economy through an increasing use of ocean resources, as well as an imperative to strengthen the nation's ocean governance so as to protect and enhance marine ecosystems and ecosystem functioning. Reflecting this need, the Pacific Islands Regional Oceanscape Program (PROP), led by the Ministry of Fisheries and Marine Resources Development (MFMRD), in conjunction with the World Bank, is seeking to progress the effective management of the oceanic and coastal environment and strengthen the blue economy of Kiritimati Island, an atoll located in the northern Line Islands.

This report represents the final deliverable of this current contract, presenting both an analysis of Kiritimati's current use and management of marine and coastal environment, as well as proposing an Ocean Governance Master Plan (OGMP) to embed the

principles of good governance and ensure the sustainable management of Kiritimati's ocean resources in future.

2.2 Kiritimati Island

Kiritimati island is located in the northern part of the Line Islands, the western-most group of three archipelagos (the other two being the Gilbert Islands and the Phoenix Islands) that make up the Republic of Kiribati, as seen in Figure 1. The nation consists of 32 low-lying coral atolls and one raised limestone island that stretch across approximately 3.5 million square kilometres of the central Pacific Ocean.

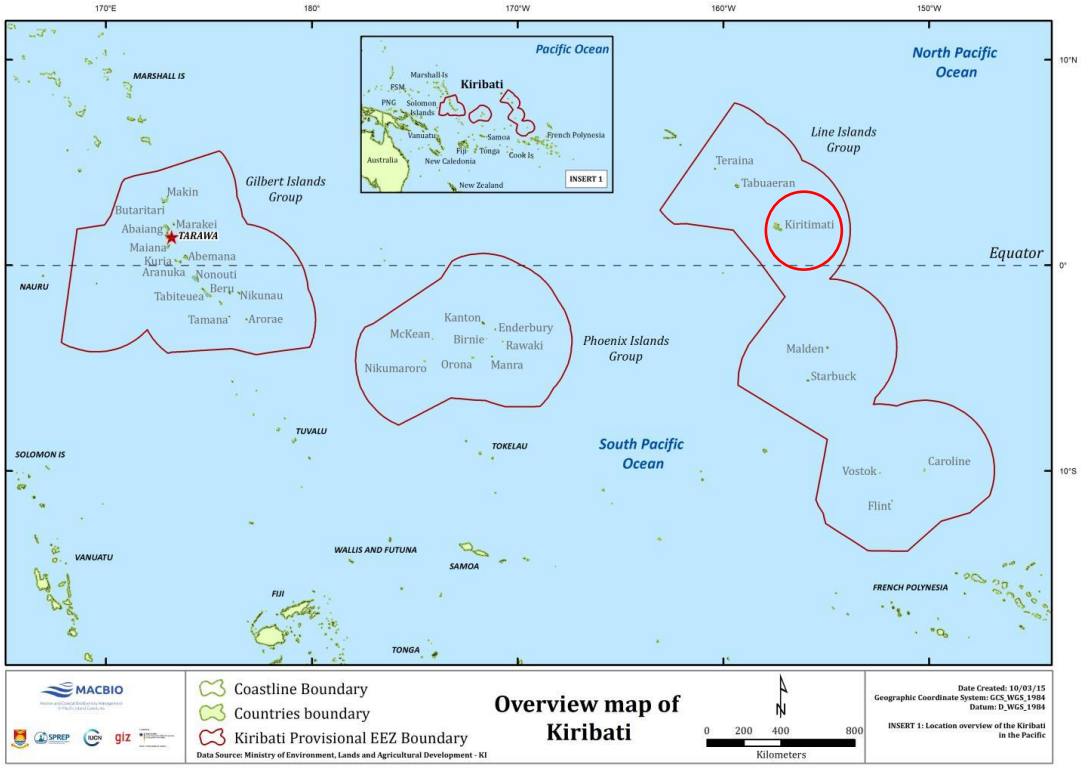

Figure 1: Location of Kiritimati island within the Republic of Kiribati[1]

Kiritimati island is the largest coral atoll in the world, with an area of 388 square kilometres, forming over 70% of the total land area in Kiribati[2]. The island has a perimeter of approximately 150 km, as seen in Figure 2, and is dominated by a lagoon of similar in size to the island's land area, with a shoreline that extends for approximately 48km[3]. In addition, there are a number of brackish atoll lagoons and areas in the south east that are subject to frequent inundation.

[1] http://macbio-pacific.info/kiribati/

[2] https://www.mfed.gov.ki/sites/default/files/KBA%20REPORT%20FINAL.pdf

[3] https://www.kiribatitourism.gov.ki/islands-to-explore/kiritimati/

Dry land forms a ring around the lagoon, punctuated only by its mouth in the north west, with the land mass rising to 13m above sea level at its highest point on the north east coast. A central ridge extends the length of the north west arm of the island and also runs close to the coast in parts of the island's north east and south west coast. On one side of the ridge, the land drops off into the ocean, whilst small scarp slopes drop into the central lagoon on the other. It is these ridges that form most of Kiritimati's dry land[4].

Figure 2: Kiritimati island[5]

2.3 Report Scoping, Aims and Objectives

This report fulfils the dual purpose of analysing the current use and management of Kiritimati Island's marine and coastal resources and proposing an Ocean Governance

[4] *Mills, A., Nixon, R. and S. Tarr. (2019). INTEGRATED LAND USE PLANNING FOR KIRITIMATI ISLAND, REPUBLIC OF KIRIBATI: FINAL REPORT.*

[5] *https://www.google.com/maps*

Master Plan (OGMP) as a framework for delivering 'good governance' to secure the sustainable management of Kiritimati's ocean resources.

The situation analysis is informed by the stakeholder engagement process, conducted in Kiritimati and Tarawa in September - October 2023, and documented in the Ocean Governance Master Plan: Stakeholder Engagement Report (submitted previously as deliverable D7), as well as a review of secondary data on key aspects of Kiritimati's marine and coastal environment. By highlighting gaps and weaknesses in the current provision and identifying development needs with respect to the policy framework, regulations, infrastructure and capacity, the stakeholder engagement and situation analysis inform the development of the OGMP.

This OGMP is specifically designed for Kiritimati Island, out to a distance of 12 nautical miles from mean low water (MLW). However, it is directly relevant to the Republic of Kiribati's wider policy and strategic framework in that it:

1. Supports economic growth and employment opportunities through sustainable fisheries, aquaculture and marine resources development.
2. Protects and secures food security and sustainable livelihoods for I-Kiribati.
3. Ensures long-term conservation of fisheries and marine ecosystems.
4. Strengthens good governance with a particular focus on building institutional capacity to implement and support fisheries management, development, and monitoring, control and surveillance.
5. Builds climate change resilience for fisheries and marine resources in Kiribati.

The practical feasibility of the OGMP represents a key focus of the work, with the aim being to produce a plan that is realistic and achievable. As such an implementation plan is included in the OGMP which defines actions and recommendations for delivery over a 15-year period highlighting short (1-5 years), medium (5-10 years) and long-term (10 years +) actions.

2.4 Report Structure

The report is organised into 5 sections, as follows:

- Section 1 presents the context and objectives of the report.
- Section 2 presents a situation analysis of the current use of Kiritimati's marine and coastal environment, including the significance of climate change.
- Section 3 presents a review of ocean governance including Kiribati's international commitments and national polices relating to Kiritimati
- Section 4 presents a gap analysis and development needs assessment for ocean governance for Kiritimati.
- Section 5 presents the Kiritimati Ocean Governance Master Plan, including an implementation plan for its delivery.
- Section 6 draws conclusions and summarises the key recommendations.

3. Kiritimati Island Situation Analysis

3.1 Introduction

Climate change represents an existential threat to the Central Pacific region, which is a global hotspot for climate change impacts and marine heat waves. Any review of marine and coastal issues and their management for Kiritimati has to be taken within the context of this overriding situation. This section therefore opens with a discussion of the recent climate trends in the region as well as projections for the twenty-first century prior to reviewing the other key issues that are relevant to Kiritimati's marine environment. For each of these, there will be an account of the nature of the issue given the available evidence, and the respective management regime currently in place. Cross-cutting considerations relating to ownership, jurisdiction and user rights will also be highlighted where relevant.

The key issues to be reviewed are as follows:

- Climate change
- Population growth
- Freshwater resources
- Environmental quality and pollution
- Coastal processes and erosion
- Biodiversity and conservation
- Fisheries and aquaculture
- Tourism
- Solar salt production
- Maritime and port operations and logistics

3.2 Climate Change

Climate science involves observing and understanding past changes in climate, as well as projecting likely scenarios into the future and making predictions as to potential impacts. As the science continues to develop, the results will become more accurate and specific to local situations, based on both the observations and the new generations of Global Climate Modelling (GCM) that are used to project the expected results of global warming across the planet. This is particularly important in providing detailed understanding of the situation relating to SIDS such as Kiribati. Due to its isolated, low-

lying islands, Kiribati is one of the most vulnerable nations globally to climate variability and sea level rise[6].

Throughout the year, temperatures on Kiribati's islands are generally very stable (between 27 and 28 Celsius), though with noticeable variations in precipitation levels. Peak levels of rainfall are recorded between March and May and the lowest between August and October, with rainfall being typically higher in the northern parts of the Gilbert and Line islands, including Kiritimati. Kiribati is also influenced by El Niño and La Niña, the former of which generally brings heavy rainfall and the latter periods of drought.

3.2.1 Recent trends

Although climate models work best over wider ocean areas rather than for small islands, general trends can be deduced based on a range of projections from 16 global circulation models[7] that reflect climate trends for the region. These indicate that there has been an average increase of approximately 0.10°C per decade in maximum temperatures between 1970 and 2009 across the Line Islands. Increased ocean temperatures have also been observed in the region, with the 2015-16 El Niño event leading to an over 80% loss of coral cover for Kiritimati's coral reefs as a result of a significant coral bleaching event triggered by unprecedented levels of heat stress[8]. Although research is as yet unable to conclusively connect the intensity of El Niño Southern Oscillation (ENSO) with climate change, the IPCC does project that climate change is likely to result in an increased frequency of strong El Niño and La Niña events[9].

There is a strong correlation between precipitation levels and ENSO in Kiribati. On Kiritimati island specifically there has been a significant increase in annual precipitation, between 1946 and 2013. Although several severe drought events have been recorded across Kiribati more widely between 1971 and 1999[10], the current trend appears to be towards increased rainfall, with less drought.

Research has also indicated that storm events cause coral and algae cover to decline on Kiritimati, in addition to causing changes to the composition of coral morphologies, with consequent implications for reef fish[11]. Storm events are projected to increase in frequency and intensity as a result of climate change.

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[6] https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15816-WB_Kiribati%20Country%20Profile-WEB.pdf

[7] https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15816-WB_Kiribati%20Country%20Profile-WEB.pdf

[8] Magel, J.M.T., Burns, J.H.R., Gates, R.D. *et al.* Effects of bleaching-associated mass coral mortality on reef structural complexity across a gradient of local disturbance. *Sci Rep* **9**, 2512 (2019). https://doi.org/10.1038/s41598-018-37713-1

[9] *Masson-Delmotte, V., et al. (2021). Climate change 2021: the physical science basis. Contribution of working group I to the sixth assessment report of the intergovernmental panel on climate change, 2021.*
2. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_FrontMatter.pdf

[10] https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15816-WB_Kiribati%20Country%20Profile-WEB.pdf

[11] Storm impacts on benthic community structure on Kiritimati atoll. 2016. Szostek, Lisa; Osgood, Geoffrey J.; Claar, Danielle C.; Baum, Julia K. URI: http://hdl.handle.net/1828/7229

3.2.2 Future projections

Based on observed and projected warming, research suggests that Kiribati will warm at a similar rate or slightly slower rate than the global average[12], with an overview of projected temperature changes for the Line islands set out in Table 1. These variations are given for all four Representative Concentration Pathways (RCPs), with the low (RCP2.6 – which represents a very strong mitigation scenario) and high (RCP8.5 – which represents a high-emissions scenario) pathways the focus of the following analysis.

Table 1: An overview of temperature change projections (°C) for the Line islands under four emissions pathways[13].

	Mean Surface Air Temp (Annual)		Max Temp (1-in-20 Year Event)		Min Temp (1-in-20 Year Event)	
Scenario	2050	2090	2050	2090	2050	2090
RCP2.6	0.8 (0.6–1.3)	0.8 (0.5–1.3)	0.8 (0.3–1.4)	0.8 (0.3–1.3)	0.8 (0.4–1.1)	0.8 (0.4–1.2)
RCP4.5	1.1 (0.7–1.6)	1.5 (1.0–2.3)	0.9 (0.3–1.5)	1.4 (0.8–2.2)	0.9 (0.6–1.3)	1.4 (0.7–2.0)
RCP6.0	1.0 (0.6–1.4)	1.7 (1.1–2.5)	NA	NA	NA	NA
RCP8.5	1.4 (1.0–2.0)	2.9 (2.0–4.0)	1.5 (0.8–2.3)	3.0 (1.7–4.4)	1.4 (0.8–2.0)	3.0 (2.0–3.9)

Under the high emissions scenario (RCP8.5) maximum temperatures in the Line islands are projected to increase by 1.5°C by 2050 and by 3.0°C by 2090. In the low emissions scenario (RCP2.5), average temperatures are projected to increase by 0.8°C by 2050 and by 0.8°C by 2090. Although projected changes in precipitation are subject to significant uncertainty, it is generally suggested that there would be some increase in average monthly precipitation in the Line islands under each of the emissions pathways. However, projected changes are likely to depend on how the El Niño-Southern Oscillation (ENSO) is influenced by climate change, with the link between the two as yet, not well understood. Similarly, the projections for the frequency and intensity of extreme weather events such as heatwaves and droughts are also poorly understood, although it is likely that these will increase as temperatures continue to rise beyond the average.

The region has been identified as a global hotspot for climate change impacts on marine heatwaves, the geographical reach of which is projected to increase, in addition to their duration and intensity[14]. This is likely to pose a significant threat to marine organisms and ecosystems including to Kiritimati's reefs through coral bleaching, in addition to impacting the livelihoods and economies that are reliant on them. In addition, ocean

[12] https://www.rccap.org/uploads/files/696570be-f63c-4f2f-82d6-593dbc0c5405/Kiribati%20Country%20Report%20Final.pdf

[13] https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15816-WB_Kiribati%20Country%20Profile-WEB.pdf

[14] Frölicher, T. L., Fischer, E. M., & Gruber, N. (2018). Marine heatwaves under global warming. Nature, 560(7718), 360–364. URL: https://www.nature.com/articles/s41586-018-0383-9

acidification driven by increased atmospheric concentrations of carbon dioxide is expected to disrupt marine food chains and threaten reefs by reducing the rate of coral skeleton growth.

Global mean sea levels are projected to rise by between 0.44 and 0.74m by the end of the 21st century[15], and although further research is required to determine the specific regional implications for Kiritimati, this nonetheless poses an additional threat to the low-lying atoll. This threat comes in the form of long-term encroachment in the coastal zone, in addition to an increase in the frequency of extreme sea-level events driven by climate circulations[16], which heightens the risk of wave-driven flooding.

Kiritimati's coastal and marine environment therefore faces a complexity of threats associated with climate change, which brings a range of more localised threats as a result of continued warming, including sea level rise, wave-driven flooding, marine heatwaves, and ocean acidification. The effects of this on coastal processes, water resources, water quality, biodiversity and fisheries represent a clear and apparent danger. Climate change is and will continue to impact all aspects of marine life; however, ocean governance is still largely ill-prepared for ongoing and projected climate-driven consequences in waters across coastal nations[17].

3.3 Marine And Coastal Issues and Management

3.3.1 Population growth

According to Kiribati's National Statistics Office[18], the population of Kiritimati in 2020 was 7,369, which represents a 32% increase from its recorded population in 2010 (5,586). This accounts for 6.2% of the overall population of Kiribati. During the period 2015 – 2020[19], internal migration from South Tarawa accounted for 52% of migrants to Kiritimati, a process driven by a resettlement programme initiated in the 1980s that continues to date[20].

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[15] *Church, J. a., Clark, P. U., Cazenave, A., Gregory, J. M., Jevrejeva, S., Levermann, A., . . . Unnikrishnan, A. S. (2013). Sea level change. In Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (pp. 1137–1216). Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press. URL: https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter13_FINAL.pdf*

[16] *Vitousek, S., Barnard, P. L., Fletcher, C. H., Frazer, N., Erikson, L., & Storlazzi, C. D. (2017). Doubling of coastal flooding frequency within decades due to sea-level rise. Scientific Reports, 7(1), 1399. DOI: https://doi.org/10.1038/s41598-017-01362-7*

[17] *Ison, R and Straw, E. (2020) The Hidden Power of Systems Thinking: Governance in Climate Emergency. London: Routledge.*

[18] *https://nso.gov.ki/census/kiribati-2020-2021-population-and-housing-census-data/*

[19] *https://sdd.spc.int/digital_library/kiribati-census-atlas-0*

[20] *Watson, Maryann & Claar, Danielle & Baum, Julia. (2016). Subsistence in isolation: Fishing dependence and perceptions of change on Kiritimati, the world's largest atoll. Ocean & Coastal Management. 123. 1-8. 10.1016/j.ocecoaman.2016.01.012.*

The island has an average population density of 17 people per square kilometre, spread over a land area of 388 square kilometres, with approximately 1,208 households, with an average household size of 5 persons. The majority of these households are located in one of the island's three main settlements: Tabwakea (3,522), London (Ronton) (1,986) and Banana (1,458)[21], as seen in Figure 3.

Whilst the population in itself is not high and the density relatively low, it nevertheless represents an area of concern in relation to the potentially significant implications for Kiritimati's coastal and marine environment. Specifically, it could lead to increasing pressure on marine ecosystems and resources, including over-extraction of coastal fisheries and the generation and management of both wastewater and solid waste, leading to pollution.

As a significant cross-cutting issue, population growth can stimulate economic growth but will also lead to an increasing demand of freshwater resources as well as imports of foodstuffs and other resources., whilst placing additional strain on the existing infrastructure such as education, health and waste management.

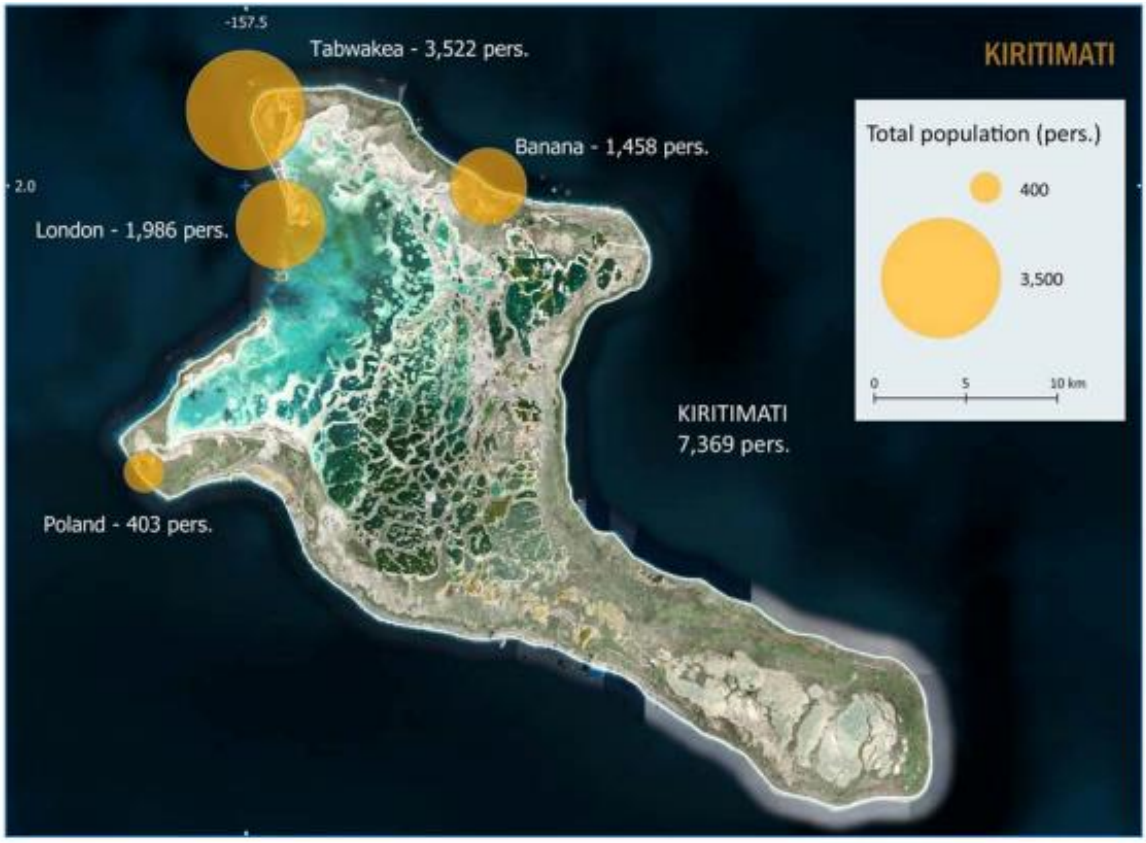

Figure 3: Total population by village on Kiritimati

[21] https://nso.gov.ki/wp-admin/admin-ajax.php?juwpfisadmin=false&action=wpfd&task=file.download&wpfd_category_id=117&wpfd_file_id=2022&token=&preview=1

3.3.2 Freshwater resources

Kiritimati's principal freshwater resources can be found in four large freshwater lenses, where lower density freshwater floats above a saltwater base. These are replenished by precipitation, which the island's human population and flora and fauna are dependent on for survival.[22] Three of the four lenses are located in the north of the island (Decca, Four Wells, Banana) and the fourth in the south at New Zealand. Although there are a number of other small lenses located in clusters around the island, many among sand dunes, these are generally either brackish or polluted and do not provide additional potable water[23]. Asides from sourcing water from centralised reticulation systems fed by groundwater galleries from one of the four main freshwater lenses, the population of Kiritimati's only other local water sources are household wells and rainwater catchments[24].

3.3.3 Environmental quality and pollution

3.3.3.1 Freshwater quality and pollution

Poor water quality is an issue on the island as a result of intermittent piped water supplies and a lack of protection of water sources[25]. This is further exacerbated by a lack of sanitation facilities, with the recent census revealing that approximately 40% of households did not have any form of sanitation facilities[26]. Changes to annual precipitation patterns due to climate change also have the potential to significantly influence the availability of freshwater, with the island then having to rely on imports, as happened during a recent drought event[27].

3.3.3.2 Waste management and pollution

Freshwater and marine pollution from land-based waste sources is also an issue on the island. For example, only 39% of households have personal bins that are collected by public collection, with other methods of disposal including burning, burying or dumping

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[22] *Spennemann, Dirk. (2006). Freshwater Lens, Settlement Patterns, Resource Use and Connectivity in the Marshall Islands. Transforming Cultures eJournal. 1. 10.5130/tfc.v1i2.261.*

[23] *Mills, A., Nixon, R. and S. Tarr. (2019). INTEGRATED LAND USE PLANNING FOR KIRITIMATI ISLAND, REPUBLIC OF KIRIBATI: FINAL REPORT.*

[24] *https://www.spc.int/updates/blog/blog-post/2023/11/water-science-in-kiritimati-island-schools#:~:text=Water%20in%20Kiritimati%20is%20sourced,island%27s%20four%20primary%20freshwater%20lenses.*

[25] *https://www.spc.int/updates/blog/blog-post/2023/11/water-science-in-kiritimati-island-schools#:~:text=Due%20to%20intermittent%20piped%20water,require%20treatment%20and%20safe%20storage.*

[26] *https://sdd.spc.int/digital_library/kiribati-census-atlas-0*

[27] *https://www.foxweather.com/weather-news/kiritimati-drought*

in the ocean[28]. Furthermore, the two dumpsites on the island (Abaiang and Maiana) are neither controlled nor managed[29], with contamination of the surrounding environment evident. It is likely this will lead to groundwater contamination as well as the potential for wind-blown pathways to marine pollution.

3.3.4 Coastal processes and erosion

Limited wave data exists for the Pacific, with the information on the wave climate of Kiritimati based on data generated by the SPC, which analysed the output from a regional wave hindcast produced by the Centre for Australian Weather and Climate Research[30].

Waves are generally characterised by seasonal trade winds[31], as shown in Figure 4. From December through to February, waves generally come from the north during the northern trade wind season; however, this continues into the spring. Between June and August, most south-east trade wind waves are blocked by the island, although some locally generated trade wind waves and southern swell from storms in the Southern Ocean are observed. Wave heights also vary, with the largest waves experienced between December and February.

[28] *https://sdd.spc.int/digital_library/kiribati-census-atlas-0*

[29] *https://library.sprep.org/sites/default/files/2023-09/Kiribati-National-Waste-Audit-Analysis.pdf*

[30] *https://wacop.gsd.spc.int/Atlas/Regional/Pdf/KB/Kiritimati.pdf*

[31] *https://www.pacificclimatechangescience.org/wp-content/uploads/2014/07/PACCSAP_CountryReports2014_WEB_140710.pdf*

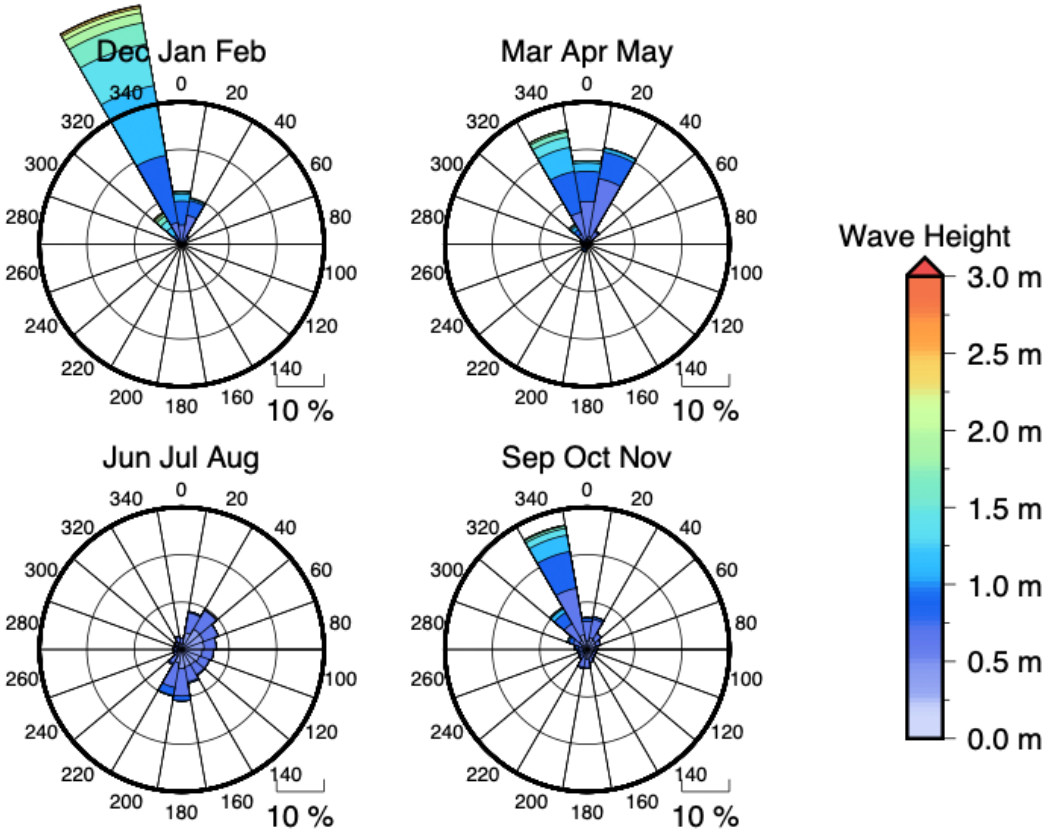

Figure 4: Seasonal wave roses for Kiritimati[32] showing monthly variability based on the wave climate from 1979 – 2013

The prevailing wind in Kiritimati is dominated by south easterly trade winds, as shown in Figure 5, from which the island's lagoon, which is open to the sea in the north west, is protected. However, waves coming from the north-north-west (for example between December and February) will penetrate into the lagoon's interior. This is of particular concern given the influence of high tides on Kiritimati's land area, and in particular when the highest spring tides (king tides) occur. During these periods, the lagoon is significantly affected, with tidal waters extending inland and flooding coconut plantations and built-up areas. It is suggested that this is becoming more of an issue, but there is a lack of quantitative data to support this[33].

However, this is likely to be the case as the effects of climate change become more apparent. Higher tides in addition to extreme weather events such as storm surges are projected to increase, which will place greater pressure on the land areas bordering the lagoon's interior.

[32] https://wacop.gsd.spc.int/Atlas/Regional/Pdf/KB/Kiritimati.pdf

[33] *Mills, A., Nixon, R. and S. Tarr. (2019). INTEGRATED LAND USE PLANNING FOR KIRITIMATI ISLAND, REPUBLIC OF KIRIBATI: FINAL REPORT.*

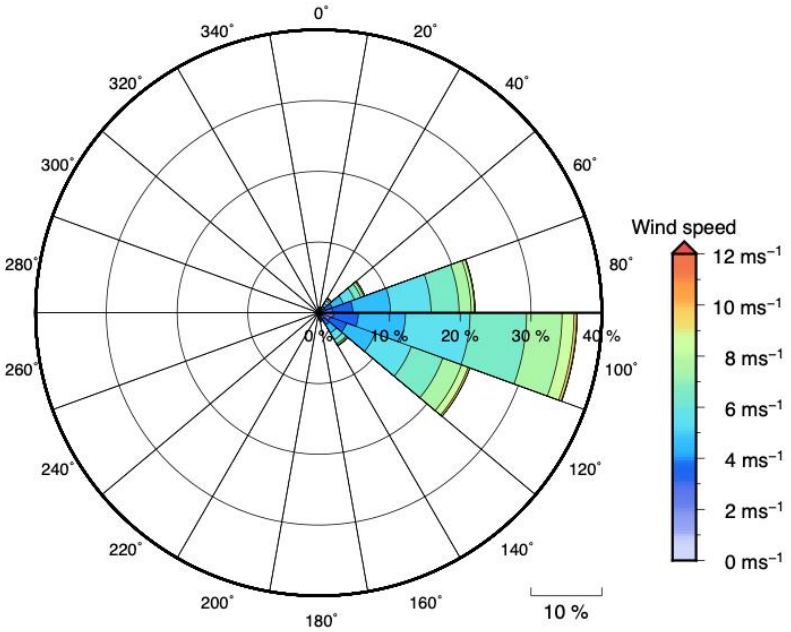

Figure 5: Annual wind rose for Kiritimati[34]

As a result of Kiritimati's wind and wave climate, sandy beaches are largely found on the south, west and north coasts of the island, whilst beaches are predominantly formed from coral rubble on the northeast and east coast. Severe waves can cause coastal erosion and flooding, particularly if they occur during king tides, with erosion rates linked to the frequency and intensity of extreme weather events such as storms and fresh trade winds. Along the south and northwest coast of the island, vegetation has been undermined by wave action, which further accelerates erosion rates. In addition, a strong current around the Ronton peninsula causes some coastal erosion and leads to sand being transported into the interior of the central open lagoon, to the northeast. This results in accretion around the islands of Motu Upua and Motu Tabu[35].

3.3.5 Biodiversity and conservation

The island of Kiritimati is classified as a wildlife sanctuary under the Wildlife Ordinance of 1977. The islets of Cook, Motu Tabu, Motu Upua, Northwest Point and Ngaon te Taake are also currently declared reserves with restricted access, whilst the areas of Southeast Peninsula and Isles Lagoon have also been named Key Wildlife Areas.[36] In addition, there are a number of 'closed areas' on the island (including Dojin, Taguoua, Koil, Toyota and Mouakena). However, there are currently no marine areas defined for the purposes of conservation, with the only conservation areas being terrestrial and classified for the protection of birds.

[34] https://wacop.gsd.spc.int/Atlas/Regional/Pdf/KB/Kiritimati.pdf

[35] *Mills, A., Nixon, R. and S. Tarr. (2019). INTEGRATED LAND USE PLANNING FOR KIRITIMATI ISLAND, REPUBLIC OF KIRIBATI: FINAL REPORT.*

[36] https://www.mfed.gov.ki/sites/default/files/KBA%20REPORT%20FINAL.pdf

The Wildlife Conservation Ordinance offers protection to all sea, migrant and endemic land birds in these areas.[37] Within the Line Islands, Kiritimati has the highest number of seabirds [38] and also qualifies as a Key Biodiversity Area (KBA) of international significance due to the presence of three bird species (Polynesian Storm-petrel, Phoenix Petrel, Kiritimati Reed-warbler) that are listed as Endangered (EN) on the IUCN Red List.[39]

Much of the island is ringed by 30-1000m coral reef flats, whilst the outer lagoon also has a small yet significant reef. In 2008, the Scripps Institution of Oceanography documented 15% coral cover on Kiritimati, with low coral diversity (approximately 83 species recorded)[40]. These reefs have particular importance for sports, subsistence, pet fish and sports fishing, whilst the lagoon is also an important nursery for milkfish, although there are concerns about the population of the latter, which are said to have been in decline since the 1970s[41].

Within Kiritimati's waters, there is a high diversity of reef and deep water fish including Endangered, Threatened and Protected (ETP) species such as manta and eagle rays, turtles, tiger sharks and bonefish. The latter are protected by a catch and release policy, with the Paris Flats a major spawning area for the species[42]. However, there is a lack of available data to support a deep understanding of the island's marine biodiversity, including species diversity and current abundance. For example, observations suggest that some fish stocks are in decline, with divers involved in the capture of pet fish having to move deeper and further out to sea to catch the same number of fish. However, there is limited quantitative data available as evidence[43]. Research also suggests that invasive species, including rats and feral cats, are threatening marine species including seabird populations and sea turtle eggs[44]; however, data is again lacking for Kiritimati island to provide evidence or quantify the impacts.

The key conservation issues prevalent on Kiritimati at present relate to uncontrolled infrastructure development and habitat destruction, waste water runoff leading to water quality issues and the interaction between local artisanal fishers and conservation areas, in particular, the poaching of protected seabirds and bonefish.

Biodiversity and conservation comes under the auspices of the Wildlife and Conservation Unit (WCU) and the Environment Conservation Division (ECD) of the

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[37] https://www.sprep.org/attachments/Publications/BEM/key-biodiversity-areas.pdf

[38] *S Mangubhai, E Lovell, R Abeta, S Donner, F M Redfern, M O'Brien, K T Aram, R Gillett, R Rotjan, T Eria, S B Teetu, R Bebe, Chapter 37 - Kiribati: Atolls and Marine Ecosystems, Editor(s): Charles Sheppard, World Seas: an Environmental Evaluation (Second Edition), Academic Press, 2019, Pages 807-826, https://doi.org/10.1016/B978-0-08-100853-9.00054-3.*

[39] https://www.keybiodiversityareas.org/site/factsheet/31024

[40] Sandin SA, Smith JE, DeMartini EE, Dinsdale EA, Donner SD, et al (2008) Baselines and Degradation of Coral Reefs in the Northern Line Islands. PLoS ONE 3(2): e1548. doi:10.1371/journal.pone.0001548

[41] https://www.sprep.org/attachments/Publications/BEM/key-biodiversity-areas.pdf

[42] *Mills, A., Nixon, R. and S. Tarr. (2019). INTEGRATED LAND USE PLANNING FOR KIRITIMATI ISLAND, REPUBLIC OF KIRIBATI: FINAL REPORT.*

[43] *Mills, A., Nixon, R. and S. Tarr. (2019). INTEGRATED LAND USE PLANNING FOR KIRITIMATI ISLAND, REPUBLIC OF KIRIBATI: FINAL REPORT.*

[44] https://www.mfed.gov.ki/sites/default/files/KBA%20REPORT%20FINAL.pdf

Ministry of Environment, Land and Agricultural Development (MELAD) but their efforts are held back by the limitations of the legal framework to protect the marine environment and a lack of available data or monitoring to better understand or conserve a wider range of species beyond protected bird species. As stated, there are no conservation areas designated at present for sub-littoral marine areas, with protection only currently being afforded to terrestrial areas above Mean Low Water.

3.3.6 Fisheries and aquaculture

Kiritimati's population is highly dependent on fishery resources both from the perspective of artisanal fisheries as a food source but also different forms of commercial fisheries which support the island economy as well as that of Kiribati. Fisheries management comes under the jurisdiction of the Ministry of Fisheries and Marine Resource Development though the Central Pacific Producers Ltd (CPPL) are responsible for its marketing and sector development.

Local and coastal fisheries are considered extremely vulnerable to the degradation of local reef resources, which is exacerbated by exposure to threats such as climate change and population pressures. For example, the high concentration of fishing locations in the north of the island, in the vicinity of the larger villages, has resulted in the degradation of fishery resources (lowered fish biomass) on local reefs as a result of increased fishing pressures[45].

Most commercial fishing is undertaken offshore, and although a small commercial fishery does exist within the lagoon, most of the catch is used by local fisherman for home consumption[46]. Commercial coastal fisheries in Kiritimati have undergone limited monitoring; however, there have been specific concerns raised in terms of the long-term sustainability of sea cucumber (closed after 2012) and pet fish, which are some of the few commercial species exported, due to declining catches[47]. Prior to the Covid-19 pandemic, other coastal fish exported also included live lobsters and frozen finfish. However, airline freight restrictions mean that commercial exports of fish have still not resumed. The ability to export fish from Kiritimati was already extremely limited due to limited transport and freight capacity as well as a lack of onshore fish landing facilities and processing. This is therefore a key limitation holding back the development of the commercial sector on the island and one that CPPL would like to develop to enable improved monthly sales of seafood going forward.

Four protected areas have been designated within the island's lagoon system in which fishing is prohibited[48]. However, these areas are solely for the purpose of managing fishery stocks, as opposed to being statutory nature conservation designations, of which there are none for the marine environment of Kiritimati. These no-take zones cause

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[45] *Sheila M. Walsh, "Ecosystem-Scale Effects of Nutrients and Fishing on Coral Reefs", Journal of Marine Sciences, vol. 2011, Article ID 187248, 13 pages, 2011. https://doi.org/10.1155/2011/187248*

[46] *Mills, A., Nixon, R. and S. Tarr. (2019). INTEGRATED LAND USE PLANNING FOR KIRITIMATI ISLAND, REPUBLIC OF KIRIBATI: FINAL REPORT.*

[47] *https://faolex.fao.org/docs/pdf/kir182404.pdf*

[48] *https://faolex.fao.org/docs/pdf/kir182404.pdf*

tension between sport fishing guides and local fishermen, with reports that these rules are not being observed.

In 2012, approximately 9% of the total volume of fish (equivalent to 50,117 tonnes) caught within the Kiribati exclusive economic zone (EEZ), was caught in the Line islands[49], though this only includes commercial catch and does not include catch by small scale coastal fishers. The majority the recorded catch was tuna (South Pacific Albacore, Yellowfin, Bigeye and Skipjack), in addition to bycatch of species including marlin, mahi mahi and rainbow runner. Longline fishing is the predominant fishing method in the Line islands.

As of 2019, there were nine licensed pet fish operators working on Kiritimati employing over 100 people. Fish are caught by divers and exported (mostly to Honolulu), with approximately 30 species of ornamental finfish targeted, although the flame angel fish often accounts for up to 75% of exports. Other commonly exported species include Bartlett's anthias, lemon peel, blue tang, coral beauty and declivis.

Artisanal and subsistence fisheries are of significant importance to the local population. For example, average annual per capita consumption of finfish on Kiritimati is 106.9 kg[50] (triple the regional average) with research[51] suggesting that 70% of islanders would continue to fish even in the event of a 50% decline in fish stocks. This is likely due to the high cost of imported protein sources and limited domestic agriculture. As a result, Kiritimati's Integrated Fisheries Master Plan (2014-2017) indicates that there has been a decline in the abundance of species caught for food including giant trevally, reef shark, parrotfish, mullet, lobster and land crab.

The current situation relating to fisheries identified a range of existing conflicts in play between different stakeholders or between stakeholders and marine ecosystems, habitats and biodiversity. The conflicts are identified as follows:

- Crowding of fishing flats in the lagoon
- Sport fishing in milkfish ponds
- Artisanal fishing vs sport fishing
- Fly fishermen vs wind surfers in the lagoon
- Conservation vs sport fishing: *Ngaontetaake*

These conflicts largely relate to the activity and location of sport fishing, particularly fly fishing within the lagoonal area. Since one of the objectives of this current project is to develop a specific sport fishing management plan, these issues will be targeted and addressed during the new plan, and referenced in the following Ocean Governance Master Plan.

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[49] https://faolex.fao.org/docs/pdf/kir182404.pdf

[50] *S Mangubhai, E Lovell, R Abeta, S Donner, F M Redfern, M O'Brien, K T Aram, R Gillett, R Rotjan, T Eria, S B Teetu, R Bebe, Chapter 37 - Kiribati: Atolls and Marine Ecosystems, Editor(s): Charles Sheppard, World Seas: an Environmental Evaluation (Second Edition), Academic Press, 2019, Pages 807-826, https://doi.org/10.1016/B978-0-08-100853-9.00054-3.*

[51] *Watson, Maryann & Claar, Danielle & Baum, Julia. (2016). Subsistence in isolation: Fishing dependence and perceptions of change on Kiritimati, the world's largest atoll. Ocean & Coastal Management. 123. 1-8. 10.1016/j.ocecoaman.2016.01.012.*

Climate change also places significant pressure on marine resources including fisheries. For example, Kiribati is considered a reef-dependent community with the highest relative vulnerability to the impacts of ocean acidification on reefs and their fisheries, aquaculture and tourism[52]. Therefore, the impacts of climate change combined with population growth, will require the island's fisheries to depend more on sources of non-reef associated fish species.

In 2014, milkfish were the only farmed species on Kiritimati, with approximately 15 tonnes produced annually from government controlled natural ponds. However, the impacts of climate change on this practice is largely unknown, although higher temperatures and increased rainfall is likely to provide more favourable conditions.

3.3.7 Tourism

The majority of visitors to Kiritimati are sport fishers, catered for by a number of hotels offering accommodation and sports fishing guides. Between 2014 and 2017, an average of 1291 tourists visited the island annually, with most coming to participate in recreational fishing activities. Fishing sites include coral reef flats in the inner and outer lagoons, reef areas and a range of sites around the coast, with one of the most popular being around the location of Korean Wreck on the south east of the island. The bonefish fishery, with its catch and release policy, is specifically geared to sport fishing and is the only fishery that has formal management measures in place. Conflict between subsistence fishers and sport fishing guides have been reported, including incidences of bonefish being caught by subsistence fishers using small mesh gillnets[53] and sport fishing in milkfish areas. Further conflicts have also been reported between fly fishermen and wind surfers in the lagoon. There are therefore clearly challenges for Kiritimati in terms of conserving the marine environment, whilst continuing to reap the economic benefits of sport fishing.

In terms of developing tourism further, it is unlikely that sport fishing offers opportunities for increasing footfall without further conflicting with other users or adversely impacting on the resource. Alternative forms of tourism are however negligible at present with limitations imposed both by the infrastructure and facilities available to attract a wider tourism market and by the relative inaccessibility of the island to international tourists.

It is with this in mind that the Kiribati Tourism Authority (KTA) are planning an engagement process in 2024 to develop a Kiritimati Tourism Master Plan, with a view to increasing the diversity of the tourism offer and increasing the number of tourist beds to increase the numbers of tourists.

This Tourism Master Plan should complement the work of the Ocean Governance Master Plan.

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[52] https://www.sprep.org/attachments/Publications/CC/ocean-acidification.pdf

[53] https://faolex.fao.org/docs/pdf/kir182404.pdf

3.3.8 Solar salt production

Kiritimati's lagoon provides ideal conditions for salt production, for which there is a specific demand from the fisheries industry to be used in the preparation of brine for fish preservation. In the past decade, the solar salt factory project was established by the Ministry of Line and Phoenix Islands Development (MLPID) and the further development of this industry has been identified as a key objective within the Kiritimati Integrated Fisheries Master Plan[54]. The salt is used as a local substitute for imported salt, in addition to being exported to other Kiribati island markets and to Japan.

Sola salt production is one of the areas that MLPID are keen to develop and are currently in the process of mechanising the process to increase annual production.

3.3.9 Maritime and port operations and logistics

The port at Ronton provides anchorage for vessels with draughts up to 12m. The jetty is currently operated by the Kiribati Ports Authority (KPA) for both passenger and cargo ship handling. However, it lacks shelter from certain swells and can only be used by large vessels as a result. It is also clearly in need of some renovation and a new working port is really required if some of the development needs of other port users are to be met in future. Certainly any move to increase TEU capacity[55] throughout or turnover would require significant development.

It is understood, that a feasibility study is in the process of being conducted on port development in Kiritimati, which will identify the best location for a new multipurpose wharf on the island[56], with one objective (among others) to establish Kiritimati as a transhipment hub for the longline tuna industry.

[54] https://faolex.fao.org/docs/pdf/kir182404.pdf

[55] *TEU is a standardised unit of capacity by which containers are measured. TEU refers to twenty-foot equivalent units.*

[56] https://www.unescap.org/sites/default/d8files/event-documents/Session%205%20-%20Kiribati%20ports%20authority.pdf

4. Ocean Governance

4.1 Introduction

Understanding what governance means and how this relates to the management of ocean and coastal environments is a key starting point in developing a framework or Master Plan for delivering 'good governance'. This requires an understanding of ocean governance as a concept, its principles and approaches. It also requires understanding the key mechanisms that are in place globally, as well as relating these more specifically to Kiritimati.

This section provides a theoretical underpinning to ocean governance as well as reviewing the relevant international mechanisms, obligations and commitments of Kiribati prior to considering how national policies are downscaled and relate to the current use of Kiritimati's marine environment. It supplements the National Strategy and International Agreements report that was submitted as deliverable D2 of this work and is not intended to be comprehensive but instead to enable a gap analysis for ocean governance to be conducted which is used to inform an assessment of development needs. Firstly however, it will provide a short review of the key elements of ocean governance.

4.2 Ocean Governance

4.2.1 Defining ocean governance

It is not uncommon to confuse the term "governance" with "government", though the two are distinct. The former reflects a deeper, more complex notion of the way that societies function, as opposed per se to the formal system involved in exerting executive powers over a society. Governance therefore is an all-embracing concept capable of conveying diverse meanings, including not only the practical mechanisms by which it operates, but also the philosophical nature of society; the values it holds; and the ethics and culture upon which it is based. Not surprisingly then there are many and varied definitions of governance as published by international and national organizations, development agencies, and academic institutions. Table 2 shows definitions given by the United Nations Development Programme (UNDP), the United Nations organization with a specific remit for promoting democratic governance, and the World Bank.

Table 2: Definitions of governance

Organization	Definition

United Nations Develop Programme	Governance is the system of values, policies and institutions by which a society manages its economic, political and social affairs through interactions within and among the state, civil society and the private sector. It is the way a society organizes itself to make and implement decisions achieving mutual understanding, agreement and action. It comprises mechanisms and processes for citizens and groups to articulate their interests, mediate their differences, and exercise their legal rights and obligations. It is the rules, institutions and practices that set limits and provide incentives for individuals, organizations and firms. Governance, including it social, political and economic dimensions, operates at every level of human enterprise, be it village, municipality, nation, region or globe.
World Bank	Governance is the traditions and institutions by which authority is exercised for the common good. This includes (i) the process by which those in authority are selected, monitored and replaced, (ii) the capacity of the government to effectively manage its resources and implement sound policies, and (iii) the respect of citizens and the state for the institutions that govern economic and social interactions among them.

From the definitions cited, governance not only refers to the development of policy and legislation, but also to how the political system solves conflicts between the different stakeholders; as well as the capacity to effectively formulate and implement policies and institutional resources that govern the interactions among them. The efficacy of this is based on the traditions and institutions by which authority is exercised; the process by which governments are selected, monitored and replaced; the functioning and acceptance of their authority by society as a whole; and the achievement of a consensus by democratic means.

4.2.2 Principles of 'good' governance

Applying the adjective 'good' to governance is often seen in terms of how democratic a process is, i.e. the degree to which institutions and processes are transparent and accountable to the individuals and stakeholders involved in the process. However, whilst the inclusion of democracy is not necessarily a universally held view, as other systems of governance exist whereby democracy is not inherently important, it does represent the dominant form of governance, and though its application varies from country to country, it is one of the key pillars on which the United Nations is based. It

also represents a cornerstone of sustainable development and the sustainable development agenda.

'Good' governance is dependent on the effectiveness of the institutions within the process. Indeed, rather than any technical or scientific problems associated with managing the ocean and coastal environment, it is often cited that it is the institutions themselves that present the greatest challenge in achieving this state of 'good' governance. Depending on the scale at which the governance is operating, there are any number of reasons why this might be the case, relating for example to cultural reasons and differences, such as the desire and willingness to promote organizational or behavioural change; to resource aspects such as economic factors and funding; or to intrinsic expertise, knowledge and capacity; and being free from corruption.

Governance encompasses a wide range of organizations and groups from executive bodies, such as parliaments, assemblies, and judicial institutions such as the law courts; to intergovernmental agencies; non-governmental organizations (NGOs); and the private sector, including professional and industrial bodies. This operates on all scales, from the global down to the local, and involves people, processes, and politics (both with a small 'p' and a capital one, 'P'). Ocean governance is no different and includes a range of formal and informal actors, and institutions[57].

Democracy however is not the only determinant of good governance. The United Cities and Local Government Asia-Pacific (UCLGASPAC)[58] for example identify the principles of good governance as follows:

- **Participation:**
    - People should be able to voice their own opinions through legitimate immediate organizations or representatives.
    - This includes men and women, vulnerable sections of society, backward classes, minorities, etc.
    - Participation also implies freedom of association and expression.
- **Rule of Law:**
    - Legal framework should be enforced impartially, especially on human rights laws.
    - Without rule of law, politics will follow the principle of Matsya Nyaya i.e. Law of Fish which means the strong will prevail over the weak.
- **Consensus Oriented:**
    - Consensus oriented decision-making ensures that even if everyone does not achieve what they want to the fullest, a common minimum can be achieved by everyone which will not be detrimental to anyone.

[57] Haas, B. et al., (2022) The future of ocean governance. Rev Fish Biol Fisheries 32: 253-270. https://doi.org/10.1007/s11160-020-09631-x

[58] *https://uclg-aspac.org/good-governance-definition-and-characteristics/*

- It mediates differing interests to meet the broad consensus on the best interests of a community.

- **Equity and Inclusiveness:**
  - Good governance assures an equitable society.
  - People should have opportunities to improve or maintain their well-being.
- **Effectiveness and Efficiency:**
  - Processes and institutions should be able to produce results that meet the needs of their community.
  - Resources of the community should be used effectively for the maximum output.
- **Accountability:**
  - Good governance aims towards betterment of people, and this cannot take place without the government being accountable to the people.
  - Governmental institutions, private sectors, and civil society organizations should be held accountable to the public and institutional stakeholders.
- **Transparency:**
  - Information should be accessible to the public and should be understandable and monitored.
  - It also means free media and access of information to them.
- **Responsiveness:**
  - Institutions and processes should serve all stakeholders in a reasonable period of time.

These principles can be seen as providing a mechanism by which the effectiveness and quality of the management can be assessed. However, they are not alone in helping define a framework of ocean governance.

4.2.3 Principles of ocean governance

One additional and defining principle of ocean governance is that of **'integration'**, whereby policies relevant on an international scale are downscaled and operating at national or local levels, and vice versa (***vertical integration***). Since historically, ocean governance has focused primarily on individual, activity-based marine management (i.e., fisheries, shipping), ***horizontal integration*** is also important, referring to how different sectoral mechanisms integrate together. This is particularly relevant since environmental problems are inherently complex and require 'joined up thinking'. A coherent approach that addresses different sectors and draws together different disciplines is therefore crucial in enabling relevant and effective solutions, a characteristic that has been increasingly recognized over recent decades. The

governance and management of marine activities aimed at achieving long-lasting and sustainable coastal and ocean management can only be achieved through comprehensive approaches that encompass the dynamic nature and activities within marine systems[59]. Despite this, pervasive challenges remain as the cumulative impacts of human activities interacting with each other, and leading to habitat destruction, pollution and ecosystem harm, are all exacerbated by the global climate emergency[60].

Multi-level ocean governance should recognise the interconnectedness of the ocean, be adaptive and iterative, coordinated across different levels (i.e., local, regional, national, global) and responsive to shifting ecological and climate dynamics. A transformed ocean governance system should address the necessity to improve ecosystem resilience and ocean health, by managing marine resource access, and enabling just and effective decision-making.

On a local scale, this could entail community involvement, co-management, and context specific adaptation efforts. On a national scale, future governance should establish or continue decision-making based on the precautionary approach, but also implement context-specific, adaptive, dynamic, and ecosystem-based policies and management regimes that are inclusive of local knowledge holders. On a regional level, reformed ocean governance will need to incorporate shifting marine populations, requiring innovative transboundary management systems as well as reformed or novel international treaties. Finally, on a global level, the UN Sustainable Development Goals (UNSDGs) and the call for protecting areas beyond national jurisdiction (ABNJ), provide a chance for nations across the globe to move towards comprehensive ocean governance that protect marine biodiversity on all levels in the face of climate change, facilitating long-term ocean and human health.

4.2.4 Tools and regulatory mechanisms for delivering ocean governance

A range of tools and mechanisms exist for delivering success in ocean governance such as exploitation bans and restrictions, endangered species legislation, habitat protection and restoration, and invasive species and pollution controls.

4.3 International Governance

International governance concerns the relations between States and is dependent on both international law and voluntary accords. On a global scale, ocean governance faces a number of major challenges relating to the global “commons”; namely, effective management of the High Seas; and an appropriate level of response to climate change.

[59] *Stephenson RL. et al., (2021) The Quilt of Sustainable Ocean Governance: Patterns for Practitioners. Front. Mar. Sci. 8:630547. doi: 10.3389/fmars.2021.630547*

[60] Tittensor *et al*., (2019) Integrating climate adaptation and biodiversity conservation in the global ocean. Science Advances, Vol5, Issue 11. DOI: 10.1126/sciadv.aay9969

Whilst these concerns are well understood and of utmost importance, achieving meaningful agreements is often difficult.

In part these difficulties can be attributed to inherent discords in global politics, particularly with regard to the distribution of power, in which equity and inequality issues surround the distribution of wealth and development. Further, there are manifest differences, for example, between those nations who have the largest environmental footprint, creating the greatest environmental impacts, and those who experience the most significant consequences. This has been a constant narrative within global politics for many years, between the rich and the poor; the North and the South. It also explains why tensions exist and why resultant management initiatives may sometimes be seen as sub-optimal, based on ineffective compromises.

Despite these criticisms however, there have been an increasing number of initiatives introduced under the auspices of the United Nations aimed at tackling global environmental impacts and threats, with the UN's aims broadening as part of the sustainable development agenda since the UN Conference on the Human Environment in Stockholm, 1972. The means by which these aims are addressed; the organization operates; and, the structure through which Member States can express their views, is the General Assembly and its various councils including the Security Council, and the Economic and Social Council. In addition, there is a concomitant and complex array of programmes; committees and conferences; conventions and multilateral environmental agreements (MEAs); and specialist agencies. In relation to the marine and maritime environment, key global mechanisms are the United Nations Convention on the Law of the Sea (UNCLOS III); the United Nations Environment Programme (UNEP); the Framework Convention on Climate Change (UNFCCC); the United Nations Sustainable Development Goals (UNSDGs); and the International Maritime Organization (IMO).

This section will outline the key international mechanisms relating to ocean governance and in doing so identify Kiribati's principal obligations.

4.3.1 United Nations Convention on the Law of the Sea (UNCLOS III)

The most important legislation relating to the governance of the oceans is that of the United Nations Convention on the Law of the Sea (UNCLOS) and specifically its third iteration UNCLOS III. The Convention on the Law of the Sea was first introduced in 1958 with the aim of defining the rights and responsibilities of nations in their use of the global oceans and hence act as a means of reducing conflicts associated with maritime activities. Underpinning this first agreement was the notion of freedom, and specifically freedom of the high seas. This long held view was given further definition with respect to three key principles, namely that a ship of any nation should be able to navigate the oceans freely; that the ship's national state has exclusive dominion over that ship; and that no other nation can therefore exercise such dominion. Thus, freedom is the guiding focus of the law of the sea, but one that is strongly mediated by nationality.

The first agreement of the Convention on the Law of the Sea (UNCLOS I) in 1958, was in fact defined in the form of four separate treaties, as follows:

- Convention on the Territorial Sea and Contiguous Zone (entered into force 10 September 1964)
- Convention on the Continental Shelf (entered into force 10 June 1964)
- Convention on the High Seas (entered into force 30 September 1962)
- Convention on Fishing and Conservation of Living Resources of the High Seas (entered into force 20 March 1966)

This series of agreements however, still left areas in need of clarification, and though a second convention in 1960 brought more nations to the negotiating table, it wasn't until UNCLOS III was agreed that issues such as those relating to territorial waters were concluded in 1982. It included definitions to jurisdictions such as the Territorial Seas (12 miles); Exclusive Economic Zones (188 miles beyond the delimitation of the Territorial Sea); and the "High Seas", and in doing so drew a distinction between marine areas that can be described as the "commons" (*mare liberum*) and those areas over which national jurisdictions apply (*mare clausem*). Taking into account the Exclusive Economic Zones (EEZs), this leaves 60% of the global ocean being defined as the marine "commons".

Kiribati ratified the LOS Convention in 2003 [61] and enacted domestic legislation establishing its maritime zones, including a 12-nautical mile (M) territorial sea, 24-M contiguous zone, and a 200-M exclusive economic zone (EEZ)[62]. This legislation also contains provisions relating to archipelagic baselines, archipelagic waters, and the continental shelf. Kiribati's domestic regulations set the geographic coordinates for its archipelagic jurisdiction as well as the outer limits of its territorial sea, contiguous zone, and EEZ. Kiribati has established its maritime boundaries with the Cook Islands (New Zealand), Marshall Islands, Nauru, New Zealand (Tokelau), Tuvalu, France (French Polynesia) and the United States of America.

Having ratified UNCLOS III, Kiribati is subject to meeting all of the requirements as stipulated under the Convention's articles. One of the key requirements for example under UNCLOS III is for the provision of marine environmental protection and preservation, and as such, it established guidelines for the management of marine natural resources. Under Article 192, states are obliged to ensure the protection and preservation of the marine environment in each territorial zone of the sea; whilst Article 194 requires them to take the necessary measures, using the best practicable means, to 'prevent, reduce and control pollution of the marine environment from any source'. States are required to ensure that their activities do not prejudice the environment of other states and must adopt laws and regulations which protect the marine environment from pollution emanating from land-based activities, seabed activities subject to national jurisdiction, dumping, vessels, and through the atmosphere.

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[61] Office of Ocean and Polar Affairs (2020) Limits in the Seas No.146 Republic of Kiribati, archipelagic and other maritime claims and boundaries. Bureau of Oceans and International Environmental and Scientific Affairs.

[62] The Maritime Zones (Declaration) Act, 2011, which is reproduced in Annex 1 of this study, replaces the Marine Zones (Declaration) Act 1983. Texts of both acts are available from the UN Division for Ocean Affairs and the Law of the Sea (DOALOS) at its website pertaining to Kiribati's maritime claims and boundaries.

Other relevant Articles in the Convention that require specific measures include Article 196, against the introduction of alien or new species; Article 199, requiring contingency plans against pollution; Article 204, requiring monitoring of the risks or effects of pollution; Article 211, requiring action against pollution of all sorts, including from vessels; and enforcement measures by flag states (Article 217), port states (Article 218) and coastal states (Article 220). As such a designation of national pollution control zones is drawn at the EEZ boundary (200 miles).

In many ways, oceans governance represents the most recent phase in the evolution of the international Law of the Sea and is among the key drivers in the ongoing negotiation process aimed at conserving and sustainably using marine biological diversity beyond national jurisdiction[63].

4.3.2 United Nations Environment Programme (UNEP) - Regional Seas Programme (RSP)

Since its inception, UNEP has been tasked with addressing environmental issues at the global and regional level and given a mandate to coordinate the development of global environmental policy by assessing global environmental change and trends; bringing emerging issues to the attention of both national governments and the international community at large; and constituting and developing improved international and national institutions. It was therefore designed to provide a focal point for environmental action and coordination within the UN system.

UNEP has also established a large number of secretariats, many of which have a direct relationship with the marine environment with one of the most significant being the Regional Seas Programme. The Regional Seas Programme, launched in 1974, aims to enhance collaborative action and find solutions to environmental problems that require coordination and implementation by countries sharing a common body of water. The key issues identified include ecosystem health and biodiversity; pollution from land-based activities; shipping and sea-based pollution; marine litter; the sustainability of small islands; and coastal management. As a platform for dealing with these issues, the RSP provides a basis for the implementation of Regional Seas Conventions and Action Plans (RSCAPs) across 18 different regions. The Plans for each of the specific RS Programmes are underpinned by a legal framework, based on a Regional Convention and associated Protocols, and each is tailored to suit the specific environmental challenges of that regional sea.

The Pacific Region was established as a RSCAP under the auspices of UNEP but administered under the Secretariat Pacific Regional Environment Programme (SPREP), based in Somoa, with SPREP having been established under the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, 1986, also known as the Noumea Convention. There are a number of protocols under this

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[63] Molenaar, E.J. (2019) Ocean governance beyond boundaries: origins, trends, and current challenges. Predicting Future Oceans. Sustainability of Ocean and Human Systems Amidst Global Environmental Change. 419-423. https://doi.org/10.1016/B978-0-12-817945-1.00040-X

Convention, relating to the dumping of waste, the combating of pollution emergencies, oil pollution and hazardous and noxious substances.

The key priority areas, established under the SPREP Strategic Plan, 2017-2026 are as follows:

1. **Climate Change Resilience** - For Pacific island Members, the economic, social, and environmental costs of climate change and disasters are high and forecast to increase. As host of the Pacific Climate Change Centre, SPREP will deliver on its mandate as coordinator of Pacific climate change action.
2. **Ecosystem and Biodiversity Protection** - SPREP provides regional leadership and technical guidance and serves as a conduit for Member states in optimising the implementation of global MEAs and regional environmental frameworks. It is also the secretariat for the Pacific Islands Roundtable for Nature Conservation and with other organisations and countries implements the Regional Framework for Nature Conservation and Protected Areas.
3. **Waste Management and Pollution Control** - SPREP has the lead responsibility for regional coordination and delivery of waste management and pollution control action and uses the strategic management framework, Cleaner Pacific 2025, in guiding regional cooperation and collaboration.
4. **Environmental Governance** - SPREP plays a lead role in assisting countries to develop capacity in environmental governance, policy development, planning, environmental impact assessment, monitoring, and reporting for sustainable environmental outcomes and to keep pace with socio-economic development.

Whilst Kiribati is a Member country of SPREP, it is not signed up to either the Noumea Convention or any of the associated protocols.

4.3.3 United Nations Framework Convention on Climate Change (UNFCCC)

The United Nations Framework Convention on Climate Change entered into force in March 1994 with the objective of stabilizing the atmospheric concentrations of greenhouse gases (GHGs) at levels that would prevent dangerous anthropogenic interference with the climate system.

As a framework convention, the treaty sets no mandatory limits on GHG emissions for individual countries and contains no enforcement mechanisms. Instead it provides an operational structure, aiming to build consensus and deliver the best solutions and strategies to address the climate change. The Parties to the Convention are classified into the following groups:

- Annex I countries – industrialized countries
- Annex II countries – OECD members not included in Annex I
- Non- Annex I countries – developing countries

All Parties are obligated to general commitments such as the protection and enhancement of carbon 'sinks' and reservoirs, with Annex 1 countries also being obligated to reduce GHG emissions to 1990 levels and below. However, the Convention can only encourage such behaviour; it cannot commit nations to do so. In order to establish obligations, the treaty provides for protocols and agreements that can set mandatory GHG emission limits.

Kiribati is a Non-Annex 1 country that has ratified the following agreements:

- Kyoto Protocol – ratified 2000
- Paris Agreement – ratified 2016

4.3.3.1 The Kyoto Protocol

The Kyoto Protocol was agreed at the third session of the Conference of the Parties (COP 3) in Kyoto, Japan, 1997, based on several key principles. It firstly recognized that the industrialization carried out by developed countries over more than 150 years was largely responsible for the historic levels of GHG emissions in the atmosphere and hence placed a heavier burden on developed nations under the principle of "common but differentiated responsibilities". It also recognized the principle of "equity" since it was anticipated that less developed countries (LDCs) would suffer most from the impacts of climate change and that they also had the least capacity to respond. The third principle upon which the Protocol was based was that of the "precautionary principle" since "where there are threats of serious damage ..... a lack of full scientific certainty should not be used as reason for postponing measures".

Following a period of ratification during which at least 55 parties to the Convention, incorporating at least 55% of the total CO2 emissions for 1990 of Annex I countries, the Protocol finally entered into force on 16 February 2005. This established legally binding obligations for 37 industrialized countries, and the European community, to reduce a 'basket' of GHG emissions, including CO2, CH4, N2O, HFCs, PFCs, and SF6. The agreement and targets are based on the development of national inventories of GHG emissions and removals; inventories which must be regularly updated by developed countries and set against 1990 benchmark levels so as to enable an assessment of comparative change. These targets amount to an average of 5% against 1990 levels over the five-year period 2008–2012, known as the "Commitment Period", though there were variations in individual country targets.

Under the Treaty, countries must meet their targets primarily through national measures. However, these are non-prescriptive with each Party being able to design their own strategy, including enhancing energy efficiency measures, and protecting and developing GHG sinks. The Protocol also offers means of meeting their targets through 'joint implementation' whereby Annex I parties can help each other reduce their emissions, and also 'aggregated emissions' so as to allow for differential rates of carbon savings within specified groups of countries such as the European Union. Market based mechanisms, have also been developed which support these initiatives and stimulate 'green' investment. The establishment of the 'emissions trading system' (ETS), allows for Annex 1 countries to acquire emission 'units' (or permits) from other Annex 1

countries who find it easier to meet targets. In addition, the introduction of 'clean development mechanisms' (CDM) offer a means by which Annex I parties can help developing countries reduce GHG emissions through either financial or technical support.

Whilst the intent is clear, there has been a considerable amount of thought given to the effectiveness and strategies of both the UNFCCC and the Kyoto Protocol, with one of the key areas of critique relating to the focus of the mechanisms. There has been a realisation that the political, technical and philosophical approach of Kyoto has been overly concerned with mitigation, i.e., with the input and threat from carbon emissions into the atmosphere, and that this is likely to be insufficient in adequately dealing with the consequent impacts. As such, there was a greater recognition of a clear and apparent need to develop an alternative approach to redress the balance. This was acknowledged at the COP 13 in Bali in 2007 where it was agreed by the Parties that adaptation should play a greater role in the global approach to climate change, where adaptation was defined as "the adjustment in natural or human systems as a response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities"[64]. As such, adaptation is now one of the four post-2012 pillars upon which risk reduction and management associated with climate change is based.

In addition to broadening the focus of management, there was also an awareness of the need to further enhance the approaches, aims and targets involved, with the 15th Conference of the Parties (COP 15) in Copenhagen, Denmark, 2009 agreeing to such enhancements in the form of the 'Copenhagen Accord'. As a result of this, countries submitted emission reduction pledges and mitigation pledges. Though all were still non-binding, this started the process of redrafting within the Convention and lead directly to the 'Paris Agreement' in 2015.

4.3.3.2 The Paris Agreement

The adoption of the Paris Agreement at COP21 in 2015 represents a significant development within the UNFCCC coming into force on 5 October 2016. It requires all Parties to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. To do so, Parties should make "nationally determined contributions" (NDCs) and to strengthen these efforts in the years ahead. This includes requirements that all Parties report regularly on their emissions and on their implementation efforts.

Kiribati ratified the Agreement in 2016 and submitted its National Adaptation Plan (NAP) in 2020, which is referred to as the Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management 2019 – 2028 (KJIP), as well as a Revised NDC in 2022.

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[64] *IPCC AR5, 2013*

4.3.4 The Montreal Protocol (and the Kigali Amendment)

The Montreal Protocol, signed in 1987, regulates the production and consumption of approximately 100 ozone depleting substances (ODS)[65]. Kiribati is a party to the Montreal Protocol, which brings important obligations related to capping and phasing out of different groups of ODS and in 2018, Kiribati ratified the Kigali amendment[66] which calls for a gradual reduction in the consumption and production of hydrofluorocarbons (HFCs). This will have implications for the development of a refrigeration sector in Kiritimati, and hence for seafood development aspirations.

4.3.5 UN Sustainable Development Goals (UNSDGs)

The 17 United Nations Sustainable Development Goals (SDGs) that underpin the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, are a global attempt to achieve a comprehensive governance transformation aimed at ending poverty, improving health and education, reducing inequality, and spurring economic growth while tackling climate change and working to preserve our oceans and forests.

SDG 14 directly refers to 'life below the water' and conserving and sustainably using the oceans, seas and marine resources for sustainable development. The SDG states that "Good governance, an enabling environment, sustainable land- and marine- based human activities, and adequate measures will be required to reduce the negative anthropogenic impacts on the marine environment, for example due to a more sustainable use of resources, changes in production and consumption patterns and improved management and control of human activities. Projects and measures should ideally be designed and implemented in an integrated, cross-sectoral and cross-scale manner, in line with the ecosystem approach and involving all stakeholders. Human well-being cannot be achieved without the protection and conservation of the Earth's ecosystem. To maintain the quality of life that the oceans have provided to humankind, while sustaining the integrity of their ecosystems, a change will be required in how humans view, manage and use oceans, seas and marine resources"[67].

However, it is not the only SDG 14 that relates to the need for good ocean governance for Kiribati, as other SDGs also directly relate to supporting key aspects of achieving marine sustainability, including those relating to small island developing states (SDGs 2,5,6,7,12,13,15,17); climate change (SDG 13); and, sustainable tourism (SDG 8) *inter alia*.

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[65] *https://www.unep.org/ozonaction/who-we-are/about-montreal-protocol#:~:text=Under%20the%20Kigali%20Amendment%2C%20actions,a%20truly%20unparalleled%20contribution%20to*

[66] *https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-2-f&chapter=27&clang=_en*

[67] *https://sdgs.un.org/topics/oceans-and-seas#description*

4.3.6 United Nations Convention on Biodiversity (CBD)

The CBD, introduced in 1992 and ratified by Kiribati in 1994, adopted a revised Strategic Plan for Biodiversity in 2010, including a set of biodiversity targets known as the Aichi Targets.

The Global Biodiversity Framework now has 23 action-oriented global targets for urgent action over the decade to 2030. The actions set out in each target need to be initiated immediately and completed by 2030. Together, the results will enable achievement towards the outcome-oriented goals for 2050. Actions to reach these targets should be implemented consistently and in harmony with the Convention on Biological Diversity and its Protocols, and other relevant international obligations, taking into account national circumstances, priorities and socioeconomic conditions.

Whilst target 1 refers to spatial planning and the management of all areas to reduce biodiversity loss, and target 3 refers to conserving 30% of marine and coastal areas by 2030, all of the targets have some relevance to the marine environment and therefore provide direction for delivering good governance.

4.3.7 International Maritime Organization (IMO)

The IMO was established by Convention in 1948, with Article 1(a) stating its aims “to provide machinery for cooperation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade; and to encourage and facilitate the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships”. The organization is also empowered to deal with the administrative and legal matters relating to these purposes. Kiribati became a Member of IMO in 2003.

The result of the IMO’s work is an ever-evolving body of international conventions, supported by a plethora of recommendations governing shipping and maritime industry. Key conventions relating to Kiribati are as follows:

- International Convention for the Prevention of Pollution from Ships, 1973, as absorbed by the Protocol of 1978 (MARPOL 73/78)
- International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001
- International Convention for the Control and Management of Ships’ Ballast Water and Sediments 2004
- Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)
- International Convention for the Safety of Life at Sea (SOLAS), 1974

Kiribati has ratified all of these Conventions, which will become increasingly important if new port/ transhipment hub plans develop.

4.4 National (and Sub-National) Policies

Deliverable D2 of this work reviewed a number of national and sub-national policies relevant to the management of marine resources in Kiritimati. Without detailing these again, the following provides a review of key policies relating to ocean governance, highlighting integration gaps when downscaled to the sub-national level of Kiritimati.

4.4.1 The Kiribati Development Plan 2020-2023

The Kiribati Development Plan 2020-2023 provides an overarching framework for national development, including targets and Key Performance Indicators (KPIs) relating to spatial planning; the percentage of strengthened and improved areas for conservation; as well as increasing the contribution of sustainably managed fisheries to GDP. It also identifies the need to improve marine and coastal infrastructure to support inter-island and international connectivity.

Central to the development of the plan is that all national indicators were aligned and mapped to the Pacific Sustainable Development Goals (SDGs), and that the reporting requirements associated with the SDGs were met by the KDP. In addition, the obligations of Kiribati under certain Multilateral Environmental Agreements (MEAs) is recognised as a specific strategy protecting our Environment and Strengthening Resilience). In particular this seeks to implement national obligations associated with the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement decisions of the UNFCCC Conference of the Parties (COP).

However, it doesn't specify the need for a coherent system of ocean governance or marine spatial planning (MSP).

4.4.2 Kiribati Integrated Environment Policy (KIEP)

The KIEP outlines a sustainable environment vision of "the people of Kiribati continuing to enjoy a natural biodiversity that is resilient to the impacts of climate change and supports the socio-economic livelihoods". This policy provides guidance and direction for government and local communities in protecting, managing and utilising the natural resources and enhances environmental protection.

The KIEP makes specific reference to climate change; island biodiversity conservation; waste management; resource management and environmental governance and contains useful direction. However, it fails to explicitly address either the need for ocean governance or marine spatial planning.

4.4.3 The National Biodiversity Strategies and Action Plan 2016-2020

Kiribati's most recent National Biodiversity Strategy and Action Plan was published in 2016 for the years 2016 – 2020[68]. It represents a framework to meet Kiribati's obligations under the Convention on Biological Diversity and the 2020 Aichi Targets, as well as contributing to other international agreements that Kiribati is a party to, including the Ramsar Convention on Wetlands, the International Treaty on Plant Genetic resources for Food and Agriculture (ITPGRFA), and the World Heritage Convention. It also aligns with several biodiversity-related conventions that Kiribati is not party to, including the Convention on Migratory Species (CMS) and the Convention on International Trade in Endangered Species of Wild fauna and Flora (CITES).

Although the Plan is out of date, it identifies nine priority areas, each having specific actions and targets, including the need to develop community-based management plans for coastal resources (fisheries and mangroves); to reduce unsustainable fishing practices; to develop national guidelines and policies for the development and management of ecotourism activities; and to develop regulation on the protection of ecotourism resources *inter alia*.

4.4.4 Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management 2019 - 2028

As stated, Kiribati ratified the Paris Agreement in 2016 and submitted its National Adaptation Plan (NAP) in 2020. Under the revised targets for the NDC, Kiribati is aiming to go well beyond those set out in Paris, and achieve the following:

- TARGET 1: To unconditionally reduce 9.5% (11.3 ktCO,e) of GHG emissions, and conditionally reduce 16.7% (20.0 ktCOe) of GHG emissions by 2025. Unconditional carbon sequestration of 0.16 ktCO, by 2025.

- TARGET 2: To unconditionally reduce 8.0% (11.0 ktCO,e) of GHG emissions, and conditionally reduce 23.8% (32.9 ktCOge) of GHG emissions by 2030. Unconditional carbon sequestration of 0.15 ktCO, by 2030.

It is also aiming to increase resilience through sustainable climate change adaptation and disaster risk reduction using a whole-of-island approach. It also addresses plans for mitigation and stresses the need for local communities to preserve and promote local good, sustainability of marine and water resource management. However, it doesn't specify how this might be achieved or the need to develop a coherent system of ocean governance.

4.4.5 Kiribati National Coastal Fisheries Roadmap 2019-2036

[68] *MELAD (2016) Kiribati National Biodiversity Strategy and Action Plan 2016-2020.*

The Kiribati National Coastal Fisheries Roadmap 2019-2036 aims to sustainably manage coastal fisheries and maximize economic returns to Kiribati's coastal communities. It outlines a vision of" by 2036, a resilient, healthy and prosperous Kiribati through sustainable coastal fisheries underpinned by inclusive, collaborative and innovative approaches between communities and

government".

The Coastal Fisheries Roadmap emphasises the need for collaborative approaches and strong stakeholder engagement to underpin coastal fisheries management. These needs will be reflected in the design of participative and inclusive development of sport fish, marine aquarium trade and ocean resources management support tools under this project, including via consultation with sport fisher associations, marine aquarium trade associations, and the tourism and marine aquarium trade industry.

The Roadmap outlines several Focal Action Areas including governance, highlighting the importance of integrating community stakeholders. New or amended legislation must be transparent, inclusive, and fit for context with the principles of inclusiveness and decentralisation guiding policy and regulatory design processes. This is crucial for any developing system of ocean governance.

4.4.6 Kiritimati Integrated Fisheries Master Plan 2014-2017

On a sub-national scale, the Kiritimati Integrated Fisheries Master Plan also highlights 5 national overarching goals and strategic objectives, including the ned for good governance and to build climate resilience into the system. It goes on to identify 5 priority areas for development, as follows:

I. Coastal fisheries sector
II. Offshore fisheries sector
III. Aquaculture sector
IV. Tourism sector
V. Environment sector

It goes on to review these sectors prior to identifying infrastructural needs to develop them, including the need to introduce a community-based ecosystem approach to ensure support and agreement around specific measures and ultimately deliver behavioural change.

The subsequent Plan identifies a number of very useful objectives for each of the 5 priority areas as well as a large number of interventions to achieve them. It is unclear however, how many of these actions have actually been delivered and the Plan itself is limited by the lack of an implementation plan or roadmap by which these could be achieved. As a result, it could be argued that the Plan constitutes more of a wish list rather than a realistic or achievable set of actions.

4.4.7 Line and Phoenix Islands Integrated Development Strategy 2016-2036 (LPIDS)

The strategic goals set out within the LPID do not specifically address the marine environment, nor does the Monitoring and Evaluation Framework differentiate between land based or marine based biodiversity or associated indicators and targets. However, the action plan does refer to a baseline Marine Resource and Opportunities Study for the Lagoons under Economic Development themed actions and Environment and Lands actions and in doing so, an urgent need to address environmental issues through ongoing data/ information collection and monitoring.

The Strategy also identifies a comprehensive GIS dataset which will be of particular value to any developing system of ocean governance, assuming it covers the current spatial and temporal distribution of existing activities and users of the marine environment.

4.4.8 Phoenix Islands Protected Area Management Plan 2015 -2020

The PIPA demonstrates characteristics of good planning including governance; use of science and research; spatial mapping and zonation; licensing; enforcement; reporting. In addition, the guiding principles particularly around ecological stability, participatory approach, adaptive management, ecosystem approach and integrated planning and management. However, it also fails to address the marine environment specifically

4.4.9 Gender Equality and Women's Development 2019 – 2022

The GEWD Policy was launched by the Ministry of Women, Youth Sports and Social Affairs (MWYSSA) in 2019 against the backdrop of gender equality and women's development being seen as the key mechanism to address economic and social disparities. The policy's vision is that all men and women in Kiribati reach their full potential, by uplifting the status and livelihoods of the population through the strengthening of mechanisms to mainstream gender and address gender inequalities. The policy has five key priority areas which are detailed as follows:

1. To progressively implement a gender mainstreaming approach to achieve gender equality
2. To improve the economic empowerment of women
3. To support stronger, informed families
4. To improve women's political representation and leadership
5. To eliminate sexual and gender-based violence

The policy links to the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), in addition to other gender equity agreements in the Pacific region including the Pacific Leaders' Gender Equality Declaration 2012) and

recommendations and outcomes from the Triennial Conference of Pacific Women[69]. It also creates a direct link with the Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management (2019-2028), referencing the potential for gender-based violence, mental health and family care[70] to further increase the disproportionate burdens on women.

In the absence of a new gender policy, the OGMP should integrate all aspects of this policy by taking special care to address inequalities, support economic empowerment, ensure equal access to engage and participate (e.g. through separate consultations or stakeholder sessions with different timings), and include gender disaggregated data in the implementation of ocean governance and any associated training.

[69] *https://hrsd.spc.int/triennial-conference-pacific-women*

[70] *https://unfccc.int/sites/default/files/resource/Kiribati-NAP.pdf*

5 Gap Analysis and Development Needs

5.1 Introduction

Based on the stakeholder engagement conducted as part of this work as well as the situation analysis and the review of ocean governance and policy, this section outlines the key gaps present in the current system and the subsequent development needs identified as being important to developing an ocean governance master plan.

5.2 Gap Analysis

5.2.1 Strategic ocean governance policy

The legal framework relating to the governance of the global oceans is laid down in UNCLOS III which Kiribati has ratified. Kiribati is therefore subject to meeting all of the requirements as stipulated under the Convention's articles, including the provision of marine environmental protection and preservation, and management of marine natural resources.

However, the introduction of effective and coherent ocean governance has been slow at all scales of jurisdiction, from global, regional, and national scales to sub-national with development of ocean governance often lagging behind those of terrestrial planning controls and measures. Such ocean governance is often fragmented and disjointed and, whilst a number of national policies refer to good governance of the marine and coastal environment, this is certainly true on a national scale for Kiribati and on a sub-national scale for Kiritimati, where there is a lack of strategic planning.

The deficit of a specific ocean governance strategy and the lack of any identifiable marine spatial planning (MSP) measures, means that the management of marine issues in Kiribati and Kiritimati is currently weak and ineffective.

5.2.2 Sectoral management integration

Traditionally, marine management measures have typically been introduced on a sectoral basis with different relevant authorities (RAs) presiding over different activities across a range of geographical scales. This can lead to conflicting roles and objectives, or gaps where there is a deficit of *de facto* management. The result is a lack of regulatory coherence and a failure of good governance. A multiplicity of administrative levels and institutional frameworks also often fail to account for socio-ecological processes, operating at different temporal and spatial scales to the jurisdictions in force.

With respect to Kiritimati for example, the problem of sectoral integration and jurisdiction is evident across the current system of marine management. For example, none of the statutory protected conservation areas are designated to include the marine environment and no data is collected specifically on the health of marine ecosystems. Consequently, there are no measures in place or enforced to protect them. The only conservation areas currently designated are terrestrial and classified for the protection of birds. In addition, appropriate environmental impact assessments of coastal and marine developments are not conducted due to a lack of delegated responsibility, though there is also a lack of relevant expertise in any case. These represent significant interconnected weaknesses with respect to the roles and responsibilities of different RAs which inevitably lead to a lack of accountability.

This spatial differentiation in control and regulation makes joined up thinking around marine issues and the development of a response to increasing threats associated with for example, climate change or pollution, extremely challenging. Poorly integrated management measures are therefore one of the key challenges for developing a joined-up system of ocean governance with the problem of policy and regulatory fragmentation often exacerbated in low-income countries and is even more problematic for SIDS.

5.2.3 Knowledge, expertise and capacity

The ability to address Kiritimati's key coastal and marine challenges are restrained by a lack of knowledge, expertise and capacity at the decision-making tiers leading to a lack of accountability, support and empowerment. Capacity issues have been identified throughout this process, driven by inadequate human and financial resources. With regards to the human element, there is evident understaffing of key RAs, with those staff in place being required to multitask and often over-stretched with regular and routine duties.

5.2.4 Data and monitoring

One of the key weaknesses apparent in Kiritimati is the lack of institutional capacity in particular relating to the lack of scientific data and information on key aspects of the use and management of the marine environment. In particular there is a lack of quantitative data and understanding of the health of key ecosystems as well as a lack of monitoring to better understand the environment, conserve a wider range of species beyond protected bird species, or evaluate progress. However, it is not just with regards to the environment that such data is lacking and there is a clear need to both collect relevant data and to manage it so that it is accessible for decision-makers.

5.2.5 Monitoring and enforcement

The capacity to monitor and enforce compliance of either fisheries or maritime regulations in SIDS is extremely limited and typically underpinned by a weak legal framework and driven by capacity issues such as inadequate resources, and a lack of knowledge and expertise. With regards to Kiritimati, a lack of suitable assets includes a patrol vessel that isn't suitable for rough seas restricting enforcement opportunities.

Additional factors include poor training regimes as well as a lack of quality service agreements between government departments and low-quality reporting and information practices.

5.2.6 Stakeholder engagement

One of the key findings of this work relates to the lack of stakeholder engagement and networking currently taking place between the RAs in relation to the management of the marine and coastal environment. Whilst there is limited private sector involvement in Kiritimati at present nevertheless, there is also limited engagement with NGOs and community groups.

One reason for this might lie in the lack of public understanding or awareness of issues relating to the marine environment. Given the importance of this as a starting point for behavioural change there is a clear need to address this issue going forward. Any successful stakeholder engagement process must clearly address as many relevant stakeholders as possible, but it must also serve a purpose and currently there is no direction evident as to what such an engagement process might target.

5.2.7 Infrastructure

There are clear infrastructural gaps facing Kiritimati, including the lack of an efficient technology supply chain with access to spare parts. This limits technical capacity and leads to unreliable equipment and machinery breakdown. There are also significant access and transportation issues.

The consequences of some infrastructural gaps can have a direct impact on the marine environment, as is the case for example with respect to waste management. There are currently two dumpsites on the island (Abaiang and Maiana), neither of which are controlled or managed[71], with contamination of the surrounding environment evident. The prevailing pattern is for solid waste disposal is unsustainable and one that cannot be continued in the long term due to the need for increasing areas of land. There is overall a significant capacity issue with gaps in domestic waste disposal being filled by illegal dumpsites. These open and random dumpsites contain no means of controlling hazardous and toxic substances, including plastics, leaking into the environment either by leachate, aerosol or aeolian processes and they therefore present a potentially significant health risk for local communities and for marine ecosystems. In addition, there is no formal or approved waste management governance or recycling system for

[71] *https://library.sprep.org/sites/default/files/2023-09/Kiribati-National-Waste-Audit-Analysis.pdf*

plastics. This is a significant omission and whilst the current system of governance demonstrates limited control of both the issue and the sector, it also demonstrates limited control over transboundary waste movements too, specifically those entering the marine environment.

5.3 Development Needs

Based on the gap analysis there are a number of apparent development needs that should be addressed by the Master Plan. These are as follows:

5.3.1 A new legal framework for ocean governance

The current system of governance for managing marine and maritime activities as well as those coastal and terrestrial activities that directly impact the marine environment, such as it is, needs to be reviewed with a view to the development of new primary legislation. It is currently not fit for purpose and is failing in its wider international commitments, specifically around biodiversity conservation and ecosystem health, anthropogenic pollution and environmental impact.

A recommendation in keeping with this work is to use this Ocean Governance Master Plan for Kiritimati as a pilot test for the development of national legislation.

5.3.2 Strengthen and integrate the institutional and regulatory framework relating to the management of the marine environment

There is a need for strengthening the institutional and regulatory framework to ensure adequate expertise and resourcing is available at the decision making and implementation levels. This means better defining the roles and responsibilities of government agencies and other key actors as well as drafting new regulations that directly relate to the ocean governance. This could be aligned with the development of new primary legislation for ocean governance or embedded in other existing legislation based on the outcomes of a review.

A key component of any review should be to ensure the integration of policies and legislation between different scale of governance from international to national and sub-national (vertical integration) as well as that between different sectors, activities and RAs (horizontal integration).

Assigning clear and specific tasks and responsibilities will help resolve gaps and overlaps in the system of governance. This will strengthen institutional arrangements across all levels and ensure orderly interaction between the competent institutions, through cooperation and the flow of reliable information.

Key areas for review and development are as follows:

- National legislation and licensing regime relating to marine resources including offshore fisheries
- Regulatory control and monitoring, including Strategic Environment Assessment and EIA, of marine industries
- Marine scientific and technical expertise within respective RAs
- Data collection, monitoring and documentation of marine resources
- Measurable objectives and suite of indicators
- Roles and responsibilities of RAs, including resourcing and staffing

One option for enabling greater integration would be through assigning a recognized or leading coordination body to drive the delivery of ocean governance.

5.3.3 Climate ready capacity and resilience

The climate-driven changes in ocean dynamics presents significant challenges to ocean governance, specifically challenging current systems of management and their progress towards sustainability. The disproportionate impacts of climate change will also be felt most on vulnerable coastal communities in SIDS and the Global South. This requires governance that can adapt to rapidly changing conditions and minimizes the negative consequences of climate change to avoid exacerbating associated inequalities and injustices.

Effective marine biodiversity conservation in a changing climate should be guided by reformed, multi-level ocean governance that recognizes the interconnectedness of the ocean, is adaptive and iterative, coordinated across different levels (i.e., local, regional, national, global) and responsive to shifting ecological and climate dynamics.

A system of ocean governance with a consideration of climate change at its core is therefore a clear development need for both Kiribati and Kiritimati and should be a key consideration in the drafting of new primary legislation and the regulatory framework.

5.3.4 Deliver capacity building through training and skills development

There is a need for capacity building through skills and institutional development at all levels of governance in relation to the delivery of a more joined-up and effective system of marine and coastal management. However, the issue is not that training is not taking place, as it often is, driven development partners, but that this training is not coordinated and that there is no clear human resource development plan.

Future capacity-building should not replicate or simply deliver as many courses as possible but instead should ensure the that quality human resource development planning allows for targeted training needs assessment, appropriate competency requirements and suitable accredited training programs. Potentially, a core curriculum could be developed that could be delivered to all RA staff (i.e., the MFMRD, MELAD

and the police). This would reduce the external input needed, create a consistent approach to marine management and enforcement and be used as a refresher course to ensure a continuation of best practice.

With regards to ocean governance, such training should include marine spatial planning; team and project management; stakeholder engagement; environmental monitoring; marine data collection and management; and environmental impact assessment (EIA) *inter alia*.

As part of this work, it should be noted that an introductory training session will be given on the development of ocean governance and the OGMP.

5.3.5 Develop a robust system of data gathering and an accessible data platform

One of the drivers for this project is to support the analysis of ocean governance and to lay the basis for a set of recommendations aimed at delivering change. However, one of the key challenges evident in delivering this work is that data and information is piecemeal. The data used in many reports, and often repeated, is sometimes of dubious validity. This represents a significant gap and therefore a key development need.

A robust system of data gathering and analysis, as well as effective data management are imperatives to enabling good decision-making and effective system evaluation.

5.3.6 Stakeholder engagement and communication

The need to address ocean governance is clear and in many low-income SIDS in particular, represents a significant challenge. A response to this challenge is for communities and engaged stakeholders to come together to resolve problems on a local and geo-specific basis. For Kiritimati, it is particularly the case that the key RAs should engage to better manage the development of marine and coastal resources and for that engagement to also include all relevant communities and such as local fishers and tourism operators.

A broader understanding of ocean literacy would also add great value both to RA staff but also the wider population and communities of Kiritimati as well.

One future area for targeted engagement lies in the need to drive private sector involvement. However, given the low level of private sector operation on the island at present, no such public – private sector partnership currently exists. However, there are existing opportunities for such collaboration. For example, this could include the potential for organisations such as the Petfish Operators Association and the Sportfish Guides Association to collaborate through the implementation of monitoring and management measures.

5.3.7 Feasibility and market analysis of resource development options

One of the key drivers for this project has been the clear and apparent need to support and enable the development of marine resources and the blue economy for Kiritimati both to support the economy of the island and the welfare of the population, and to distribute more equitable growth around the respective island groups of Kiribati.

Based on the sectors operating in Kiritimati presently, it is clear there is scope for resource development given suitable investment and the development of infrastructure. However, whilst some of this development might be reliant on presence / absence ambitions, such as a new port or facilities for onshore fish landings and processing, others are reliant on feasibility analysis and market data to determine their efficacy and to enable appropriate planning. The development of marine-based tourism on the island is a good case in point, as is the development of ponds and a hatchery for aquaculture and the production of 'solar salt'. All three sectors have scope for development and all require investment but this should be clearly aligned with an understanding of the market potential to deliver sustainably, both economically and environmentally.

Given that no strategic figures were evident in the implementation of this work, there is a clear need for feasible, quantifiable targets to be agreed for the key sectors, underpinned by detailed market analysis. This has yet to take place and represents a key development need resulting from this work.

5.3.8 Infrastructural development and the technology supply chain

As stated, there is a clear need to develop infrastructure on Kiritimati relevant to all aspects of island life, not just those relating to marine resources. For example, whilst the development of a new airport with regular flights to Fiji, Hawaii and Australia goes some way to supporting accessibility, and the connection of a new high speed fibre optic link to Hawaii represents a potentially significant boost to island connectivity, there is also a need to capitalise on the opportunities that these developments provide and as such there are numerous infrastructural needs that should now be considered.

Some of these such as a newly laid road will provide obvious benefits for the population. Others such as developing capacity for solid waste management (SWM) and support for a more circular economy will help reduce the potential sources of marine contamination and pollution evident on the island. There exists currently a real and present threat from the increasing leakage of plastics into the environment that requires a short to medium term response. Whilst not addressing the crux of the problem or making best use of resources one of the measures that needs to be included within any effective and coherent management solution has to be the extension and development of new and controlled disposal capacity.

With regards to marine resource development, all of the key sectors have specific infrastructural needs as already discussed, though some should clearly be aligned to the potential for market development. However, all would benefit from effective and efficient supply chains all of which show considerable scope for improvement. The

supply of food, particularly fresh foods would be particularly advantageous as would better access to technology and spare parts, both of which are requirements for key sectors to grow and become more productive and profitable.

6 KIRITIMATI OCEAN GOVERNANCE MASTER PLAN

6.1 Introduction

The Business as Usual (BAU) scenario represents a way of conceptualising future patterns of activity assuming that there will be no significant change either in societal attitudes and priorities, or major changes in technology, economics, or policies, so that normal circumstances can be expected to continue unchanged. With regards the global oceans, this involves an array of interconnected and multifaceted problems. The three major risks facing the global oceans under BAU are the overexploitation of marine resources, inequitable distribution and access to the benefits from marine ecosystem services, and inadequate or inappropriate adaptation to changing ocean conditions, largely associated with climate change[72].

Applying the BAU for ocean governance in Kiritimati encompasses all of these risks, though these are exacerbated by the need to increase the exploitation of marine resources, to provide benefits to the population and communities of Kiritimati and support the economy and GDP of Kiribati as a whole. To reduce the risks and deliver a more 'sustainable 2030 scenario', in which Kiribati's international commitments are met (i.e., the 30x30 target where 30% of its land and sea is protected for conservation by 2030), this master plan outlines the process necessary to enabling a coherent and effective system of ocean governance. In doing so, it proposes to fill the policy and regulatory deficit through collaboration and engagement and in so doing, provides a model for delivering change elsewhere.

Rather than a wish list of possible interventions, it highlights a process for enabling change, by embedding a series of key principles aimed at delivering good ocean governance. It also identifies the need for effective resource management, both with respect to the current use of marine resources but also importantly to increasing use over the short, medium and long-term. Implementation represents a key focus of the OGMP with the aim of producing a plan that is transformative, feasible and achievable. As such an implementation plan is included which defines actions and recommendations for delivery over a 15 year period. The implementation plan also provides an indicative expectation of costs associated with the establishment of the OGMP over the initial 5 years.

[72] Haaas, B. et al., (2021) The future of ocean governance. Rev Fish Biol Fisheries (2022) 32:253–270. https://doi.org/10.1007/s11160-020-09631-x

6.2 Scope

This OGMP is specifically designed for Kiritimati Island, out to a distance of 12 nautical miles from mean low water (MLW). However, it is also directly relevant to the wider Line and Phoenix group of islands, as well as Republic of Kiribati's strategic framework in that it:

1. Supports economic growth and employment opportunities through sustainable fisheries, aquaculture and marine resources development.
2. Protects and secures food security and sustainable livelihoods for I-Kiribati.
3. Provides a framework for the long-term conservation of fisheries and marine ecosystems.
4. Strengthens good governance with a particular focus on building institutional capacity to implement and support fisheries management, development, and monitoring, control and surveillance.
5. Builds climate change resilience for fisheries and marine resources in Kiribati.

The OGMP links directly to other plans submitted as part of this work, specifically the Kiritimati Recreational Fishing Management Plan and the Marine Aquarium Fish Management Plan. In providing the basis for an integrated approach to ocean resource planning it also has implications for the development of the wider blue economy both for Kiritimati but also Kiribati.

6.3 Principles of Ocean Governance

Numerous principles of good governance are cited across a range of policies with many being proposed as principles of ocean governance[73]. All have merit and their respective selection can be justified in various ways. To ensure a workable number, this selection is as follows:

Participation: A fundamental principle of ocean governance is that it enables fair and just stakeholder engagement, including participation for all legitimate organizations or representatives and allows for apposite decision-making that best meets the objectives of the Plan.

Accountability: Good ocean governance aims towards making the best decisions to meet the objectives of the Plan, with governmental institutions, the private sector, and civil society organizations accountable to stakeholders and the wider public.

[73] Lombard, A.T., et al., (2023) Principles of transformative ocean governance. Nature Sustainability, 6, 1587-1599. https://doi.org/10.1038/s41893-023-01210-9

Inclusive and transparent: Information should be accessible to all stakeholders and the wider the public. Governance also requires the respectful inclusion of Indigenous and local knowledge.

Equity and human rights: Good ocean governance assures an equitable distribution of resources to the wider benefit of society, and ensures human rights.

Ecosystem-based approach: Despite being poorly employed generally, the ecosystem approach nevertheless stresses the interconnectedness of socio-ecological systems and is a mechanism for embedding systems thinking.

Evidence-based decision making: evidence-based approach to decision making is implicit in many aspects of the plan, including its objective to "allow for the collection of information to assist decision making".

Precautionary principle: Due to uncertainties arising from ocean and climate complexity and the data poor nature of the current situation, the precautionary principle should applied in decision-making.

Integration: It is imperative that policies are integrative across governance, knowledge and stakeholder siloes, incorporating the coordination of governance both vertically and horizontally.

Adaptive and dynamic responsiveness: Given the inherent complexity in, and dynamic nature of marine social-ecological systems, governance requires dynamic approaches that can respond to changes and be adaptive to the status of ecosystems and the nonlinear reactions from both human and non-human pressures.

6.4 Strategic Aim, Vision and Objectives

The purpose of the OGMP is to provide an innovative mechanism that addresses the policy and regulatory gap relating to the management of marine resources and delivers a framework for the sustainable development of the blue economy in Kiritimati. In so doing, it will also provide an active and purposeful model for delivering change elsewhere and can act as a pilot study for the development of national primary legislation on ocean governance in Kiribati.

6.4.1 OGMP Aim

Based on the stakeholder engagement process conducted as part of this work, an aim for the OGMP was agreed, as shown in Box 1. This is fit for purpose and is proposed as the basis for developing this OGMP.

Box 1: OGMP aim

To effectively manage the sustainable development of coastal and ocean resources to ensure healthy ecosystems and maximize the economic benefits, employment opportunities and food security for Kiritimati and its people.

6.4.2 OGMP Vision

The purpose of the OGMP is also to deliver a desired 'vision' of how Kiritimati's blue economy might operate in future and what that would mean for both the marine and coastal environment, its biodiversity and ecosystems, and for the use and development of its marine resources. As previously, the stakeholder engagement process conducted as part of this work discussed and considered the characteristics of such an aspiration and agreed the 'vision', stated in Box 2.

Box 2: OGMP Vision

A unique marine environment with a rich biodiversity and healthy populations sustaining a diversity of productive economic sectors that contribute to the benefit of Kiritimati and its people.

Key attributes of such a vision include the connection between the ocean and the people of Kiritimati, supporting the need therefore to strengthen that connection by being inclusive, engaging the population with the marine environment, and demonstrating the benefits of good environmental quality and healthy marine ecosystems.

6.4.3 Objectives

Objectives should be framed in such a way that the benefits can be readily perceived by all stakeholders, thereby helping to ensure buy-in and support. They should also be reviewed to ensure that they are fully aligned with and contribute to stakeholder priorities.

Identifying and agreeing suitable objectives requires consideration of their purpose, in particular whether they are process related or outcome related. Outcome objectives represent a statement of intent with regards to what the Plan should achieve, whereas process objectives are the things that must be delivered to fulfil the outcomes. Both are relevant to the delivery of an OGMP and hence it is worth distinguishing between the two.

All objectives should confirm to best practice by being SMART, that is Specific, Measurable, Achievable, Relevant and Time-bound.

Process objectives

As stated, the OGMP should be designed to develop and facilitate ocean governance over a 15 year period which can be broken down into short (5 years), medium (10 years) and long-term (15 years) planning. Establishing the process, or the way of operating, represents the first and most important aspect of the design as it has to deliver a sustainable approach that stakeholders see and believe is effective, efficient and apposite to delivering its goals and is fair, just and leads to good decision-making.

The process should embed all of the principles stated previously and in doing so pilot an innovative approach to ocean governance that combines best practice science and technology with stakeholder and community engagement to promote behavioural change and enables sustainability and resilience. Key process objectives of the OGMP that will provide a model for delivering change are therefore proposed as follows:

I. To deliver a participatory approach to ocean governance through stakeholder engagement
II. To develop a feasible and action plan that defines roles, responsibility and measurable targets.
III. To enable a system of data collection and management that is accessible to stakeholders and decision-makers.
IV. To develop and implement a communication and engagement strategy to be public, vocal and transparent.
V. To distinguish between outcome and process objectives and ensure objectives can be readily monitored and evaluated.

Outcome objectives

Given the national government's identification of Kiritimati as a 'development hub', in part to support the development of the nation's blue economy but also to provide an additional focus for growth away from Tarawa, it is clear there is a need to balance this growth with the need to manage interactions both between different users and between users and the environment.

Outcome objectives directly address the strategic priorities of the process, including, *inter alia,* growing the economy and income, creating work opportunities and jobs, increasing government income and revenues, and conserving and ecologically sustaining natural resources. They should go beyond merely the prevention of harmful activities and enable a proactive response to improve the condition of marine ecosystems and lead to actual measurable and observable change in the status of ecosystem health. It is inevitable that there will be situations where there is a conflict between competing objectives. This will need to be managed by the process and lead to a need to prioritise these objectives on a case by case basis.

It is proposed that outcome objectives be defined as part of the process of the OGMP.

6.5 Embedding A Process of Ocean Governance

The following account will identify key steps to embed a process of ocean governance. In doing so it will discuss these intervention areas and identify specific actions that are likely to be required to deliver them.

6.5.1 Ownership

A first step in delivering the OGMP's process objectives is to determine ownership. At present, there is no clear or obvious solution to this, as the responsibility for developing ocean governance could lie with one of several government departments such as the MFMRD, Ministry of Environment, Lands and Agricultural Development (MELAD), or the Ministry of Line and Phoenix Islands Development. It could also be managed and owned through a joint agency approach with one suggestion being for a new dedicated Marine Environment Protection Unit (MEPU) to work closely with all ocean-related agencies to develop monitoring, reporting and enforcement. This is ongoing and could involve taking responsibility for the development and implementation of an OGMP. However, it is deemed more likely it that any new MEPU would better feed into an OGMP process as one of the key stakeholders, ensuring a clarity of distinction between different jurisdictions and not confusing the role of the MEPU.

The decision on ownership of the OGMP should clearly be made at a strategic level within national government. Given that the development of an OGMP for Kiritimati ties in with the strategic goal of developing a national Ocean Governance Policy, it may be that this impacts on how the ownership of the process is viewed.

From the perspective of an 'on the ground' process for example, it is recommended that ownership and facilitation of the OGMP would be best served if the process were owned and managed by the MLPID, and directly led from Kiritimati. However, an alternative view could be that since ocean governance is a national goal that this would not be the most appropriate solution and that instead it should fall under another ministry. In which case, it is recommended that this decision be informed by a strategic management review of the existing government structures and that this be conducted as an initial piece of work to inform the decision. Such a decision will have implications for costing particularly if external support is required to conduct the review.

Action:

II. Strategic management review of national government departments to determine ownership of ocean governance and the OGMP for Kiritimati

(MFMRD has been assigned by Cabinet to lead the strengthening and integrating of institutional and regulatory frameworks)

6.5.2 Leadership and facilitation

Whatever the decision regarding ownership, it is imperative that it delivers leadership and enables a process of facilitation. It is recommended that this be conducted by a new team set up to act as the Secretariat for the OGMP. It is also recommended that the minimum number of staff required to deliver this be 2 full-time equivalents (FTE).

How this team is developed is again a strategic decision. It could for example comprise 1 FTE civil servant supported by an administrative staff member or it could be enabled through project funding. Whichever way the Secretariat team is developed however, there will inevitably be a costing implication.

In addition, since there is currently an evident skills gap, to manage such an ocean governance process, there is also a need for capacity building and external support to deliver the OGMP. This will also of course have implications for funding.

Actions:

III. Technical assistance to draft the terms of reference for the Secretariat

IV. Formulate the Secretariat team and establish an ocean governance office

6.5.3 Stakeholder engagement

Having identified process ownership and facilitation, the next step is to enable the inclusion of a wide range of stakeholders, through transparent and fair processes, incorporating different types of knowledge and enabling the mediation of a full range of views. This requires stakeholder mapping, to ensure that all sections of Kiritimati's society are engaged with Figure 6 showing all of the key stakeholder groups identified during the stakeholder engagement process of this work. Given that stakeholder mapping is already well developed in Kiritimati, it is recommended that rather than go through this process again, the known stakeholder list is instead validated as part of the process and that there is an awareness of any changes that might be required or new stakeholders that should be added as the process develops.

To help facilitate the stakeholder engagement of the OGMP, it is proposed that a committee or Steering Group be established by the Secretariat, comprising representatives all of the key stakeholders, including relevant government agencies, departments and community organizations, the purpose of which is to:

- To provide expertise, ideas and guidance to the Secretariat
- To provide input into defining and achieving the key deliverables
- Support the communication and engagement of the OGMP.

Ways of working can be established as part of the Secretariat's role but the recommendation is that regular meeting be held and set at fixed times so as to be clearly marked and in people's diaries.

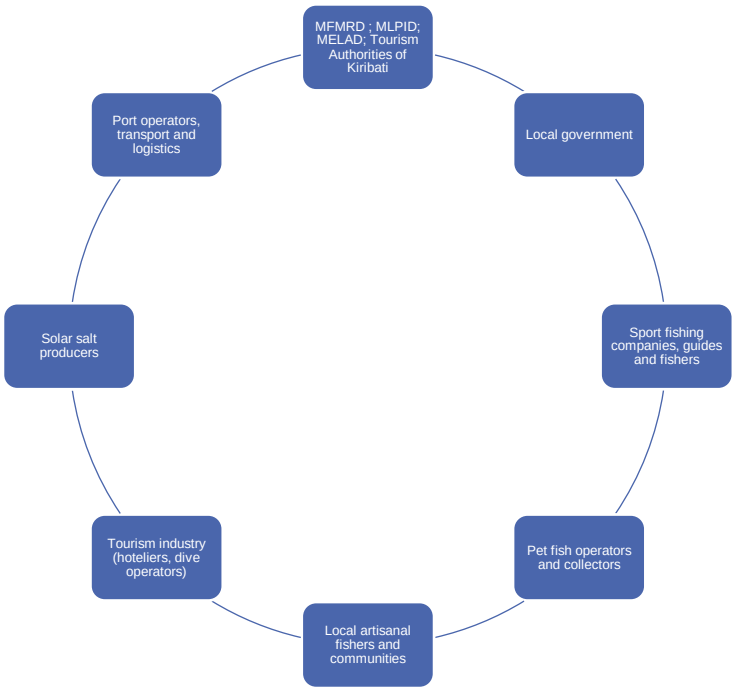


Figure 6: Stakeholder groups of Kiritimati

Actions:

IV. Establish a Steering Group

V. Validate the OGMP aim, vision and objectives

VI. Validate the stakeholder mapping and engagement process

6.5.4 Situation analysis, conflict and user interaction mapping

The stakeholder engagement process conducted as part of this work identified a number of existing conflicts, either in play between different stakeholders or between stakeholders and marine ecosystems, habitats and biodiversity. Many of these conflicts relate to the activity and location of sport fishing, particularly fly fishing within the lagoonal area, the majority of the conflicts are addressed in the accompanying Kiritimati Recreational Fishing Management Plan submitted as part of this work. Others however focus on the interaction between local artisanal fishers and conservation areas, which lie outside of the Recreational Fishing Management Plan. Similarly, the threat of deteriorating water quality as a potential risk to Kiritimati's blue economy development, particularly within the lagoon areas, also represents a threat that lies outside of current management initiatives and would require a cross-sectoral and joint agency response to manage effectively.

Given the conflicts at present, and the likelihood of these only increasing in scale and diversifying in nature with an increase in resource extraction, it is proposed that a geo-spatial user interaction map be developed, much the same as has been employed with the Kiritimati Recreational Fishing Management Plan. This process can be easily conducted on paper but would benefit from mapping digitally so as to act as the basis for any future marine spatial planning work.

The collaborative development of a user interaction map and matrix would represent a useful exercise in focusing stakeholder views of both the conflicts themselves, their nature and significance.

Action:

VII. Conduct a co-created user interaction map and matrix for ocean governance in Kiritimati.

6.5.4 Integration mapping

As stated, integration represents a key principle of ocean governance, both vertically between different scales of governance, as shown in Figure 7, and horizontally between different sectors.

Figure 7: Integration across different scales of governance

One way of ensuring that integration is considered appropriately is by conducting an integration mapping exercise. Based on the outcomes of both the user interaction mapping process and the gaps identified through the institutional review process, the degree of integration can be mapped against both the vertical and horizontal axis and can help identify where solutions are required.

Whilst the mapping of integration will help identify areas for collaborative interventions on the local scale, it will also point to weaknesses on the national scale as well. To address gaps and strengthen linkages for an enhanced governance framework, the process can therefore inform the development of a strategic approach, which coordinates all relevant government ministries and agencies. As stated, in this way the OGMP can act as a pilot study for the development and implementation of a National Integrated Ocean Governance Policy, and a Sustainable Blue Economy (SBE) Strategy & Action Plan.

Action:

VIII. Conduct integration analysis through vertical and horizontal mapping

6.5.5 Institutional stocktake, capacity review and training needs assessment (TNA)

The user interaction mapping and matrix process will help focus attention on key areas of conflict or concern, as will gaps identified through the integration mapping exercise. However, it is also important to reflect on the current situation relating to the existing capacity for delivering effective ocean governance. Whilst numerous capacity issues have already been identified during the conduct of this work, including ones relating to financial limitations, technical, institutional and the human element, nevertheless there

is still a requirement for a detailed institutional capacity review to specify the need. It is proposed therefore that such a review encompass the following:

- Institutional roles and responsibilities in the marine environment below MLW, including geographic extent
- Skills assessment of team roles within key RAs
- Needs assessment to map out both coverage of specific jurisdictions, roles and responsibilities as well as the required skills necessary of ocean governance
- Gap analysis to map variance and identify needs.

The outcome of the review should be a clear understanding of how the current system operates and its weaknesses and limitations with regard to delivering ocean governance. In doing so, targeted solutions can be sought which might take various forms but could include amendments to established mandates and responsibilities, thereby supporting both greater clarity and greater coverage.

Actions:

IX. Technical assistance to conduct institutional review in relation to ocean governance, including roles, responsibilities, jurisdictions.

X. Technical assistance to conduct a training needs assessment

6.5.6 Capacity building: Ocean literacy and training

Following on from the previous need for institutional stocktake and capacity review, a key component of delivering ocean governance is in finding solutions to the evident fragmentation and gaps that exist in the current system of management. Many of these relate to capacity issues, particularly with regards to knowledge and skills. However, the issue is not simply training delivery, but the lack of an effective human resource development strategy.

Capacity-building can be addressed both by developing relevant knowledge and promoting ocean literacy among stakeholders and decision makers to enhance capacities and participation in the process; and by targeting specific areas for skills development. Skills development would of course be contingent on the institutional review and training needs assessment but should certainly include training relating to ocean governance and is likely to also include training on marine spatial planning; team and project management; stakeholder engagement; environmental monitoring; marine data collection and management; and environmental impact assessment (EIA) *inter alia*.

Actions:

XI. Technical assistance to develop an effective human resource development strategy aimed at delivering ocean governance.

XII. Technical assistance to develop a programme of ocean literacy.

XIII. Technical assistance to conduct a programme of targeted training to address the technical needs assessment.

6.5.7 Action Planning

Although an action plan can be considered an outcome of ocean governance, its development is also a fundamental part of the process of delivering ocean governance. Action planning is therefore one of the key requirements and duties of the Secretariat and Steering Group and should determine specific actions, both process and output related, as well as identifying who is responsible for delivering them, over what timescale and with what resource requirement.

Action:

XIV. Co-create a targeted, measurable and deliverable Action Plan.

6.5.8 Communication and Networking

A key element of the OGMP process will be for the Secretariat to seek opportunities for partnership development and to enable a process that is open and transparent by communicating as widely and as freely as possible with all stakeholders and community groups. This will require the co-creation of a Communication Strategy to entail consideration of its purpose, target audiences and messaging.

The Steering Group will be able to consider the best routes for this but this is likely to include the use of email ocean governance updates and social media whilst the use of a Ministry website for disseminating progress would also be of great value.

Action:

XV. Co-create and implement a Communication Strategy

6.5.9 Monitoring, Evaluation, Research And Learning (MERL)

Planning by definition is an iterative process and it is important to embed a process of MERL into the OGMP. This should be designed by the Secretariat and agreed by the Steering Group including reference to timeliness and periodicity. MERL offers the OGMP the benefit of learning by doing as well as enabling process adaptivity.

Given the timescale of the OGMP, it is recommended that the Secretariat complete an annual report to the Steering Group on progress with the OGMP, including the identification of good practices to inspire and apply, adapt or scale to other contexts. There should also be a requirement to draft a full report every 5 years to reflect the actions and recommendations over a 15 year period highlighting short (1-5 years), medium (5-10 years) and long-term (10 years +).

In order to conduct an effective MERL process, it is likely there will be a requirement for technical assistance in order to develop an evaluative framework, identifying suitable indicators to show progress.

Actions:

XVI. Technical assistance to draft a MERL plan and support the identification of suitable indicators and an evaluation framework.

XVII. Technical assistance to identify appropriate research and data requirements.

6.6 Ocean Resources Planning and Governance

6.6.1 Data collection and management

The identification, acquisition and management of relevant data is key to informing new policy development as it is to reviewing the effectiveness of ocean management initiatives through the use of indicators. A review of the data currently held was conducted as part of this work, though this produced only minimal datasets, as follows:

- Wildlife closed areas map
- Daily seafood sales
- Tourism weekly arrival data
- Tourism Business Inventory Survey

Whilst these are highly relevant and represent useful information, it is clear that data availability and access is a key area for development within the OGMP, with a requirement for a wider array of data to be collected relating to key indicators and metrics of resource use and management. This closely links into the development of a MERL strategy and specifically Action XVII.

Data management and governance is a significant area of work and one that will require technical assistance to develop a suitable mechanism. However, whilst a long-term ambition might be to develop a structured, metadata platform, a starting point could be for stakeholders to share their existing data, over which they have ownership, with the Secretariat. Based on their willingness to share and an agreed data management protocol, the Secretariat could then make this accessible to the wider partnership using software such as ShareDrive.

Action:

XVIII.	Technical assistance to review data, collection, sharing and management.

6.6.2 Market analysis of key marine resources

It is clear there is scope for marine resource development in Kiritimati over the short, medium and long-term (SML), given suitable investment and associated infrastructure. Sectoral ambitions are as follows:

- To enable onshore fish landings and processing
- Improved monthly sales of seafood … *exports*
- A new working port
- Increased TEU capacity and turnover
- Increased numbers of tourists
- Increased number of tourist beds
- Increasing diversity of tourism

- Increased salt production and export sales

In reviewing the marine industries to support increased resource use, it is proposed that the following sectors undergo market analysis to determine their potential for sustainable growth:

- Fisheries – CPPL
- Aquaculture
- Tourism
- Salt production
- Port development and maritime sector.

All four sectors have scope for development but all require investment which should be clearly aligned with a clear sense of the market potential. This is already taking place to some extent as it is understood for example that planning is underway to enable port development and fisheries processing facilities, whilst the KTA are working on developing a Tourism Master Plan for Kiritimati in 2024. This should support and link well with the OGMP process.

On the basis of the market analysis, it is proposed that realistic targets be set for developing each of the key resource sectors.

Action:

XIX. Technical assistance to conduct market analyses of key marine resource sectors, including fisheries, aquaculture, tourism, salt production and port development.

6.6.3 Feasibility analysis of resource development options

Closely linked to the consideration of market potential, is the need to consider the feasibility of resource development with technical options being assessed in light of agreed sectoral growth targets using a multi-criteria approach. One such approach would be to use PESTLE Analysis, where this considers the following:

- Political
- Economic
- Social
- Technological

- Legal
- Environmental

It is also recommended that when considering the environmental impacts of particular development options that this should entail a thorough assessment of environmental impacts including direct and indirect impacts over the life cycle of the developments, including how these impacts relate to other users of the marine environment as well as the health and functioning of marine ecosystems.

The technical expertise necessary to conduct such feasibility analysis will undoubtedly require significant external support and funding.

Action:

XX. Technical assistance to conduct feasibility analysis of sectoral resource development options.

6.6.4 Scenario planning, management and testing

Given the multi-sector marine development ambitions of Kiritimati, the OGMP process should not only consider the impacts of increased resource use within individual sectors but also the wider implications for all users. In doing so, the OGMP process should enable scenario planning whereby different growth options are considered and mapped both geographically and through user interactions to show how different the growth models lead to conflict. Such planning can also consider differential resource development timescales to show how such growth might lead to particular issues between users based on the timing of the respective developments. This can clearly help to reduce problems both spatially and temporally.

Scenario planning is also however useful in determining the resource requirements necessary to manage such growth effectively. As stated previously, it is already the case that there is both a regulatory deficit with regards to marine management as there is with regards to appropriate skills. The scenario planning should identify any increase in the demands on staff that are likely to accrue from resource increases and flag those as being a necessary requirement and consequence of the development, including the need for more staff, or more and better data collection. This could be an additional costing factor that is added into the PESTEL analysis for example when costing different options.

The use of scenarios to enable management represents a best practice approach to delivering effective ocean governance and can be tested to ensure the effectiveness of management decisions. Scenario testing workshops represent a highly useful exercise that can be applied to a range of different scenarios and be used to test the veracity of

text within policies or the outcome of particular developments, including emergency response situations.

Action:

XXI. Technical assistance to conduct scenario planning and testing.

6.6.5 Marine Spatial Planning (MSP)

One of the most significant requirements of the OGMP process and directly relevant to managing different scenarios of increased resource use relates to the development of Marine Spatial Planning (MSP).

Marine Spatial Planning has been recognised as an important integrated planning framework to promote sustainable ocean governance with the potential to minimise natural resource conflicts while also contributing to sustainability objectives. Without adequate spatial planning, conflict between users is likely to increase as sectors expand. Furthermore, the current absence of spatial planning inhibits effective spatial approaches to sectoral management such as fisheries management for example. Establishing a system of spatial management will enable zoning of different users and help identify Marine Protected Areas (MPAs), potential no take zones; and catch and release spots.

Given that a process of MSP is currently being explored for Tarawa, it is likely that the national capacity for delivering such a process is being developed. It might be hoped therefore that such skills could be employed to develop MSP for Kiritimati. However, it is also considered likely that since that this is still nascent in its development that further external technical assistance would still be required.

Action:

XXII. Technical assistance to develop MSP for Kiritimati.

6.7 Sustainable OGMP Funding

This OGMP has been designed with cost effectiveness in mind.

The process of embedding the OGMP can be delivered through the effective engagement of key stakeholders with the Secretariat being the only significant investment to facilitate the Plan. This represents the basic cost of 2 x FTE staff. However, as discussed, it is very likely there is a need for external technical assistance throughout this process which will require funds to deliver.

In particular there is a need for capacity building and training with a wish list of training and skills development required across key stakeholder groups. It is expected that expert external support will be required to deliver this training and support the process of the OGMP at key phases of the work.

Similarly expert and external support will be required to help with conducting market analysis of marine resources as well as the feasibility analysis of resource development options. Clearly these costs will be relatively small in comparison to the cost of the infrastructure required to support the key resource development options but nevertheless they will still require significant funds. These costs and resource implications will be discussed further in Section 5.8, as part of the implementation planning.

Though long-term investment should also be targeted through the sustainable development of the key resources, it is recommended that donor support be requested to develop the OGMP including specific infrastructure development. Since this the purpose of the PROP funding mechanism, that is currently funding this work, it would make sense to further utilise these funds to progress this work.

Action:

XXIII. Access PROP funding to facilitate the development of ocean governance and the implementation of the OGMP.

XXIV. Seek private investment to support and fund resource development.

6.8 Implementation Plan

Implementation represents a key focus of the OGMP with the aim of producing a plan that is realistic and feasible. As such an implementation plan is included in the proposal which defines interventions and more actions for delivery over a 15 year period highlighting short (1-5 years), medium (5-10 years) and long-term (10 years +) actions. These have been discussed throughout this OGMP and are presented against an OGMP timeline in Figure 8, along with a colour coded prioritisation.

The key actions are also considered with respect to resource requirements and an indicative costing as defined in terms of days. These are presented in Table 3. It is recommended that a permanent civil servant role be developed to act as the ‘lead’ for a newly created ‘Secretariat’. Ideally this Secretariat will be a 2 FTE person team but

this could be configured and supported in various ways with the decision to be determined by national government.

In total it is estimated at approximately 500 days of external expertise will be required to deliver the OGMP plus the Secretariat. Based on this an indicative cost for delivery of the OGMP would be in the vicinity of US$500,000 though clearly this would be spread over the duration of the work. As specific actions have indicative estimates of resource requirement, these actions could be delivered as separate areas for project work based on prioritisation. Initial areas of work are recommended as follows:

- Action 9: Institutional review
- Action 10: Training needs assessment
- Action 13: Development of a programme of targeted training to address the TNA.

Table 3: OGMP actions and resource requirements

	Action	Resource requirements	Estimated Days
1	Strategic management review to determine ownership of ocean governance and the OGMP for Kiritimati	External strategic management review. This should entail expertise to review strategic ownership of the OGMP in Kiritimati. This is likely to be affected by ownership of ocean governance across national government.	10 days
2	Technical assistance to draft Secretariat terms of reference	External strategic management review to consider best practice role of similar secretariats as well as embedding this into OG ownership.	5 days
3	Formulate Secretariat team and establish an ocean governance office	2 x FTE civil servants Or 1 FTE civil servant supported by an administrative staff member (0.5 FTE) + project funded role. Or 1 FTE civil servant supported by project funded role. Office space and associated resource should be factored in.	2 x FTE (Office space)
4	Establish a Steering Group	Role led by the Secretariat	Secretariat led
5	Validate the OGMP aim, vision and objectives	Role led by the Secretariat	Secretariat led

6	Validate the stakeholder mapping and engagement process	Role led by the Secretariat. To be supported by external expertise.	Secretariat led + 1 day external
7	Conduct co-created user interaction map and matrix	Role led by the Secretariat. To be supported by external expertise.	Secretariat led + 5 days external
8	Conduct integration analysis - vertical and horizontal mapping	Role led by the Secretariat. To be supported by external expertise.	Secretariat led + 5 days external
9	Technical assistance to conduct institutional review, including roles, responsibilities, jurisdictions.	External institutional management review to determine RA jurisdictions and responsibilities, highlighting an prioritizing gaps in ocean governance. The review should also identify and link into both the required skills and the skills required. The approach required to deliver this would involve policy and textual analysis as well as primary data collection though interviews.	50 days
10	Technical assistance to conduct a training needs assessment	External TNA	20 days
11	Technical assistance to develop an effective human resource development strategy aimed at delivering ocean governance.	External review of the existing human resource development process to develop an effective national strategy. Case study focus on delivering ocean governance. This will involve policy and textual analysis as well as primary data collection through interviews.	25 days
12	Technical assistance to develop a programme of ocean literacy for Kiritimati.	External expertise to develop an effective ocean literacy programme for Kiritimati. This could be used to develop a national programme but costed here for	15 days

		Kiritimati only. It would require a consideration of messaging, methods and audience.	
13	Technical assistance to conduct a programme of targeted training to address the technical needs assessment.	External expertise to address the TNA by developing a coherent programme of training. The scope of this is to be determined but should relate to all aspects of ocean governance. Following on from the programme delivery would represent an additional cost.	20 days programme development. 30 - 50 days delivery.
14	Co-create a targeted, measurable and deliverable Action Plan.	Role led by the Secretariat to develop an emergent action plan based on input from the stakeholders. To be supported by external expertise.	Secretariat led + 25 days external support
15	Co-create and implement a Communication Strategy	Role led by the Secretariat with external support.	Secretariat led + 20 days external support
16	Technical assistance to draft a MERL plan	External expertise to develop and embed a MERL plan for the OGMP in Kiritimati.	20 days
17	Technical assistance to identify research and data requirements.	External expertise to scope the research and data requirements over the duration of the OGMP to support its objectives.	20 days
18	Technical assistance to review data collection and management.	External expertise to review the data collection and its management over the duration of the OGMP to support its objectives. The outcome would be an agreed solution and data sharing protocol.	20 days
19	Technical assistance to conduct market analyses of key marine resource sectors.	External expertise to conduct market analyses of the key marine resource sectors, fisheries, aquaculture, tourism, salt production and maritime operations.	10 – 15 days per resource.

			(50 – 75 days)
20	Technical assistance to conduct feasibility analysis of sectoral resource development options.	External expertise to scope the technical options and conduct feasibility analyses of the key marine resource sectors, fisheries, aquaculture, tourism, salt production and maritime operations.	10 – 15 days per resource. (50 – 75 days)
21	Technical assistance to conduct scenario planning and testing.	External expertise to support development planning and testing based on increases in resource use. Involves modelling the user interaction mapping and matrix as well as setting different scenarios to text outcomes.	20 – 30 days
22	Technical assistance to develop MSP for Kiritimati.	MSP is a core component of delivering good ocean governance. It is also an extension of user interaction mapping and matrices based on the use of digital spatial data. External expertise will be required to deliver an MSP system through as this is on-going for Tarawa, internal capacity should be available to support this work.	50 days.
23	Access PROP funding to facilitate ocean governance and OGMP.	Liaise with PROP team regarding requirements in the short, medium and longer term and to plan in priority funding.	5 days.
24	Seek private investment to fund resource development.	A long-term goal to be driven by national government but will likely need external expertise to support planning and progress.	40 days.

Table 4: Implementation Plan

Interventions		Actions	Short term					Medium term					Long term				
			Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y10	Y11	Y 12	Y 13	Y 14	Y 15
Enabling a process	**1 - Ownership**	I. Strategic management review to determine ownership of ocean governance and the OGMP for Kiritimati															
	2 - Leadership and facilitation	II. Technical assistance to draft Secretariat terms of reference															
		III. Formulate Secretariat team and establish an ocean governance office															
	3 - Stakeholder engagement	IV. Establish a Steering Group															
		V. Validate the OGMP aim, vision and objectives															
		VI. Validate the stakeholder mapping and engagement process															
	4 - Situation analysis, conflict and user interaction mapping	VII. Conduct co-created user interaction map and matrix															

Interventions		Actions	Short term					Medium term					Long term				
			Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y10	Y11	Y 12	Y 13	Y 14	Y 15
	5 - Integration mapping	VIII. Conduct integration analysis - vertical and horizontal mapping															
	6 - Institutional stocktake, capacity review and training needs assessment (TNA)	IX. Technical assistance to conduct institutional review, including roles, responsibilities, jurisdictions.															
		X. Technical assistance to conduct a training needs assessment															
	7 - Capacity building: ocean literacy and training	XI. Technical assistance to develop an effective human resource development strategy aimed at delivering ocean governance.															
		XII. Technical assistance to develop a programme of ocean literacy.															
		XIII. Technical assistance to conduct a programme of targeted training to address the technical needs assessment.															
	8 - Action planning	XIV. Co-create a targeted, measurable and deliverable Action Plan.															

Interventions		Actions	Short term					Medium term					Long term				
			Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y10	Y11	Y 12	Y 13	Y 14	Y 15
	9 - Communication and networking	XV. Co-create and implement a Communication Strategy															
	10 - Monitoring, evaluation, research and learning (MERL)	XVI. Technical assistance to draft a MERL plan															
		XVII. Technical assistance to identify research and data requirements.															
Resource planning	**11 - Data collection and management**	XVIII. Technical assistance to review data collection and management.															
	12 - Market analysis of key marine resources	XIX. Technical assistance to conduct market analyses of key marine resource sectors.															
	13 - Feasibility analysis of resource	XX. Technical assistance to conduct feasibility analysis of sectoral resource development options.															

Interventions		Actions	Short term					Medium term					Long term				
			Y 1	Y 2	Y 3	Y 4	Y 5	Y 6	Y 7	Y 8	Y 9	Y10	Y11	Y 12	Y 13	Y 14	Y 15
	development options																
	14 - Scenario planning, management and testing	XXI. Technical assistance to conduct scenario planning and testing.															
	15 - Marine Spatial Planning	XXII. Technical assistance to develop MSP for Kiritimati.															
Sustainable financing	**16 - Seek donor assistance for OGMP development**	XXIII. Access PROP funding to facilitate ocean governance and OGMP.															
	17 - Identify investment options through resource development	XXIV. Seek private investment to fund resource development.															

	Priority interventions to start immediately or in the short term and necessary as drivers for a well-organised OGMP
	Interventions that rely on priority interventions and likely to run into the medium term
	Longer term interventions to be piloted or implemented following the establishment of a well-designed OGMP

7 Summary

There is an overriding drive and willingness on the part of both national government and key stakeholders to develop Kiritimati's coastal and ocean resources for the benefit directly of Kiritimati and its people, in part driven by the need to balance development pressures on Tarawa across the nation.

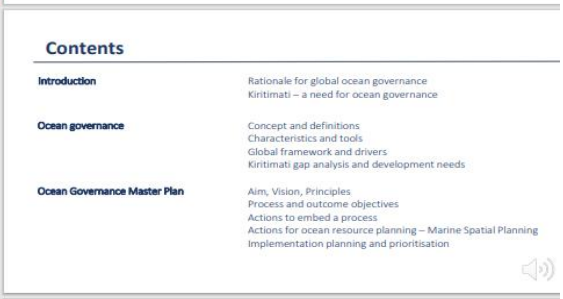
Other than large scale industrial fishing for tuna, sport fishing and the pet fish sector however, existing development on Kiritimati is limited with very little investment or pathways for external valorisation. To that end, sectoral development is starting from a very small base. Opportunities exist for resource development and diversification, though all sectors demonstrate a need for capacity building and technical support with some being contingent on infrastructural development.

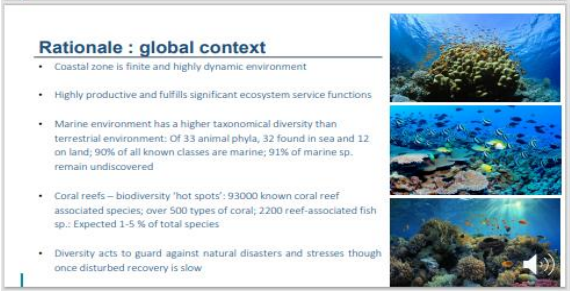
Managing resource development sustainably to ensure the health of marine and coastal ecosystems is seen as being an imperative and provides a rational for developing an integrated and coherent approach to ocean governance. Currently such an approach does not exist and there is very limited capacity for doing so. Efforts to address this therefore represent a timely opportunity, particularly since any such process could be embedded prior to wider extraction and use of ocean resources; an opportunity that has been typically uncommon on a global basis.

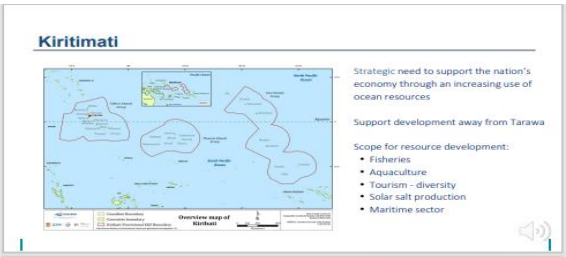
This report encompasses an Ocean Governance Master Plan (OGMP) which is structured around a stakeholder engagement process as a means of filling the evident policy and regulatory deficit that currently relates to the management of ocean resources both for Kiritimati and more widely for Kiribati. The OGMP can therefore be seen as a pilot or a model for developing primary legislation and a 'National Ocean Governance Policy'.

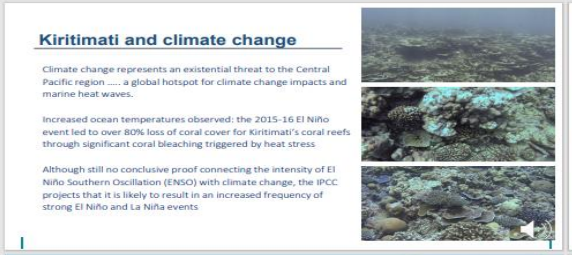
The OGMP has been designed as a realistic and feasible roadmap for change defining an implementation process to deliver a coherent programme of ocean governance over the 15 year duration of the Plan.

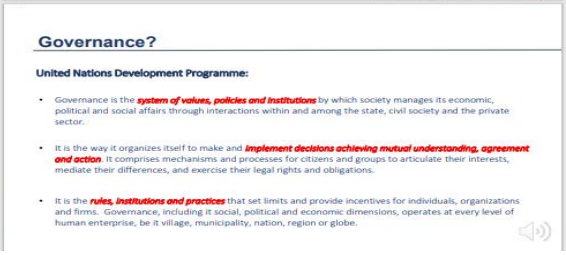
Ocean Governance Training











Ocean Governance

Ocean governance embraces a system of values, policies and institutions, which are coherent and integral to each other, clearly understood and enable/ embed stakeholders into the process.

Ocean governance and planning has significantly lagged behind that of terrestrial planning so the development of ocean governance must build *new approaches to address issues and problems that are not adequately addressed by existing laws and rules.*

New approaches? New primary legislation; new relationships; new ways of working; new agreements and understanding

Extends good governance from the terrestrial system into the marine environment to deliver a more integration and provide mechanisms to resolve conflicts, problems and issues to limit and manage behaviour.

Characteristics of 'good' ocean governance

- Integrated
- Participatory
- Future proofing
- Resilience
- Dynamic and adaptive
- Iterative and reflective
- Embeds monitoring, education and learning (MEL)

Ocean governance

Purposeful human activity:

- Response to the demand to resolve problems
- Systemic approach to enable decision-making aimed at exerting control
- Open to differing interpretations, values and priorities and therefore must be open, transparent and inclusive

Complicated by:

- Current and existing levels of jurisdiction, responsibility and coordination
- Resources (i.e., funding, knowledge, skills) available to achieve an improvement in the situation
- Cultural conservatism – willingness to embrace change / improvements

Tools for effective ocean governance

Governance tools:

- Stakeholder mapping and engagement
- Policy analysis and development
- Regulations, licensing and consents
- Economic or Fiscal measures – taxation; fees
- Advisory and educational capacity building
- Behavioural change measures
- Resource market analysis
- Feasibility analysis

Planning tools:

- User interaction matrices and mapping
- Zonation – spatial and temporal / Marine spatial plan (MSP)
- Action plan including milestones and targets
- Environmental Impact Assessments (EIA)
- Useability analysis and scenario testing

International ocean governance

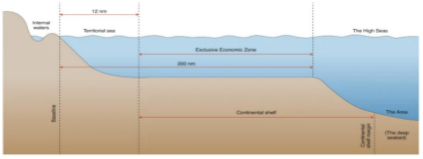
Relations between States dependent on international law and voluntary accords

Major global challenges relate to the "commons"; effective management of the High Seas; and threat of climate change

Increasing and complex array of programmes; committees and conferences; conventions, multilateral environmental agreements (MEAs); and specialist agencies under the auspices of United Nations:

- United Nations Convention on the Law of the Sea (UNCLOS III)
- United Nations Environment Programme (UNEP)
- Framework Convention on Climate Change (UNFCCC)
- United Nations Sustainable Development Goals (UNSDGs)
- International Maritime Organization (IMO)

UNCLOS III : Global ocean governance and jurisdiction



Kiritimati gap analysis and needs assessment

Gaps:

- Strategic ocean governance policy
- Sectoral management integration
- Knowledge, expertise and capacity
- Data and monitoring
- Monitoring and enforcement
- Stakeholder engagement
- Infrastructure

Needs

- A new legal framework for ocean governance
- Integrate the institutional and regulatory framework
- Climate ready capacity and resilience
- Capacity building through training and skills development
- Robust system of data gathering, accessible data platform
- Stakeholder engagement and communication
- Resource feasibility and market analysis
- Infrastructural development
- Enhanced technology supply chain

Kiritimati
Ocean Governance Master Plan (OGMP)

Ocean Governance Master Plan

A high-level plan that presents a framework for the development of ocean governance and a first step in providing a coherent and comprehensive approach

OGMP aim
To effectively manage the sustainable development of coastal and ocean resources to ensure healthy ecosystems and maximize the economic benefits, employment opportunities and food security for Kiritimati and its people.

OGMP Vision
A unique marine environment with a rich biodiversity and healthy populations sustaining a diversity of productive economic sectors that contribute to the benefit of Kiritimati and its people.

Principles of the OGMP

1. Participation

- Fair and just stakeholder involvement, engaging legitimate organizations and representatives
- Enables commitment, ownership, shared responsibility, awareness and understanding
- Legitimises the process and makes implementation easier
- Who should be included? Representativeness?

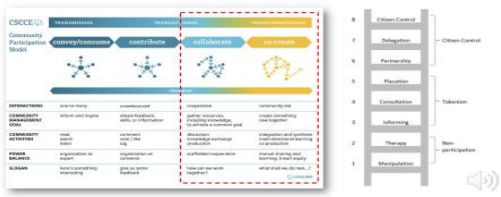
2. Accountability and transparency

- Democratisation of the process is enabled by openness and accountability
- Governmental institutions, the private sector, and civil society organizations should be accountable to civic society

3. Inclusivity

- Inclusive of all stakeholders and the wider public with the respective incorporation and use of indigenous and local knowledge as well as scientific information.

Principles of the OGMP



Principles of the OGMP

4. Equity and human rights:
An equitable distribution of resources to the wider benefit of society including ensuring human rights.

5. Ecosystem-based approach
Stresses the inter-connectedness of socio-ecological systems and is a mechanism for embedding systems thinking.

6. **Evidence-based decision making** implicit in the plan to "allow for the collection of information to assist decision making".

7. Adaptive and dynamic responsiveness: Given the inherent complexity in, and dynamic nature of marine social-ecological systems, governance requires dynamic approaches that can respond to changes and be adaptive to the status of ecosystems and the nonlinear reactions from both human and non-human pressures.

Principles of the OGMP

8. Precautionary principle:

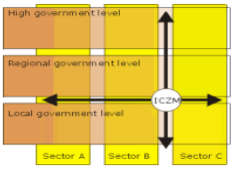
- Due to uncertainties arising from ocean and climate complexity and the data poor nature of the current situation, the precautionary principle should be applied in decision-making.
- Cautious progress and thoughtful action in advance of scientific proof
- Leaving ecological space as room for ignorance
- Care in management
- Shift the burden of proof to the developer

9. Integration:

- The 'imperative of integration'
- 'Joined up' thinking and the avoidance of fragmented decision-making requires integrated governance across all dimensions ... space, time, sectors and the governance hierarchy.

Principles of the OGMP

Form of integration	Meaning
Spatial integration	Relates to the extent, operation and type of terrestrial and marine boundaries
Temporal integration	Relates to lag-times, longevity, uncertainty and future generations
Vertical integration	Relates international to local planning, decision-making and action
Horizontal integration	Relates sectoral plans, decisions and actions



OGMP objectives (process or outcome-based)

Process objectives:

1. To deliver a participatory approach to ocean governance through stakeholder engagement
2. To develop a feasible and action plan that defines roles, responsibility and measurable targets in lieu of a policy and regulatory deficit.
3. To enable a system of data collection and management that is accessible to stakeholders and decision-makers.
4. To develop and implement a communication and engagement strategy to be public, vocal and transparent.
5. To distinguish between outcome and process objectives and ensure objectives can be readily monitored and evaluated.

Process for developing ocean governance

1. Ownership (Action 1)

- Key requirement for developing governance is to determine ownership of the process as one of the issues with multi-sectoral management systems is the lack of clear responsibility
- Need to identify strategic, central government ownership based on management review

2. Leadership and facilitation (Actions 2, 3)

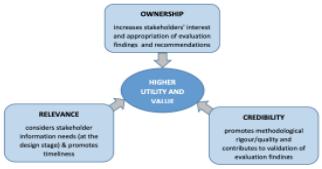
- Ownership should filter down to 'on the ground' operations and management
- Imperative to empower OGMP leadership to facilitate the process and have access to appropriate resources / resource development necessary to fulfil OGMP objectives
- Establish a **Secretariat** for delivering ocean governance to be established – process and project management, facilitation skills, support skills

3. Stakeholder engagement and mapping (Actions 4, 5, 6)

- Stakeholder: Any person or organization with an interest in the use, impacts or management of the resource
- Stakeholders are either:
  - direct or indirect
- Stakeholders can be
  - expert or amateur
  - resource rich or poor
  - single or multi-issue/use
  - constructive or destructive

Rainbow diagram for classifying stakeholders (Chevalier and Buckles, 2008)

The benefits of stakeholder engagement (UNEG, 2017)



OGMP stakeholders?

Facilitating stakeholder engagement

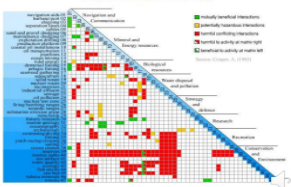
- **Steering Group / standing committee** established comprising representatives of all key stakeholders, including relevant government agencies, departments and community organizations, to:
  - Provide sectoral expertise, ideas and guidance to the Secretariat
  - Provide input into defining and achieving the key deliverables
  - Support the communication and engagement of the OGMP
- Ways of working established as part of the Secretariat's role
- Regular periodic meetings should be held set at fixed times

4. User interaction mapping (Action 7)

Interactions can be mapped using an interaction matrix

Interactions can be categorised as follows:

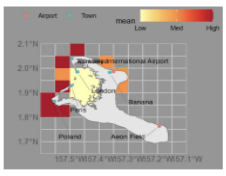
1. **Spatial** – users competing for same space
2. **Temporal** - timing of use, seasonality - peeks and troughs; intensity
3. **Perceived** – stereotypical; culturally entrenched positions; conflicts based on prejudice difficult to overcome



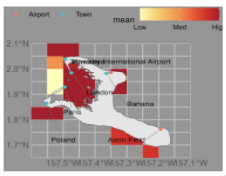
Spatial interaction mapping

- Crowding of fishing flats in the lagoon
- Poaching of protected seabirds and bonefish
- Conservation vs sport fishing: Ngaontetaake
- Sport fishing also use those areas to acquire milkfish
- Conservation protected areas vs local fishermen in ponds
- Fishing for consumption vs sport fishing
- Fly fishermen Vs wind surfers

Spatial interaction mapping



Petfish fishing grounds



Sportfish fishing grounds

5. Integration mapping (Action 8)

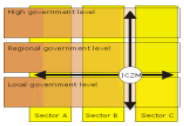
Coordinate all relevant stakeholders

Map policies, regulations, jurisdictions, roles and responsibilities across 4 dimensions:

- Space
- Time
- Vertical
- Horizontal

Identify gaps and weaknesses in the system

Review options for short-term collaborative interventions on the local scale as well as long-term options for developing a more strategic approach



6. Institutional review and training needs assessment (Actions 9,10)

Institutional review to develop a clear understanding of how well key RAs operate, their weaknesses and limitations, encompassing:

- Institutional roles and responsibilities below MLW, including spatial jurisdiction
- Skills assessment of team roles within key RAs
- Gap analysis to map variance and identify needs.
- Needs assessment to map out both coverage of specific jurisdictions, roles and responsibilities as well as the required skills necessary of ocean governance

Identify targeted solutions to established mandates and responsibilities, supporting both greater clarity and greater coverage.

7. Capacity building: Ocean literacy and training (Actions 11,12,13)

- Ocean literacy: An ocean literate person understands the essential principles and fundamental concepts about the functioning of the ocean; can communicate about the ocean in a meaningful way; and is able to make/ contribute towards informed and responsible decisions regarding the ocean and its resources.
- Capacity-building required to develop knowledge, understanding and empathy with the ocean amongst stakeholders, decision makers and communities and to enhance participation in the process
- Training targets skills development - contingent on training needs assessment but should include ocean governance
- Likely to include marine spatial planning; team and project management; stakeholder engagement; environmental monitoring; marine data collection and management; and environmental impact assessment (EIA) inter alia.

8. Action planning (Action 14)

Action planning is one of the key duties of the Secretariat and Steering Group and should determine specific actions, both process and output related

Action	Responsibility / owner	Timeframe	Resources	Budget	Comments

9. Communication and networking (Action 15)

- Secretariat should enable a process that is open and transparent by communicating as widely and clearly as possible with all stakeholders and community groups.
- Requires co-creation of a Communication Strategy to identify purpose, target audiences and messaging.
- Options: use of email ocean governance updates; websites and social media but also face to face meetings

10. Monitoring, Evaluation, Research And Learning (Actions 16, 17)

- Planning is iterative and important to embed MERL into the OGMP
- Identify indicators of change
- Offers learning by doing and adaptivity
- Annual report on progress with the OGMP
- Full report every 5 years to reflect on actions over a 15-year period highlighting short (1-5 years), medium (5-10 years) and long-term (10 years +).

10. Monitoring, Evaluation, Research And Learning (Actions 16, 17)

Indicators: The Organisation for Economic Co-operation and Development define an indicator as:

"a parameter or value derived from parameters, which points to, provides information about or describes the state of a phenomenon, environment, or area …. An indicator has a meaning extending beyond the properties directly associated with the parameter value".

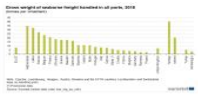
Criteria for the selection of indicators:

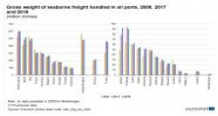
S Specific, significant
M Measurable, meaningful
A Agreed, achievable, acceptable, action-oriented
R Realistic, relevant, reasonable, results-oriented
T Time-based, timely, tangible, traceable

10. Monitoring, Evaluation, Research And Learning (Actions 16, 17)

Operating mechanisms of indicators

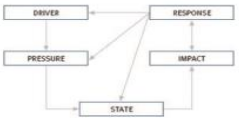
1. **Comparative indicators** - parameters that are qualitative or quantitative descriptors of a state of a particular phenomenon or area; and hence can be used to compare either different times or locations.
2. **Trend indicators** - change over time





10. Monitoring, Evaluation, Research And Learning (Actions 16, 17)

3. **Relational indicators** – primary and secondary level indicators; PSR or DPSIR models

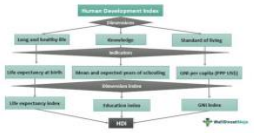


Indicator type	Description of indicator type
Driving force	Primary driving forces are population growth and changes in societal needs and activities, which exert pressure on the environment.
Pressure	Track use of natural resources and land, and production of waste and emissions (i.e., GHG gases and particulates to air).
State	Describe quantity and quality of the environment and natural resources.
Impact	Describe the effects that environmental changes have on ecosystem or human health.
Response	Describe responses to prevent, compensate, ameliorate, or adapt to changes in the environment.

10. Monitoring, Evaluation, Research And Learning (Actions 16, 17)

4. Composite indicators

- Also known as aggregate indicators; integrand indicators or indices
- Provide a means of drawing linkages between different sectors such as between economic, social and environmental data.
- ***Human Development Index (HDI)*** measures the overall achievements of a country with respect to three basic dimensions: life expectancy; knowledge and education; and the standard of living



Ocean resources planning and governance

1. Data collection and management (Action 18)

- Data acquisition, management and accessibility is key to informing policy development and reviewing the effectiveness of ocean management initiatives
- Long term ambition to develop a structured, metadata platform
- Initial sharing of existing data with the Secretariat … based on willingness to share and an agreed data management protocol

2. Market analysis of key marine resources (Action 19)

Scope for marine resource development in Kiritimati over the short, medium and long-term (SML), given suitable investment and associated infrastructure.

Need to determine realistic targets through market analysis for developing each resource sector:

- Fisheries – CPPL
- Aquaculture
- Tourism
- Salt production
- Port development and maritime sector.

Link into other ongoing processes such as the master planning for tourism by the KTA

3. Feasibility analysis of resource development options (Action 20)

Need to consider the feasibility of resource development with technical options assessed using a multi-criteria PESTLE Analysis:

- Political
- Economic
- Social
- Technological
- Legal
- Environmental

Environmental impacts assessment - direct and indirect life cycle impacts, including how these impacts relate to other users and health and functioning of marine ecosystems.

4. Scenario planning, management and testing (Action 21)

- The use of scenarios to enable management represents a best practice approach to delivering ocean governance and to ensure the effectiveness of management decisions.
- Scenario testing workshops represent a highly useful exercise that can be applied to a range of different scenarios - test the veracity of policy text or the outcome of particular growth options
- Scenario planning can map geographical and user interactions to determine impacts
- Will help flag needs, including the need for more resourcing, either for RA staff, or more and better data collection.

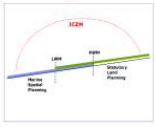
5. Marine Spatial Planning MSP (Action 22)

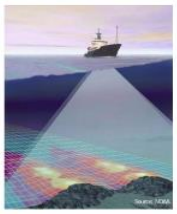
- MSP is a key tool of effective ocean governance and draws together many of the elements of ocean governance
- 3-dimensional planning to address multiple, cumulative and conflicting uses of marine space
- Takes account of all sectors and activities and ensure an integrated approach at the land-sea interface to enable efficient, forward-looking and holistic decision-making, delivering sustainable development and an ecosystem approach

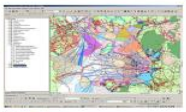
5. Marine Spatial Planning MSP (Action 22)

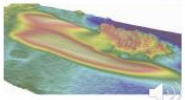
MSP faces many challenges:

- Complexity
- Boundaries
- Data and information
- Resourcing









Implementation Plan

Implementation represents a key focus of the OGMP with the aim of producing a plan that is realistic and feasible.

Implementation plan defines interventions and actions over a 15-year period highlighting short (1-5 years), medium (5-10 years) and long-term (10 years +) actions.

Priority actions:

- Action 1: Strategic review to determine ownership of ocean governance and the OGMP for Kiritimati
- Actions 2 & 3: Develop and empower a Secretariat
- Action 4: Establish a Steering Group
- Action 7: Conduct a user interaction mapping
- Actions 9 & 10: Institutional review and Training Needs Assessment
- Action 13: Development of a programme of targeted training to address the TNA.

Thanks for listening

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