



WWF GEF
Project Document
Cover Page

Project Title:	Coral Reef Rescue: Resilient Coral Reefs, Resilient Communities
GEF Project ID:	10575
WWF-US Project ID:	G0032
Countries:	Fiji, Solomon Islands, Indonesia, Philippines, Madagascar, Tanzania
Project Duration:	48 months
Project Type:	Full Sized Project
GEF Trust Fund(s):	US\$7,848,000
GEF Focal Area(s):	International Waters
GEF Focal Area Objective(s):	IW-1-1: Strengthen blue economy opportunities through sustainable healthy coastal and marine ecosystems IW-1-3: Addressing pollution reduction in marine environments
Implementing Agency:	World Wildlife Fund, Inc.
Lead Executing Agency:	University of Queensland
Focal Government Ministries	Fiji – Department of Environment Indonesia- Ministry of Marine Affairs and Fisheries (MMAF) Madagascar- Ministry of Environment and Sustainable Development Philippines- Department of Environment and Natural Resources, Solomon Islands- Ministry of Environment, Climate Change, Disaster Management and Meteorology Tanzania- Ministry of Livestock and Fisheries

GEF Project Cost:	US\$7,000,000
GEF Agency Fee:	US\$630,000
Project Co-financing:	US\$ 71,338,533

Table of Contents

Section 1	PROJECT BACKGROUND AND SITUATION ANALYSIS.....	12
1.1	Project Scope.....	12
1.2	Environmental significance	17
1.2.1	Global environmental significance of coral reefs.....	17
1.2.2	Global environmental significance of climate refuge reefs in GEF CRR countries.....	18
1.3	Environmental Problem(s), Threats and Root Causes.....	34
1.3.1	Global Climatic Drivers.....	34
1.3.2	Anthropogenic threats.....	36
1.3.3	Root causes driving anthropogenic threats	41
1.4	Barriers and their underlying drivers	42
1.5	Regional, National and Sectoral Context	47
1.5.1	Regional context	47
1.5.2	National and Sectoral context.....	49
1.6	Baseline Scenario	55
1.7	Coordination with other relevant GEF & non-GEF Initiatives	59
Section 2	PROJECT EXECUTION STRATEGY	62
2.1	Project Objective and Theory of Change	62
2.2	Project Components and Expected Outcomes	66
2.2.1	Component 1: Global to local capacity strengthening for climate refuge coral reef monitoring and conservation (GEF budget USD\$1,073,855.02).....	66
2.2.2	Component 2: Planning for climate refuge coral reef rescue at the national level (GEF budget USD\$2,977,814.26)	75
2.2.3	Component 3: Financial solutions for climate refuge coral reef rescue (GEF budget USD\$1,643,688.70).	85
2.2.4	Component 4: Knowledge Management and Monitoring and Evaluation (GEF budget USD\$971,309.10).	91
2.3	Institutional Arrangements.....	96
2.3.1	WWF GEF Agency.....	97
2.3.2	Lead Executing Agency - University of Queensland.....	97
2.3.3	The Project Management Unit (PMU) - University of Queensland International Development...	97
2.3.4	The Global Project Steering Committee	99
2.3.5	National Technical Facilitator	100

2.3.6	National Hubs.....	102
2.4	Stakeholder Engagement	103
2.4.1	Stakeholder engagement during project development.....	103
2.4.2	Stakeholder engagement during project execution	107
2.5	Gender.....	107
2.5.1	Gender assessment (summary)	107
2.5.2	Gender action plan for project execution (summary)	108
2.6	Safeguards.....	109
2.7	Monitoring & Evaluation.....	109
2.8	Budget	111
2.8.1	Overview	111
2.8.2	Budget distribution – Subgrants for delivery at national and global levels.....	115
2.8.3	Executing agency costs	122
2.8.4	Monitoring and Evaluation (COMPONENT 4.2.1)	123
Section 3	GEF ALIGNMENT AND JUSTIFICATION	124
3.1	Incremental Cost Reasoning and Global Environmental Benefits	124
3.2	Alignment with GEF Focal Area and/or Impact Program Strategies.....	128
3.3	Socioeconomic Benefits	129
3.4	Risks and proposed mitigation measures	129
3.5	Consistency with National Priorities or Plans	137
3.6	Innovativeness, Sustainability & Potential for Scaling up.....	147
3.6.1	Innovation	147
3.6.2	Sustainability.....	147
3.6.3	Project strategies for Scaling up	148
3.7	Lessons learned during project preparation and from other relevant projects	149
3.7.1	Lessons with regards to Project Design and Management.....	149
3.7.2	Lessons on Knowledge Management & Capacity Strengthening	150
3.7.3	Lessons with regards to Planning.....	150
3.7.4	Lessons with regards to financial solutions	150
3.7.5	Lessons with regards to multistakeholder processes	151
Section 4	TECHNICAL APPENDICES	152
4.1	Appendix 1: Gender Action Plan	152
4.2	Appendix 2: Baseline initiatives	152
4.3	Appendix 3: Coordination with other initiatives.....	152

4.4	Appendix 4: National Hubs – Institutional arrangements at country level.....	152
4.5	Appendix 5: Technical Advisory Facilities.....	152
4.6	Appendix 6: Stakeholder Engagement Plan	152
4.7	Appendix 7: Project workplan	152
4.8	Appendix 8: Results Framework.....	152

List of Figures

Figure 1	Location of the climate refuge reefs in relation to the five LMEs	14
Figure 2	Significance of coral reefs	17
Figure 3	Climate refuge reefs (BCUs) and project priority areas in Fiji.....	21
Figure 4	Climate refuge reefs (BCUs) and project priority areas in the Solomon Islands.....	24
Figure 5	Climate refuge reefs (BCUs) and project priority areas in Indonesia.....	26
Figure 6	Climate refuge reefs (BCUs) and project priority areas in Indonesia.....	27
Figure 7	Climate refuge reefs (BCUs) and priority areas in the Philippines.....	29
Figure 8	Climate refuge reefs (BCUs) and priority areas in Madagascar	32
Figure 9	Climate refuge reefs (BCUs) and priority areas in Tanzania	34
Figure 10	Illustrated overview of the project’s theory of change	65
Figure 11	Planning structures and processes and their relationship with the GEF CRR Components	77
Figure 12	Proposed Institutional Arrangements.....	97
Figure 13	Illustrated overview of the CRR PMU	98

List of Tables

Table 1	Areas identified through Global CRR stakeholder planning processes as priorities for urgent action .	16
Table 2	Normalised (between 0-1) marine human pressures on priority climate refuge reefs	36
Table 3	Detailed description of normalized marine human pressures on climate refuge reefs	37
Table 4	Factors driving insufficient knowledge sharing and coordination	42
Table 5	Summary of reporting requirements	110
Table 6	Co-financing secured for the GEF CRR project.....	111
Table 7	Budget summary by Outcome and Output	113
Table 8	Detailed budget notes on budget distribution by sub-grants allocated to NTFs	115
Table 9	Executing agency costs.....	122
Table 10	M&E summary budget	123

Acronyms and Abbreviations

ACA	Allen Coral Atlas
ACP	African Caribbean Pacific States
ADB	Asian Development Bank
AMCA	Arnavons Marine Conservation Area
AoW	Areas Of Work
APBN	State Budget In Indonesia
APMF	Asia Pacific Family Medicine
ASCLME	Agulhas And Somali Current Large Marine Ecosystems
ATS	Arafura And Timor Seas
AWP&B	Annual Workplan and Budget
BAF	Blue Action Fund
BATAN	Ambaro Bay, Tsimipaika, Ampasindava and The Nosy Be Archipelago
BCU	Bioclimatic Units
BFAR	Philippines' Bureau of Fisheries and Aquatic Resources
BIEM	By-Catch and Integrated Ecosystem Management
BIOFIN	Biodiversity Finance Initiative
BNA	Blue Nature Alliance
BPS	Statistics Indonesia
BPSPL	Coastal Resource Management Agency In Bali, North Sulawesi, West Java
BRING	Biodiversity Resource Information Network Group
BSP	Central Bank of The Philippines
CBO	Community Based Organizations
CBRM	Community-Based Resource Management
CCA	Climate Change Adaptation
CCRES	Capturing Coral Reef Ecosystems Services
CFF	Coral Reef Fisheries and Food Security
CFI	Coastal Fisheries Initiative
CFS	Climate Forecast System
CMEMP	Coastal And Marine Ecosystems Program
CMIP	Coupled Model Intercomparison Project
CNGIZC	National Committee for Integrated Management Of Coastal Zones
CNRO	Centre National De Recherches Océanographiques
CO2	Carbon Dioxide
COP	Conference Of Parties
COREMAP	Coral Reef Rehabilitation and Management Project
CoRVA	Coral Reef Visualization and Assessment
COTS	Crown-of-Thorns Starfish
CRR	Coral Reef Rescue
CRR1	Global Coral Reef Rescue Initiative
CRTF	Coral Reef Task Force
CSIR	Council for Scientific and Industrial Research, South Africa
CSR	Corporate and Social Responsibility
CTC	Indonesia Coral Triangle Center
CTI CFF	Coral Triangle Initiative on Coral Reefs, Fisheries, And Food Security
CTMPAS	Coral Triangle Marine Protected Area System

DENR	Department of Environment and National Resources Philippines
DIKPLHD	Regional Environmental Management Performance Information Document
DLSU	De La Salle University Manila
DOE	Department of Energy Philippines
DOF	Department of Finance Philippines
DRR	Disaster Risk Reduction
EAFM	Ecosystem Approach to Fisheries Management
EbA	Ecosystem-Based Adaptation
ECAL	Environment and Climate Adaptation Levy
ECAN	Environmentally Critical Areas Network Philippines
EMR	Ecosystem Management and Restoration
EREPA	Ensuring Resilient Ecosystems and Representative Protected Areas in The Solomon Islands
ESSF	Environmental and Social Safeguard Framework
FAO	UN Food and Agriculture Organization
FJD	Fijian Dollar
FMA	Fishery Management Areas
GCF	Green Climate Fund
GCRF	Global Challenges Research Fund
GCRMN	Global Coral Reef Monitoring Network
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEO	Group on Earth Observations
GEWD	Gender Equality and Women's Development Policy
GFDRR	Global Facility for Disaster Reduction and Recovery
GHG	Greenhouse Gas
GIZ	German Agency for International Cooperation
GOES	Geostationary Operational Environmental Satellite
GSIP	Surface and Insolation Products
GSR	Great Sea Reef
IA	Implementing Agency
ICRI	International Coral Reef Initiative
ICZM	Integrated Coastal Zone Management
IDSA	Indonesia
INAHIN	Mozambique Hydrographic Office
INDC	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
ISLME	Indonesian Seas Large Marine Ecosystem
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported, and Unregulated
IW	International Waters
KOMPAK	Small Grant Conservation Program for Local Community Conservation Groups
LAPAN	National Institute of Aeronautics and Space
LEARN	Learning Exchange & Resource Network
LGU	Local Government Unit
LIPI	Indonesian Institute of Sciences
LME	Large Marine Ecosystem
LMMA	Locally Managed Marine Areas
M&E	Monitoring and Evaluation
MACP	Margaret A. Cargill Philanthropies

MADG	Madagascar	
MCC	Millennium Challenge Corporation	
MECDM	Ministry of Environment, ClimateChange, Disaster Environment and Conservation Division	Management & Meteorology -
MEDD	Ministry of The Environment and Sustainable Development	
MERMAID	Marine Ecological Research Management Aid	
METT	Management Effectiveness Tracking Tool	
MMAF	Ministry of Marine Affairs and Fisheries Indonesia	
MNP	Mobile Number Portability,	
MOOC	Massive Open Online Courses	
MPA	Marine Protected Area	
MPEB	Ministry of Fisheries and Blue Economy in Madagascar	
MSI	Marine Science Institute	
MSN	Marine Protected Area Support Network in Indonesia	
MSP	Marine Spatial Planning	
MSU	Mindanao State University Philippines	
NACRE	National Assessment for Coral Reef Environment Program Philippines	
NAP	National Action Plan	
NAPA	National Adaptation Programs of Action	
NBSAP	National Biodiversity Strategy and Action Plan	
NBSAP	National Biodiversity Strategy and Action Plan	
NCICZM	National Committee for Integrated Coastal Zone Management	
NDC	Nationally Determined Contribution	
NDP	National Development Plan	
NDS	National Development Strategy	
NEMC	National Environmental Monitoring Conference	
NEMC	National Environment Management Council in Philippines	
NGA	National Government Agency	
NGO	Non-Governmental Organization	
NIPAS	National Integrated Protected Areas System in Philippines	
NMC	Northern Mozambique Channel	
NOAA	National Oceanic and Atmospheric Administration	
NPOA	National Plan of Action	
NTF	National Technical Facilitator	
NTT	Nusa Tenggara Timur	
PACC	Pacific Adaptation to Climate Change	
PaC-SD	Pacific Centre for Environment and Sustainable Development (
PAMB	Protected Area Management Board (PAMB) In Philippines	
PANGIZC	National Action Plan for Integrated Coastal Zone Management	
PCSD	Palawan Council for Sustainable Development	
PEBACC	The Pacific Ecosystems-Based Adaptation to Climate Change	
PEMSEA	Partnership In Environmental Management for The Seas of East Asia	
PEUMP	Pacific-European Union Marine Partnership Programme	
PGE	General Policy of The Government of Madagascar	
PHIL	Philippines	
PMU	Project Management Unit	
PoWPA	Program of Work on Protected Areas	
PPG	Project Preparation Grant	
PPPs	Public-Private Partnerships	
PPR	Project Progress Report	

PRODOC	Project Document
PSC	Project Steering Committee
PSDKP	Pengawasan Sumber Daya Kelautan Dan Perikanan (Marine and Fisheries Resources Surveillance)
R2R	Ridge to Reef
RILHUB	The Resilience and Innovation Learning Hub
SAAD	Special Area for Agricultural Development
SAP	Strategic Action Programme
SB	Solomon Islands
SCREMP	Sustainable Coral Reef Ecosystems Management Program
SCS-SAP	Strategic Action Programme for The South China Sea and Gulf of Thailand
SDS-SEA	Sustainable Development Strategy for The Seas of East Asia
SEAFDEC	Southeast Asian Fisheries Development Center
SILMMA	Solomon Islands Locally Managed Marine Area Network
SINOP	Solomon Islands National Ocean Policy
SIPP	Safeguards Integrated Policies and Procedures
SMART	Specific, Measurable, Achievable, Relevant, and Time-Bound
SOC	Security Operation Center
SOMACORE	Solutions for Marine and Coastal Resilience
SOMN2	Save Our Mangroves Now Phase 2
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the South Pacific Regional Environment Programme
SST	Sea Surface Temperature
TAZN	Tanzania
TBD	To be Determined
TEX	Tool Exchange
TNC	The Nature Conservancy
ToC	Theory of Change
ToRs	Terms of Reference
TWG	Technical Working Group
UNCBD	Convention on Biological Diversity
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
US	United States
USD	United States Dollar
USI	Universitas Simalungun Of Indonesia
USP	University of South Pacific
UQ	University of Queensland
WB	World Bank
WCS	Wildlife Conservation Society
WIO	Western Indian Ocean
WTW	Willis Towers Watson
WWF	World Wildlife Fund
WWF-RUMAKI	Ruvuma, Mafia and WWF-Kilwa Marine Eco-Region
ZUP	Ultra-Priority Zones

Executive Summary

The Coral Reef Rescue (CRR) GEF project contributes to the Global Coral Reef Rescue Initiative (CRRRI) – a global multistakeholder partnership aimed at protecting the health of coral reef ecosystems in the face of climate threats. CRRRI focuses on coral reefs identified through a global analysis led by University of Queensland and partners as having substantially lower exposure to climate change stress due to local oceanographic conditions such as currents and upwelling (Beyer et al., 2018). These less climate exposed and well connected reefs embody the regeneration potential for the world's reefs¹ (and are therefore referred to as *climate refuge reefs* in this project), with the assumption that the stresses resulting from climate change will stabilize and eventually decrease.

The CRR GEF project works in 6 countries in which climate refuge reefs are concentrated: Fiji, Solomon Islands, Indonesia, Philippines, Madagascar and Tanzania.

The overall project objective is: *“To strengthen capacity and solutions that ensure the long-term survival of climate refuge coral reef ecosystems, thereby conserving their biodiversity and supporting the blue economies and communities dependent on them.”*

The project will realize its overall objective through directing energies and investments to areas within the climate refuge reefs prioritized by national and local stakeholders for action in the 6 countries. Within each country and at the global level, this project will consolidate and build on previous efforts (often carried out in a disjointed manner by different institutions) through the establishment of the following:

- (Component 1) A **global network of knowledge and best practice plus the planning and expansion of a monitoring platform**, ensuring accessibility of the best tools and science available as well as the skills and knowledge for communities, decision makers and practitioners to utilize the tools and science to inform and improve policy and practice at multiple levels.
- (Component 2) A **national multisectoral and stakeholder hub** in each of the 6 countries to enable the collaborative design and implementation of national and subnational action plans for the conservation of refuge reefs in their countries, informed by an analysis of threats, costs and benefits of conservation action vis a vis business as usual and the traditional knowledge and vision of local communities.
- (Component 3) An **investment portfolio** with demonstrative sustainable livelihood projects and potential investors identified for the priority areas; and
- (Component 4) A widespread awareness and communications strategy targeting **influential individuals and institutions** as well as the wider public on the value and importance of climate

¹ Beyer, H.L., Kennedy, E.V., Beger, M., Chen, C.A., Cinner, J.E., Darling, E.S., Eakin, C.M., Gates, R.D., Heron, S.F., Knowlton, N., Obura, D.O., Palumbi, S.R., Possingham, H.P., Puotinen, M., Runting, R.K., Skirving, W.J., Spalding, M., Wilson, K.A., Wood, S., Veron, J.E., Hoegh-Guldberg, O. 2018. Risk-sensitive planning for conserving coral reefs under rapid climate change, *Conservation Letters*, Vol 11. (17):e12587 Available at: https://www.researchgate.net/publication/326034705_Risk_sensitive_planning_for_conserving_coral_reefs_under_rapid_climate_change

refuge reefs to local communities using their own voices as well on as the value and importance to economies and biodiversity nationally and globally.

In doing so, the CRR GEF project will ensure that there is a strong enabling environment in each of the countries to mobilize new investments and capabilities to support the action necessary for transformational change. This includes:

- Collaboration and coordination across the diversity of sectors and stakeholders that have an influence or impact on the conservation and management of climate refuge reefs. This, in turn, will lead to negotiated synergistic solutions and reduce risks to future investments in climate refuge reefs. For example, a solution jointly designed between local communities and the environmental, mining and the agricultural sectors is more likely to be successful than a solution driven by only one or two of these stakeholders²;
- Positioning and voice of women and men from local communities that depend and/or have an impact on climate refuge coral reefs in the decision making, planning and delivery of investment.
- Access and capabilities to use data, tools and resources in evidence informed planning and practice – ensuring that the identification of priorities is informed by science as well as traditional and Indigenous knowledge.
- Readiness for investments, identifying reef-friendly businesses and investment opportunities and working closely with those with highest potential to be investor ready; and
- Awareness and support for climate refuge reefs amongst the wider public and particularly of influential individuals and institutions.

In realizing these outcomes, the project will not only maximize potential for mobilization of new investments but also reduce short- and long-term investment risk.

The Lead Executing Agency of the project is the University of Queensland. The PMU is hosted by the University of Queensland's International Development Unit (UQID). At the national level, execution will fall under the responsibility of the National Technical Facilitators, which will be identified through a transparent and open recruitment process at the onset of the project.

The Global Project Steering Committee (PSC) will be the highest decision-making authority for the project. The Committee is chaired by UQ, Co-Chaired by the Global Initiative, CRR and composed of representatives of the Chairs of the National Steering Committees from all 6 countries as well as the Global CRR partners³.

The project will be delivered through the close engagement of local and national stakeholders through the National Hubs (established under Component 2). The National Hubs bring together representatives from civil society, non-governmental organizations (including representatives of the CRR global partners which have presence at national level), and the public and private sectors to develop a shared understanding of the importance of climate refuge reefs, the underlying drivers affecting their survival positively and negatively, and synergistic solutions to address these drivers and root causes. Within each National Hub, Technical Working Groups may be established to provide stakeholders with the opportunity to engage in the delivery of

² During stakeholder consultations to develop the CRR global strategy, examples were shared across many countries of sectors such as mining undermining the efforts of environment and conservation and stakeholders emphasised the necessity and urgency of establishing integrated and holistic approaches to conservation and management of climate refuge reefs.

³ The Global CRR partners are: Blue Ventures, Rare, CARE International, The University of Queensland, WCS and WWF.

the project activities with a National Steering Committee providing high level strategic guidance and oversight.

Section 1 PROJECT BACKGROUND AND SITUATION ANALYSIS

1.1 Project Scope

The Coral Reef Rescue (CRR) GEF project contributes to the Global Coral Reef Rescue Initiative (CRR) – a global multistakeholder partnership aimed at protecting the health of coral reef ecosystems in the face of climate threats (Box 1). CRR focuses on coral reefs identified through a global analysis led by University of Queensland and partners as having substantially lower exposure to climate change stress due to local oceanographic conditions such as currents and upwelling (Beyer et al., 2018). The study identified an original set of 50 bioclimatic units (BCUs) that contain approximately 500km² of marine area. The BCUs are likely to capture a range of habitats, genetic diversity, and ecological processes and are large enough to apply strategic conservation measures in. Many of these sites are linked to surrounding coral reefs via ocean currents which transport coral larvae and fish. These less climate exposed and well connected reefs embody the regeneration potential for the world's reefs (Ibid) (and are therefore referred to as *climate refuge reefs* henceforth), with the assumption that the stresses resulting from climate change will stabilize and eventually decrease.

Box 1 The Coral Reef Rescue Initiative

The Coral Reef Rescue Initiative (CRR) is a global initiative with governments, private sector, international NGOs, and civil society partners to sustain and restore the health of coral reef ecosystems in the face of climate threats. The Initiative is implemented by a partnership of organizations, including Blue Ventures, Rare, CARE International, The University of Queensland, WCS, and WWF, with extensive experience in delivering conservation in close collaboration with governments and local communities.

CRR focuses on reefs that are more tolerant, less exposed to climate change, and well-positioned to regenerate other reefs in the future because of their connectivity to neighboring reefs through ocean currents. CRR is driven by the fact that the wellbeing and survival of millions of people, ecosystems, and species around the world will be greatly impacted by the loss of coral reefs and the knowledge that urgent and transformational change is needed to combat these losses.

The initiative seeks to protect the world's coral reefs by removing and reducing pressures on reefs with the highest probability of survival in the face of climate change by: i) Identifying reefs that are least exposed and most likely to regenerate other reefs as temperatures stabilize); ii) Successfully *removing and reducing existing, local pressures*; iii) in a manner that is most likely to be *sustained through unexpected changes and shocks*; and iv) *building support and catalyzing action* across the world.

Recognizing the urgency and complexity of achieving this, CRR brings together the collective expertise of partners from around the world to collaborate in conserving and protecting reefs that have a good chance of regenerating within wider land/seascapes, building the resilience of reef-dependent communities, and shifting economic models towards more inclusive, equitable, and sustainable

Approximately 80% of these climate refuge reefs are found in developing countries and 70% of those are concentrated in seven countries: Cuba, Fiji, Indonesia, Madagascar, Philippines, Solomon Islands and Tanzania. These countries together host 70% of the regeneration potential for the world's reefs (Figure 1). Despite being less exposed to climate stress, all climate refuge reefs are facing decline and loss of resilience due to increasing local pressures. Given their importance as sources of coral reef regeneration in a 'climate stabilized world', supporting the health of these connected reefs in the coming decades will require greater attention to promote a strong, evidence-based approach to secure and replenish the world's reefs under a changing climate (among coral reefs not in wealthy countries).

BCUs in the six countries are in five Large Marine Ecosystems (LME): Somali Coastal Current, Agulhas Current, Indonesian Sea, Sulu-Celebes Sea, Gulf of Thailand, and the Northeast Australian Shelf (Figure 1). This GEF CRR project is aligned with and contributes to priorities identified in the Strategic Action Plans of these LMEs (discussed further in Section 1.5)

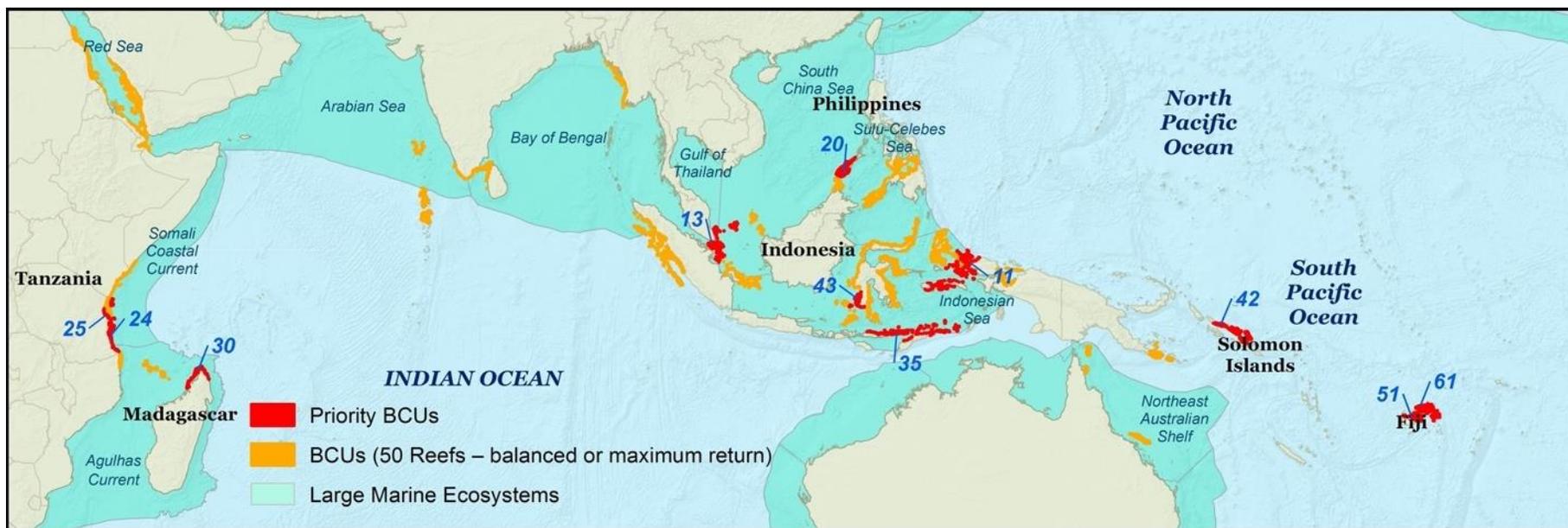


Figure 1 Location of the climate refuge reefs in relation to the five LMEs

This project, CRR GEF, will work in 6 of these countries⁴ - Philippines, Solomon Islands, Fiji, Indonesia, Tanzania, and Madagascar - to build capacity and solutions to ensure the long-term survival of the climate refuge coral reef ecosystems. CRR GEF is focused on establishing critical capacities and conditions in these countries to enable effective on the ground conservation action and future investments, for example from the Green Climate Fund (GCF), which will be sequenced to follow implementation of the CRR GEF project. This project will strengthen capacities and conditions, specifically: knowledge and capacity strengthening networks, collaborative multistakeholder and multisectoral engagement in threat identification and the design of appropriate and innovative solutions, the establishment of investment portfolios and strengthening awareness and support from decision makers and the wider public. Strategies and activities under this GEF project are therefore more process driven with limited site level implementation.

Site based interventions are primarily for planning and prioritization purposes and include:

- Supporting communities to discuss, debate and develop their vision and priorities to inform the national action plans for climate refuge reefs (Components 1 & 2)
- Carrying out studies (threat/opportunity and cost-benefit analysis) (Component 2)
- Gathering data and information, including community perspectives to inform the identification of potential reef-friendly businesses and investment opportunities (Component 3), and
- Supporting communities to generate narratives, capture and share their values, histories, and experiences with regards to climate refuge reefs

Given the wide geographic scope of BCUs and limitations in resources, areas within the BCUs were prioritized (described further in Section 1.2.2) by stakeholders during the global CRR planning processes using the following criteria:

- Located within a BCU
- Biodiversity significance of reefs
- Significance to local communities, their livelihoods and well-being
- Potential to build on previous/ongoing initiatives to enable economies of scale
- Feasibility (taking into consideration risks, resource availability etc.)
- Willingness of local communities to engage in and support conservation measures
- Political willingness – support of national and provincial/local governments

The project will be delivered through the close engagement of local and national stakeholders through the National Hubs (described in Section 2.3 Institutional Arrangements and Section 2.4 Stakeholder Engagement)⁵. At the beginning of the project, members of each National Hub will identify sites from within the priority areas selected (indicated in Table 1 below) that are representative of the diversity of situations, opportunities, and challenges across the BCUs within the country. This might include, for example, the selection of two to three sites (depending on resource availability) that are representative of different types of land use, economic and livelihood strategies, ecosystems, and traditional/local governance systems. Decisions on criteria and considerations for selection will be made collaboratively involving different types of stakeholders and sectors, in the context of the National Hubs.

⁴ Activities in Cuba will be financed through co-financing sources, and not by the GEF project budget, WWF US, or any other US funds.

⁵ National Hubs provide a platform for multi-stakeholder engagement as well as a coordination hub for the project, supporting project implementation and providing inputs, monitoring and clearing out operational workplans and budgets.

Table 1 Areas identified through Global CRRRI stakeholder planning processes as priorities for urgent action

Country	BCUs	Areas identified as priorities by stakeholders ⁶
Indonesia	BCU 11 Bird's Head	Maluku province.
	BCU 13 Singapore/Riau Islands	Riau Archipelago province
	BCU 35 East Nusa Tenggara	East Nusa Tenggara province
	BCU 43 Makassar	South Sulawesi province
Solomon Islands (Central & Eastern Province Sites)	BCU 42 Solomon Islands	Central Island Province
		Malaita Province
		Isabel Province
		Temotu
Fiji (Great Sea Reef scape)	BCU 51: northern Viti Levu, southern Vanua Levu & Somosomo strait	Ra Province
		Ba Province
	BCU 61: northern Vanua Levu & Vanua Balavu	Macuata Province
Philippines	BCU 20 Central and Southern Palawan	Municipalities: Aborlan, Narra, Sofronio, Espaniola, Brookespoint, Bataraza, Balabac, Rizal and Quezon
Tanzania	BCU 25 Central Tanzania	PECCA/Pangani Seascape
	BCU 24 Southern Tanzania	Rufiji-Mafia-Kilwa Seascape
		Tanga/N/Unguja (Zanzibar) Seascape
Madagascar	BCU 30 Northern Madagascar	Nosy Iranja MPA
		Nosy Hara MPA
		Loky Bay area

⁶ Priority areas were identified by stakeholders using only the criteria described earlier. Consequently, scales and proportionate sizes of the priority areas differ from one country to another.

1.2 Environmental significance

1.2.1 Global environmental significance of coral reefs

Coral reefs are the most biologically diverse ecosystems in the ocean, providing tangible and intangible benefits to people, many of whom are highly dependent on reef ecosystem goods and services (Figure 2). While they occupy less than 0.1% of the world's oceans, coral reefs provide habitat for at least 25% of all marine species, with estimates of over one million species living in and around coral reefs (Fisher et al., 2015). People living along tropical coastlines rely on many of these species for food security and as a means of gaining livelihoods (Burke, 2011). An estimated six million fishers in 99 reef countries and territories worldwide—over a quarter of the world's small-scale fishermen—harvest from coral reefs (Coral Reef Alliance, n.d.). The loss of coral reefs has been associated with a strong downturn in fisheries productivity (Graham et al., 2014; Pratchett et al., 2014; Speers et al., 2016) -- possibly by three-fold or more (Rogers et al., 2014) -- and therefore, puts an estimated \$6 billion in revenues for small-scale fisherfolk at risk (Teh et al., 2013). Furthermore, reef ecosystems protect coastal villages, businesses, and residents from wave action and storms, providing risk reduction benefits to an estimated 100 to 197 million people (Ferrario et al., 2014). Some 30% of the world's coral reefs are understood to support tourism that generates, in turn, as much as \$36 billion annually (Spalding et al., 2017). In Fiji, an economic evaluation of marine and coastal ecosystems found that 6,704km of Coral reefs and lagoons add a value of FJD \$916.66/\$458.9 USD million per year and 38,500 ha of Mangroves add a value of FJ\$2229.2/\$114.7 USD million a year.⁷

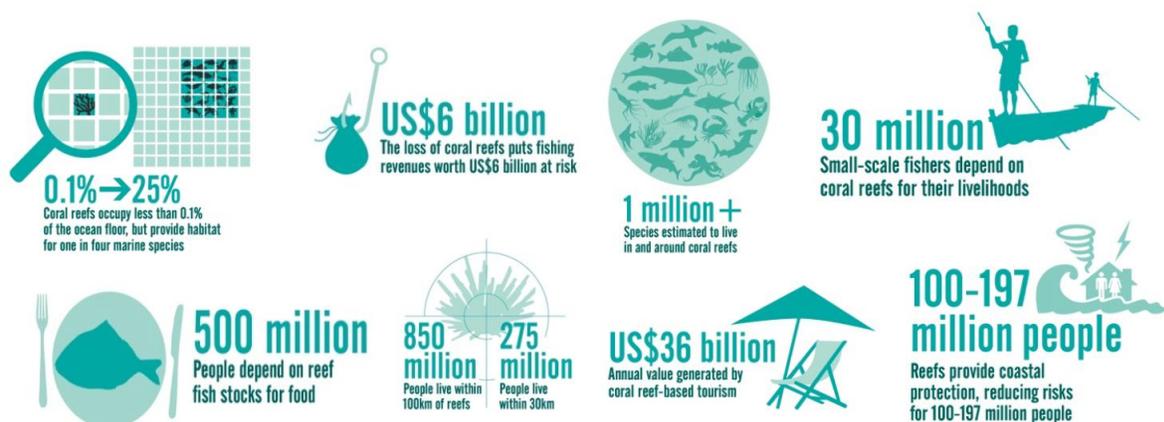


Figure 2 Significance of coral reefs

⁷ Gonzalez R, Ram-Bidesi V, Leport G, Pascal N, Brander L, Fernandes L, Salcone J, Seidl A (2015) National marine ecosystem service valuation: Fiji. MACBIO (GIZ/IUCN/SPREP): Suva, Fiji.

1.2.2 Global environmental significance of climate refuge reefs in GEF CRR countries

The six GEF CRR countries are host to some of the most environmentally significant coral reefs globally. For example, three of the countries (Solomon Islands, Indonesia, and the Philippines) belonging to the Coral Triangle, a region with 98,177km² of coral reefs and the highest concentration of both coral and reef fish biodiversity in the world (Veron et al., 2009). Across the Coral Triangle Region, about 45% of shorelines are protected by coral reefs (with 70% of protected shoreline in the Solomon Islands and 65% in the Philippines) (Burke, 2012). Northern Madagascar and Southern Tanzania fall within the Northern Mozambique Channel (NMC), which has the “highest diversity of corals in central, northern and western Indian Ocean with over 400 different species of coral identified so far, making it home to the second most diverse coral populations on the planet” (Obura, Bandeira, et al., 2019). Along the northern coast of Fiji is the third longest reef system in the world, the Great Sea Reef (GSR), known locally as Cakaulevu, which hosts 40% of all known marine flora and fauna in the Fiji Islands.

Fiji

Fiji has an estimated area of 4,550 km² of coral reefs surrounding over 330 islands and more than 500 islets and cays, in the form of fringing, line, patch, atoll, and barrier reefs (Mangubhai et al., 2019). Coral cover varies with reef type across the country, from 28% on Viti Levu’s Coral Coast fringing reefs, to over 70% in the deep-water pinnacles of the Vatu-i-Ra Passage. Over 2,000 species of fish are recorded from Fiji’s coastal and marine areas (Draft SOE 2020, Government of Fiji 2017) with only 45 species listed as globally threatened on the IUCN Red List, including 27 shark and ray species and 18 other fish. Fiji also has the third largest mangrove area in the Pacific Island region: 517km² with eight true mangrove species. Seagrass beds of Fiji have an estimated area of 16.5km². The north coast of the large island of Vanua Levu includes two extensive habitats of conservation interest unique within Fiji: an extensive mangrove habitat, covering 100 km² of coastal habitat and numerous mangrove islands and a long barrier reef known as Cakaulevu or the Great Sea Reef (GSR), which is 150 km² long (WWF Pacific, 2011). The GSR includes a small, inhabited island, deep channels and drops off into deep oceanic waters. The mangrove areas are probably the most significant on Vanua Levu, although mangroves furthest from the sea have largely been cleared. The unusual offshore mangrove island and fringing reef habitats have high diversity and productivity, dropping into coral reefs with exceptionally shallow stands of black coral, *Antipatharia* spp., and soft corals, and a great abundance of reef fish. These highly dynamic, tidally influenced systems are “keystone habitats” of crucial importance to maintaining the ecological integrity of the entire coastline. (Jenkins et al., 2004).

Coral reefs are central to the national economy and the livelihoods of the communities that depend on them and carry significant cultural and traditional values. The Great Sea Reef contributes between FJD 12-16 million annually to Fiji's economy from the inshore fisheries sector.⁸

BCUs in Fiji are in the GSR Seascape (Northeast Fiji), Vait-I-Ra Seascape (central Fiji) and Somosomo Strait (central Fiji). The GSR was identified as a priority by stakeholder, including government, traditional leaders and other local community representatives, non-governmental organizations and private sector during project development. The GSR system and its watershed comprise an area of 28,181km² terrestrial and coastal marine area, with a population of 359,589 which is over 40% of the total population of Fiji. The diversity of marine biota in the GSR and its associated habitats is of high importance on global, regional,

⁸ Andradi-Brown D.A., Veverka L., Free B., Ralifo A., Areki F. (2022) Status and trends of coral reefs and associated coastal habitats in Fiji’s Great Sea Reef. World Wildlife Fund US, WWF-Pacific Programme, and Ministry of Fisheries Fiji. Washington, D.C. & Suva. Pg 96

national, and local scales. A 2004 scientific expedition found the GSR contains approximately 55% of the coral reef fishes, at least 44% of the known endemic coral reef fishes, 74% of the corals, and 40% of all the marine flora known from the Fiji Islands.⁹ There are at least 12 species listed on the 2004 IUCN Red List of threatened species, including the humphead wrasse, *Cheilinus undulatus*, four species of grouper, Serranidae, three shark species, two rays, (including the reef manta ray, *Manta alfredi*), the spinner dolphin, *Stenella longirostris* (ibid), and the endangered green turtle, *Chelonia mydas* (Prakash et al., 2020). The connectivity between coastal mangroves, mangrove islands, lagoon, back reef, channels, and outer barrier reef is extremely important for the life cycles of many of the marine species living within it, and for sheer size, this mangrove to reef system is unequalled within Fiji. The GSR also supplies over 75% of inshore fish to Fiji's urban markets. The traditional owners of Cakaulevu Reef are the people of Macuata, Bua, Ba and Ra. In January 2018, an area of 1.34km² encompassing fishing grounds was designated as a Ramsar site – the second Ramsar site in Fiji and the first to include reefs. The Ramsar site includes Qoliqoli Cokovata, the combined area from the Macuata, Seaqaqa, Dreketi, Sasa, and Mali qoliqoli; together they comprise a single marine area of 1,345 km² located along the north coast of Macuata province on the north coast of Vanua Levu.

Stakeholders participating in the CRI GEF project planning process prioritized the provinces of Macuata, Ra and Ba within the GSR Seascape. The details on the Ba, Ra and Macuata provinces were provided from a report; *Status and trends of coral reefs and associated coastal habitats in Fiji's Great Sea Reef* published in 2022 by Andradi-Brown D.A., Veverka L., Free B., Ralifo A., and Areki F.

- **Ba province** lies in northeastern Viti Levu, encompassing part of Viti Levu and offshore islands – including the Yasawa Group (Figure 3). Ba province has a land area of approximately 2,634 km² and a population of approximately 250,000 people - making it the largest province by population in the GSR region and in Fiji. The waters of Ba are divided into 14 qoliqoli, and span 8,989 km². Provincial waters are bounded to the south by the Viti Levu fringing reefs, and in the north by several narrow ribbon reefs offshore of the Yasawa Islands. Within Ba provincial waters there are extensive fringing reefs and smaller barrier reefs surrounding the Yasawa Islands, many small isolated reef systems in central Ba waters, and extensive reef systems associated with the Ba river estuary. The Viti Levu coastline and Yasawa Islands also contain significant mangrove areas. The Yasawa Islands are a major tourism attraction, and regularly boats link tourism hubs on Viti Levu to resorts in these islands. Reefs take multiple forms within Ba province, with shallow fringing reefs along the coastlines of Viti Levu and the Yasawa Islands, and several small offshore barrier reefs and patch reefs. In total, coral covers approximately 176 km² within Ba province, though summing all Allen Coral Atlas benthic categories that likely contribute to broader coral reef ecosystem composition (i.e., coral/algae, microalgal mats, rock, and rubble) suggests a coverage of 347 km² of shallow reef-related ecosystems. Most of these reefs are comprised of inner reef flats (109 km²), closely followed by outer reef flats (99 km²) and shallow lagoons (73 km²), with many other reef types also present.¹⁰ Mangrove extent is high in Ba province at 107 km², though there was a net 3 km² mangrove loss between 1996 and 2016. This high mangrove cover reflects the extensive coastline with rivers providing sediment input for mangroves. The largest Ba province mangrove stands are associated

⁹ https://wwfint.awsassets.panda.org/downloads/gsr_fullcopy_1.pdf

¹⁰ Andradi-Brown D.A., Veverka L., Free B., Ralifo A., Areki F. (2022) Status and trends of coral reefs and associated coastal habitats in Fiji's Great Sea Reef. World Wildlife Fund US, WWF-Pacific Programme, and Ministry of Fisheries Fiji. Washington, D.C. & Suva. Pg 96

with coastal areas on Viti Levu. Seagrass covers approximately 58 km² within Ba province, with much of this associated with coastal areas of Viti Levu. (Andradi-Brown,D,A,: 2020:96). In Ba province on the northwestern coast of Viti Levu the Ba River flows out into the Ba Estuary system – which includes expansive mangrove forests and coral reef ecosystems. The importance of Fijian river estuaries for supporting shark populations is important to note (Rasalato et al., 2010), with the Ba Estuary having been identified as an important parturition and nursery area for hammerhead sharks (Vierus et al., 2018).

- **Ra province** is a part of the Vatu-i-Ra Seascape which is over 27,000 square kilometers of coastal lands and seas. The Seascape includes networks of community managed marine areas, including Namena, the nation’s largest ‘no take’ reserve where fishing is prohibited. It is host to over 300 reef building coral species, more than 1000 fish species and at least 12 plant species unique to the area. The seascape is also an important habitat for reef and deeper water sharks and supports endangered populations of bumphead parrot fish and humphead wrasse. It is a world class diving destination with an annual value of tourism and fisheries estimated at USD35million.¹¹
- **Macuata province** lies on the northern and northeastern coast of Vanua Levu. It has a land area of approximately 2,004 km² – approximately 40% of Vanua Levu area. The 2017 census indicated a population of approximately 66,000 people – making it one of the larger provinces in the GSR region and in Fiji. The waters of Macuata province are divided into seven qoliqoli, and span 2,038 km². The province is bounded to the north by the main Cakaulevu barrier reef, which drops off into the deep ocean to the north.¹²

Within this large area enclosed by the barrier reef there are many small patch reefs rising from the seabed. Nearer to the Vanua Levu coastline are many mangrove fringed reef islands. Some of these islands enclose lagoons that are accessible by boats at high tide, and local communities’ fish within. There are also several larger uplifted islands along the coastline. Several major rivers flow into Macuata coastal waters, including the Dreketi and Labasa Rivers. These rivers carry substantial sediment to coastal inner reefs, increasing the turbidity. Reefs take multiple forms within Macuata province, with shallow fringing reefs along the coastline of Vanua Levu, and extensive fringing reefs and reef flats around coastal islands. The main Cakaulevu barrier reef runs along the northern edge of the province marine area, including a 25 km double barrier reef to the northeast of Labasa.

Qoliqoli Cokovata is the combined area from the Macuata, Seaqaqa, Dreketi, Sasa, and Mali qoliqoli; together they comprise a single marine area of 1,345 km² located along the north coast of Macuata province on the north coast of Vanua Levu (Figure 8.2.1). The area contains a mix of shallow water and deeper water areas, with extensive fringing reef systems and mangrove islands. The northern edge of Qoliqoli Cokovata is bounded by the offshore barrier reef. As the qoliqoli is located adjacent to Vanua Levu, there is substantial sedimentation impact in coastal areas, with several important rivers flowing into the area. Qoliqoli Cokovata was declared Fiji’s second RAMSAR site in 2018 (Andradi-Brown,D,A,: 2020: 211).

¹¹ Ibid.

¹² Ibid.

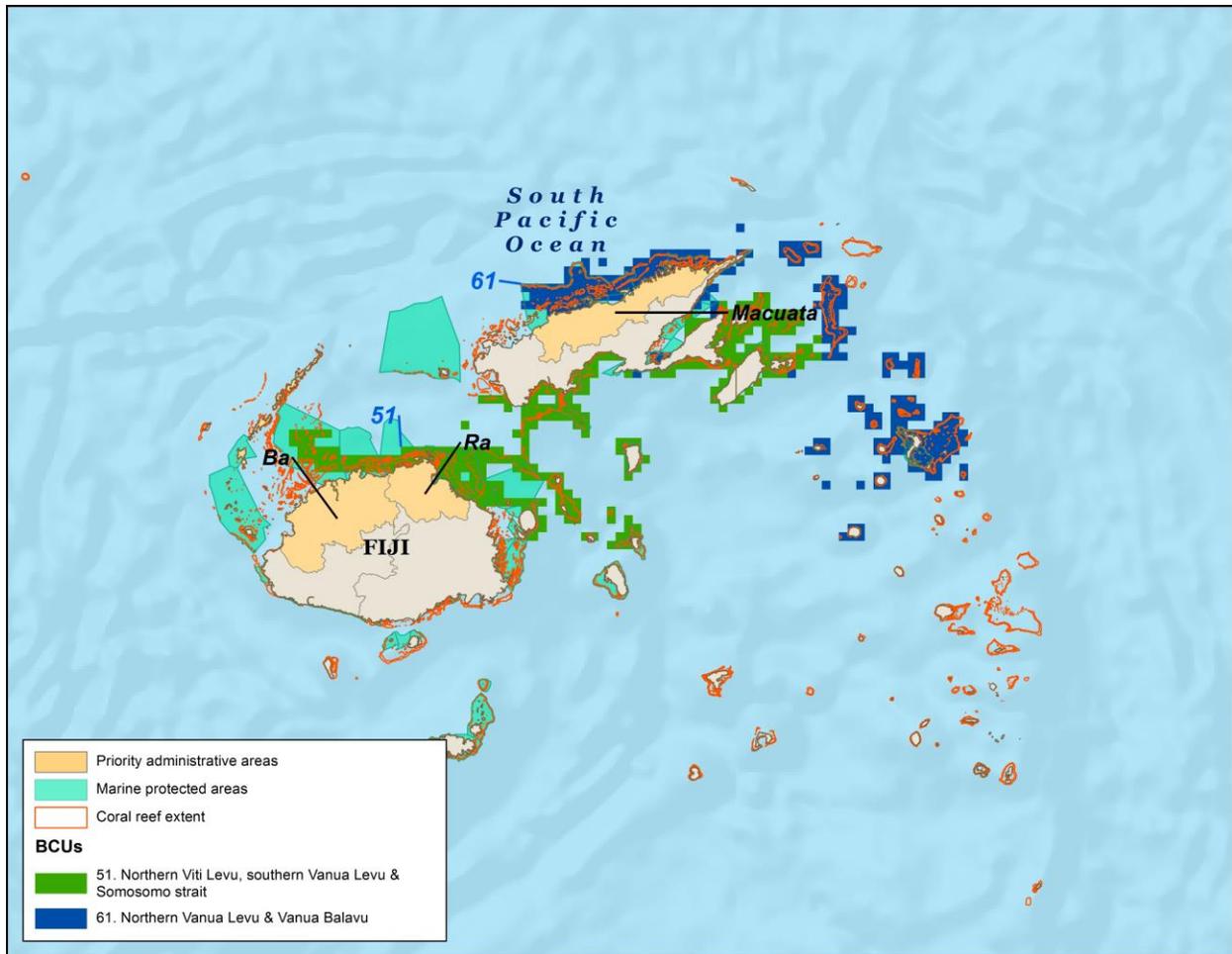


Figure 3 Climate refuge reefs (BCUs) and project priority areas in Fiji

Solomon Islands

Marine biodiversity and species richness in the Solomon Islands are amongst the highest in the world (second only to the region of the Raja Ampat Islands of eastern Indonesia), with a total area of approximately 6,750km² of coral reefs, which is overall in good condition. Except for some localized areas, impacts and reef degradation are low to moderate at most sites (Turak 2006). Mangrove forests cover 392.6km², approximately 1.4% of the total land area (28,400km²), and play a host of important roles in coastal stabilization with the social benefit of carbon sequestration by mangroves in the Solomon Islands estimated to be worth up to SI\$162million (Warren-Rhodes et al., 2011). The total area of seagrass meadows in the country is currently unknown, although estimates put it at around 10,000ha containing 10 species of seagrass that represent 80% of the known seagrass species in the Indo-Pacific region (Sulu et al., 2012).

Approximately 97% of the total human population live on the coast within 30km of a coral reef and are heavily dependent on reefs and the ecosystem services they provide for their livelihood including shelter and coastal protection. An economic valuation carried out in 2015 showed that coral reef and demersal fish, or ground fish, account for a total of SI\$70 million/year (~US\$9.32 million/year), which corresponds to SI\$156/person/year (~US\$21/person/year) and 0.8% of the total *nominal* GDP of Solomon Islands. The study further estimated the value of coastal protection services for coral reefs against damage from storm surges in Guadalcanal to be in the range of SI\$25–42 million/year (~US\$ 3.3–5.6 million/year) (Area et al., 2015).

Women engage in reef gleaning and are particularly active in post-harvest, processing, and small-scale trade. Though they constitute 25% of fishers (Harper et al., 2020) and harvest half of the total catch, their work is often unpaid, and considered an extension of household duties. Further, a lack of gender-disaggregated data and gender-sensitive policies also contribute to women's roles being undervalued and overlooked (Harper et al., 2013).

BCU areas (Figure 4) cover the southern half of Choiseul, the Manning Strait, and a band from northern, western, and southern-eastern coastline of Santa Isabella, the north-eastern corner of Malaita (around Manaoba Island and the Lau Lagoon) and the Nggela Islands group (also known as Flinders Islands). Priority is given to BCU areas within the Provinces of Central Island, Malaita, Isabel and Temotu for site-based action taking place within the CRR GEF:

- **Isabel Province** contains reefs relatively unaffected by coral bleaching events and crown-of-thorns starfish outbreaks that have affected nearby regions over the past decade. The area has, however, been severely impacted by overfishing for valuable species and stocks of bechdemer (sea cucumber), pearl oyster and finfish are significantly depleted in some areas. Widespread overfishing is of concern as this is likely to affect the reefs abilities to bounce back from shocks such as global warming (i.e., bleaching) or storm damage in the future. The province is also significant for its biodiversity (with 33 unique turtle nesting sites) and coastal habitats (including perhaps one of the best examples of marine-reef habitats in the country). Coastal communities in Isabel rely heavily on coral reefs for livelihood and sustenance and over the past 20 years, Isabel Province has championed resource management and governance. The province established a partnership with TNC that resulted in the first and only legally established marine protected area in Solomon Islands. Furthermore, the Province has also established an environment office, and Provincial capacities are well developed unlike other areas in Solomon Islands, with qualified staff with experience in engaging with local communities. Isabel is also a national priority for land-based mining, and the CRR GEF project will be important in identifying alternative, more sustainable income generating opportunities for local communities.
- **Malaita Province** is an area of great ecological and cultural value, containing extensive shallow reef areas, reticulate channels, seagrass meadows and artificial reef island villages. Coral reefs and mangroves are abundant in Lau Lagoon (Kool et al., 2010; Schwarz et al., 2012) which also hosts the largest seagrass meadows in the country. The Lagoon is also considered a key habitat for dugongs in the Indo-Pacific (Marsh et al., 2012). However, the area is heavily exploited with a high and rapidly growing population density, driving an increase in food demand and leading to over exploitation of fish stocks. Malaita is a national priority for vulnerability and assessment work by the Climate Change Division. The Provincial Government has recently announced protection areas 400m above sea level to protect important watersheds that are critical for its communities as it experiences the impacts of climate change. The CRR GEF project would complement the climate change efforts of the Malaita Provincial Governments by focusing on the coral reefs and building resilience of local coastal communities to adapt to the current impacts of climate change. The Malaita Province has capacity through the fisheries office and is supported by the WorldFish sub office in Auki. The GEF CRR provides the opportunity for Malaita Province to develop its community climate resilient policies and strategies.
- **Central Island Province** comprises the Melanesian islands of the Nggela (or Florida) Group, Savo and the Russell Islands. The province has 56 seagrass meadows (98% of seagrass area) covering an area of 652 hectares with mangrove species bordering the shorelines near streams or river mouths, such as in the Florida Group (McKenzie et al., 2006). Biodiversity in Russell Islands is relatively high, and there is a range of habitat types, and the coral reefs are in good condition. The region was identified during the TNC

marine assessment in 2006, as one of the potential sites for a marine protected area (Green et al., 2006). The waters in the province and inter-island passage between Guadalcanal are suspected habitats for breeding, feeding, resting, and migrating of cetaceans. The key threats are overfishing, destructive fishing and crown-of-thorns (COT) starfish. There was evidence of destructive fishing and invasion of the COT in the study sites of the TNC 2006 marine assessment. The Central Islands is a priority for fisheries development given it is close to market outlets in Honiara. However, the Central Islands Provincial Government is keen to ensure its local communities are safeguarded from national investments that do not benefit them. Therefore, the local Government is currently drafting an ocean policy and engaged in discussion for a marine spatial plan that would provide the Government the direction to inform future plans for the Province. This is an opportunity for GEF CRR to complement the efforts of the Government, supporting the design of provincial level policies and strategies required to ensure local communities build resilience in the face of climate change and benefitting from potential investments identified by the project.

- **Temotu Province** is the most remote province in the eastern end of Solomon Islands and, on average, scores some of the highest coral cover measures within the country and the world – ranging from 31% for Reef Islands to 42% and 44% respectively for Vanikoro and Utupua. Within depths greater than 10m, coral cover (as a percentage of the bottom covered by reef-building corals) has been observed to be more than 51%. The coral diversity of Temotu is amongst the highest in the country. The fish communities are more diverse than in other parts of Solomon Islands, even by trophic levels and with high fish density and biomass. There were low anthropogenic pressures in Temotu, evidence of COTS outbreaks was observed in and around the Reef Islands. Temotu Provincial Government has a fisheries office that is well staffed. During the ocean planning consultation done by the Government, the Provincial Government expressed willingness to take the lead in ocean management, emphasizing that they are truly the ocean people of Solomon Islands. They expressed that they are renowned navigators, a critical skill to have to lead ocean management work in Solomon Islands. However, resource management investments rarely reach this province. Therefore, this Province provides an opportunity for CRR to demonstrate support to climate refuge reef communities who see their isolation as protection from the impact of climate change.

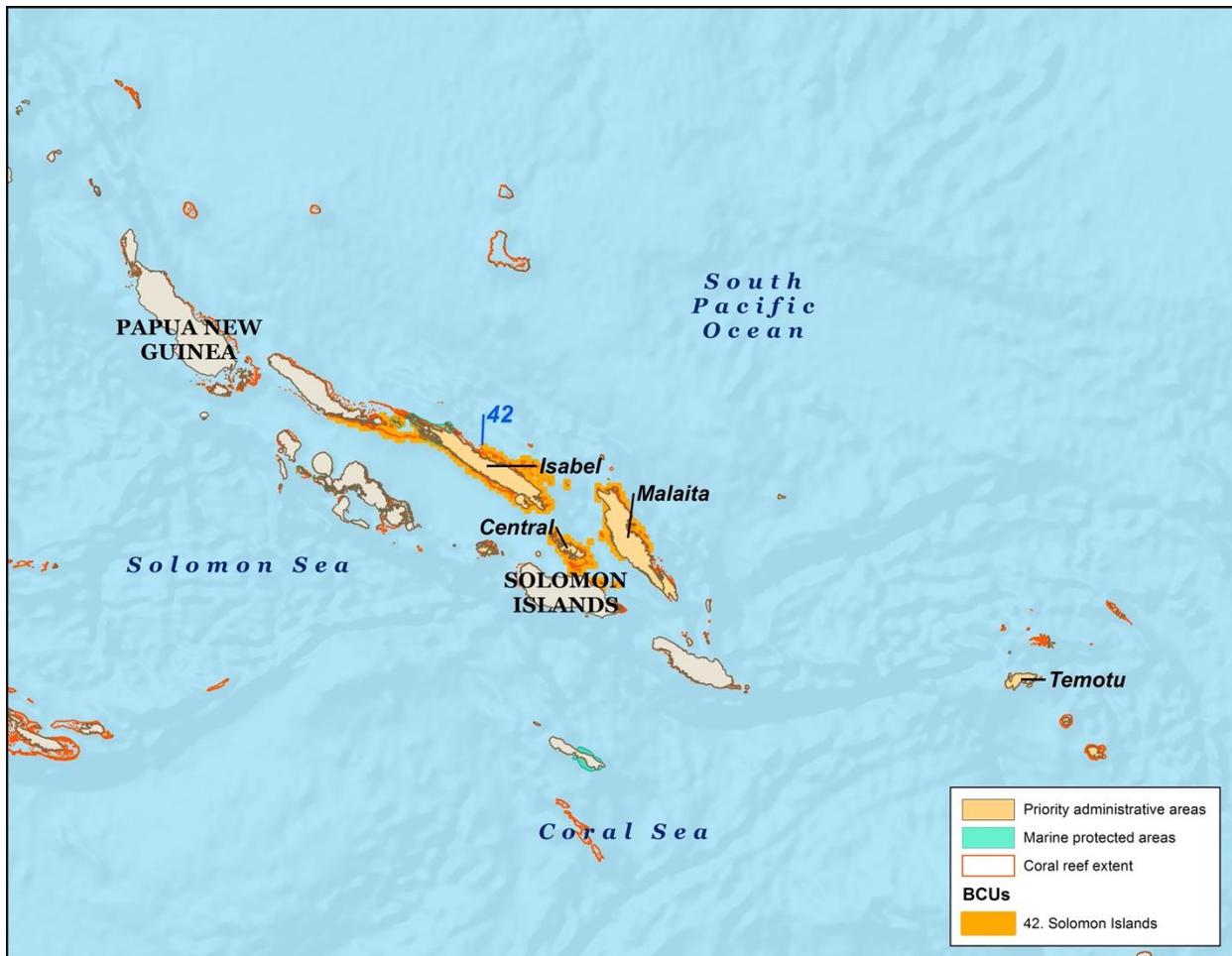


Figure 4 Climate refuge reefs (BCUs) and project priority areas in the Solomon Islands

Indonesia

Indonesia is the epicentrum of coral reef biodiversity in the Coral Triangle area. The total area of coral reefs in Indonesia is around 25,000 km² which contributes to 10% of global coral reefs (LIPI 2018). Indonesia has 569 species and 83 genera of stony corals, representing approximately 69% and 76% for species and genera, respectively, of stony corals globally (Hadi et al., 2020). The Indonesian Institute of Sciences (LIPI) has recorded 4 endemic species, namely *Acropora suharsonoi*, *Euphyllia baliensis*, *Indophyllia macassarensis* and *Isopora togianensis* (Hadi et al., 2020). In addition to coral reefs, the marine habitats in Indonesia are extensive and diverse. This includes 150,693 ha of seagrass (Hernawan et al., 2017) and 3.5 million hectares of mangrove forests that represent 21% of total mangrove area in the world (KKP 2020).

The significance of coral reefs for biodiversity as well as local livelihoods and the economy is well recognized in Indonesia. The Country's Medium Term National Development Plan (2020-2025) highlights the importance of coral reefs in development and identifies the need to anticipate and respond to coral bleaching events (mostly elevated sea temperatures) and to pursue the rehabilitation of coastal ecosystems, including coral reefs. Conservation of coral reefs is a key consideration in biodiversity conservation in the country and coral cover forms one of the criteria used to assess the success of MPA management. To date, 43% of coral reefs in Indonesia are located within marine protected areas (Handayani et al., 2020).

The loss of coral reefs in Indonesia would have a significant impact on the coastal resources of the country (as well as globally). It has been estimated that Indonesia stands to lose economic benefits generated by coral reefs by up to US\$270,000/km²/year from reef degradation due to pollution, sedimentation, overfishing and destructive fishing practices (Burke et al., 2012). This includes impacts on the tourism sector, which would affect several provinces that are highly dependent on marine tourism as well as the fisheries sector. An estimated 45% of total economic returns from fisheries, tourism, and coastal development in Coral Triangle Area (USD 14 billion in 2017) would be impacted by the loss of coral reefs (UN Environment, ISU, ICRI and Trucost 2018), in addition to significant impacts on small scale fishers who are highly dependent on the reef fish as a source of income and food. Women have a vital role in small scale fishers and are involved in up to 90% of secondary fisheries (e.g., processing) (WorldFish Center 2021). Women's contributions are often undervalued, unaccounted for, and marginalized. For example, despite their significant contributions to the fisheries, women often earn less than men. This relates to three patterns: unpaid work, lower-return work, and lower rates of entrepreneurship.

Indonesia contains 41% of the climate refuge reefs, with priority areas identified in four provinces (Figure 5 and Figure 6):

- **East Nusa Tenggara Province** (Nusa Tenggara Timur/NTT) is in the Lesser Sunda Region. The NTT Province is important to Indonesia's biodiversity, located in the eastern part of the country with several Marine Protected Areas (e.g., Sawu Sea National park, Komodo National Park, Alor-Flores MPA network). Nusa Tenggara has 272,123 ha of coral reefs (Giyanto et al., 2017) and 40,614 ha of mangrove forest (Hidayatullah et al., 2016). In the largest marine national park in NTT, the Sawu Sea National Park, only 5% of the coral reefs (Balai Kawasan Konservasi Perairan Nasional Kupang, n.d.) and 31% of the mangroves are still in good condition. The population of NTT province was 5 million people in 2020 (BPS Statistic NTT 2021). Marine resources are important to the economy of the Province, with 20% of the population dependent on coastal and marine resources (KKP 2021 Satu Data) and the fishery sector contributing to about 5.6% of total GDP in NTT Province.
- **South Sulawesi Province** has several marine parks; Takabonerate National Park, Kapoposang MPAs, Selayar MPAs. These marine parks have around 34,516 ha of coral reefs and 19,748 ha of seagrass bed (Suraji et al., 2015). South Sulawesi Province had 28,978 ha of mangrove forest in 2007 according to data from the Ministry of Forestry (Pranata 2016). However, only 30% of total mangrove is in good condition (DIKPLHD 2018). Marine resources contribute significantly to the South Sulawesi Economy. There are around 228,000 fishers depending on the marine resources. Marine resources also provide an important source of protein for households in South Sulawesi, with fish consumption at 66 kg/capita/year. Fishery, agriculture, and forestry comprise 21% of South Sulawesi's Gross Domestic Product (GDP) (BPS South Sulawesi 2021).
- **Maluku province** has 439,110 ha of coral reefs, of which only 35% is in good condition (Giyanto et al 2017). Maluku province has around 1.1 million hectares of mangrove forest and 40 types of mangroves distributed in the islands (Madiama 2016). Seagrass in Maluku Province, as part of Eastern Indonesia, is in relatively good condition (Hernawan et al 2017). There were around 1.8 million people living in islands in Maluku Province in 2020 (BPS Maluku 2021). The Fishery sector is considered as part of the agriculture and forestry sector, which encompasses 24% of GDP in Maluku province (BPS Maluku 2021). There are six MPAs, covering 667,683 ha and a potential 2 million ha identified to be incorporated in the MPA zoning of coastal areas and islands in the province, supported through an initiative financed by USAID (the SEA project). In addition, Maluku Province has a strong marine tenure customary system, and the community is familiar with management and conservation of marine biodiversity, with a rich foundation of customary and traditional knowledge.

- Riau Archipelago province** is in the western Sumatera, which has 478,587 hectares of coral reefs in total. In Riau Archipelago province, the area of coral reefs is around 32,000 ha (Book of RTRW Provinsi Kepulauan Riau 2008-2028), of which 34% are in good condition, 43% in medium condition and 28% in poor condition (Giyanto et al., 2017). The condition of the coral cover in Batam and Bintan Island as part of Riau Archipelago province improved between 2015 and 2016: in Bintan, the coral cover increased from 35.61% to 37.97%, and in Batam from 36.28% to 39.44% (Hadi et al., 2020). Recognizing the value of the 54,681.9 ha of mangroves in the Province, the Agency of Peatland and Mangrove Restoration of Indonesia plans to rehabilitate 5000 ha of mangrove in Bintan Island in 2021 (www.brg.go.id). Riau Archipelago Province has 11 types of seagrass that cover 11,500 ha (Long Term Development Plan Riau Archipelago Province 2005-2025). The population of Riau Archipelago Province is 2 million, of which 70,000 are fishers who depend on marine resources. The wider community is also dependent on marine resources as a source of household protein. The fish consumption of people in this province is 66.5 kg/capita/year, which was much higher than the national average in 2019 (statistic.kkp.go.id).

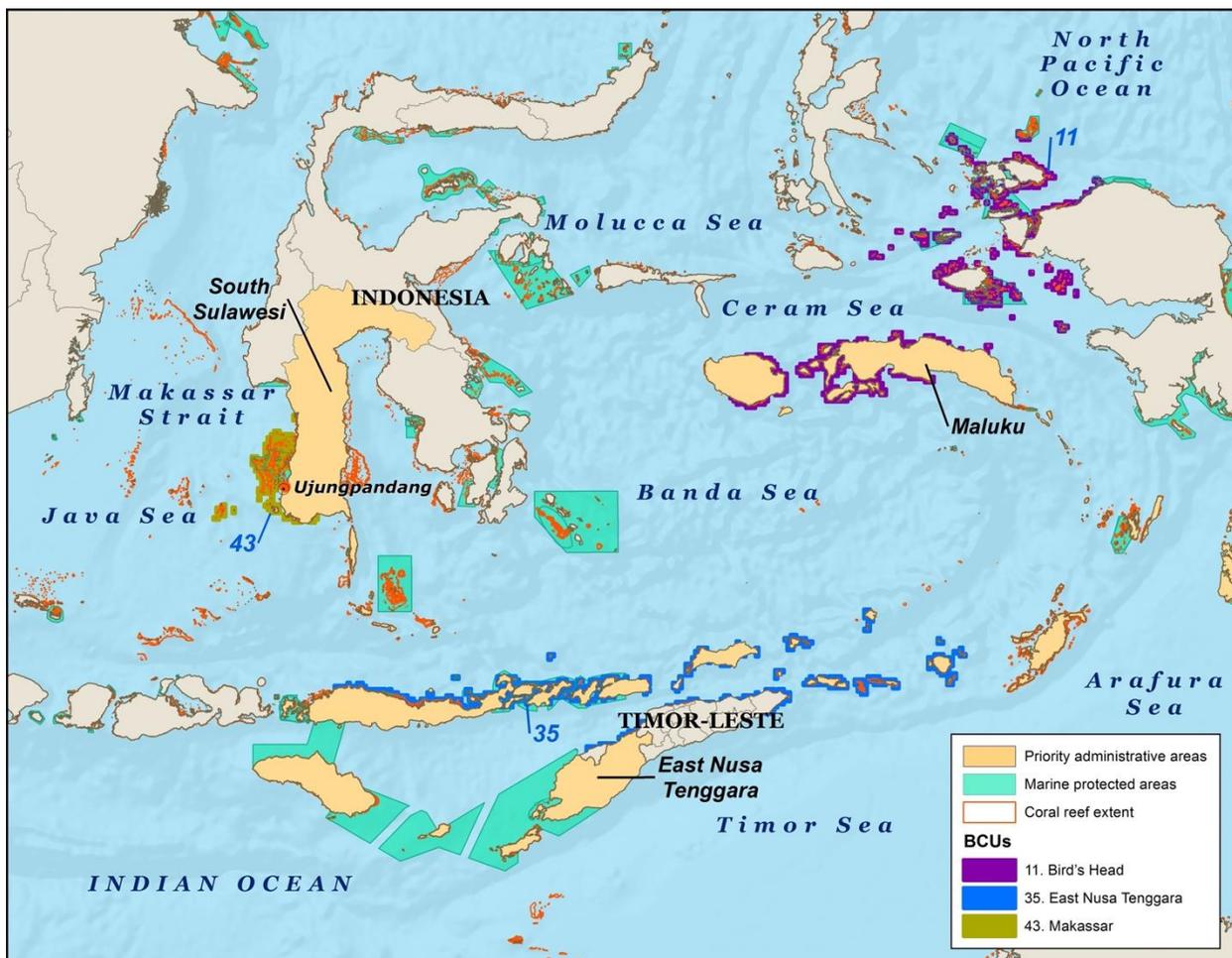


Figure 5 Climate refuge reefs (BCUs) and project priority areas in Indonesia

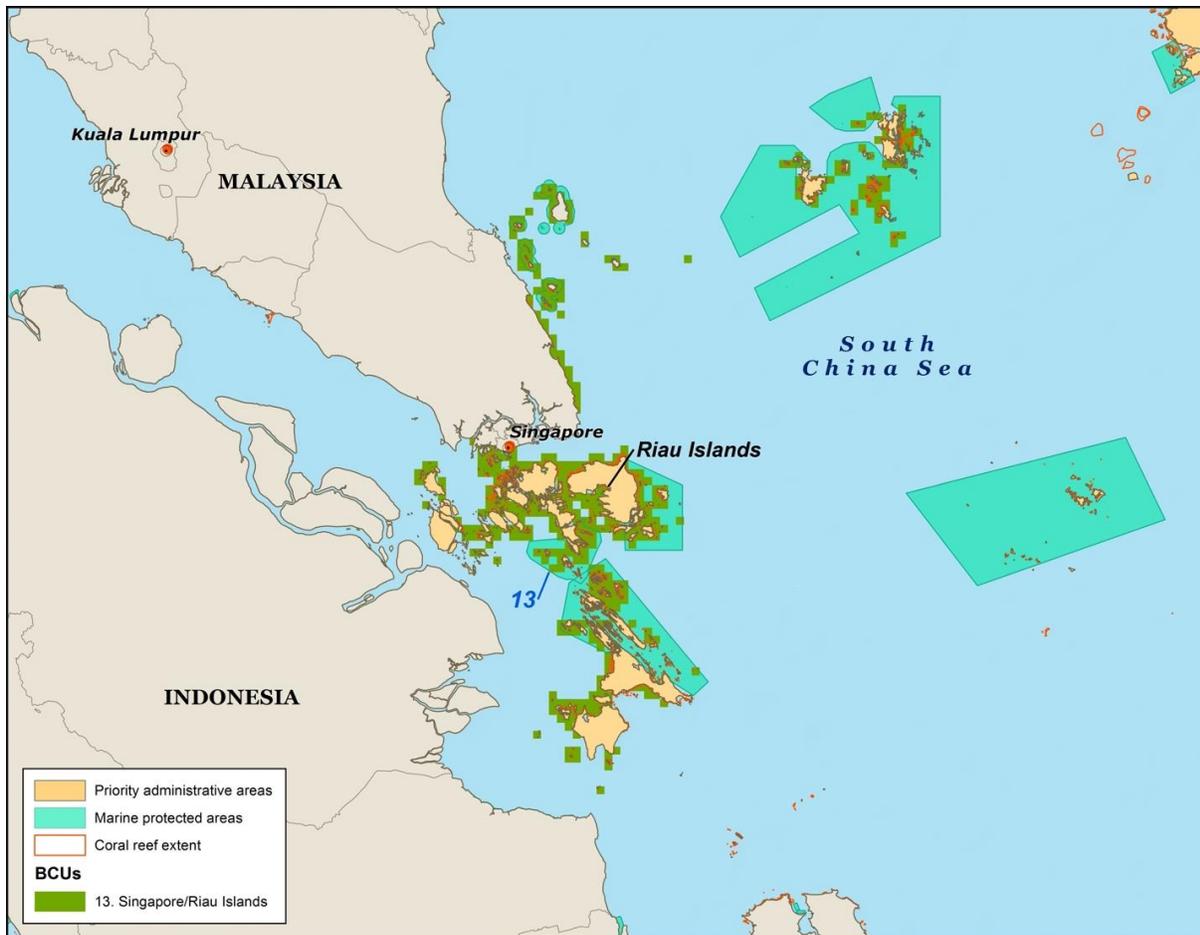


Figure 6 Climate refuge reefs (BCUs) and project priority areas in Indonesia

Philippines

A combination of environmental, geographical, and oceanographic factors in the Philippines has resulted in extremely high levels of diversity of marine species (Carpenter and Springer 2005, Licuanan 2019). The Philippines is known as one of the world's centers of marine biodiversity with amongst the highest number of corals, crustaceans, fish, and marine plant species. However, recent research carried out by Licuanan et al., (2019) showed highly degraded shallow reefs (5m) in all the biogeographic regions and posited that 30% of Philippine coral reefs have been lost due to a combination of various stressors.

In the Philippines, the transition or connection between the country's distinct biogeographic regions resulted in nine marine corridors that connect coral populations through water transport of propagules. Two of these marine corridors (Verde Island Passage and Tawi-Tawi) have the highest marine shore or reef-associated fish biodiversity in the world (Carpenter 2005, Muallil et al., 2020). Approximately 500 species of stony corals are found in the Philippines, of which 12 species are endemic. Philippine coral reefs are also home to some 3,000 species of fish. Aside from corals, half of the total mangrove species in the world can be found thriving in the country due to the prevailing local conditions suited for mangrove growth (Garcia et al., 2014). However, the rate of mangrove loss in the Philippines is alarming. In 2007, the Forest Management Bureau (FMB)

estimated that the current mangrove area in the country is only 50% compared to the 1920s. It is estimated that more than half of the Philippine towns and villages rely on the ecosystem services provided by mangrove forests (Primavera 2000). Apart from anthropogenic needs, migratory and endemic birds, reptiles, amphibians, mammals, fish, crustaceans, and other marine invertebrates rely on this coastal ecosystem for habitat (Garcia et al., 2014). Like mangroves, seagrass meadows support varying economically important species as well as large marine vertebrates such as dugongs and sea turtles (Fortes 2012). Information on seagrasses, however, is limited. Through combined satellite imaging and field data analyses, it is estimated that total seagrass area in the Philippines is at 343 to 635 km² with the decline attributed mainly to anthropogenic impacts such as poor coastal water quality and environmental degradation (Fortes and Santos 2004; Fortes 2012). With 37,000 km, the country's coastline is one of the longest in the world.

A significant proportion of municipalities are located on or near the coast where many people rely on the coastal and marine ecosystem services for their basic needs. The GFDRR (2011) estimated that services from coastal ecosystems in the country total \$3.5 billion, while more recent estimates for coral reef ecosystem services amounted to \$140,000 per km² per year (Tamayo et al., 2018). A major function of reefs and adjacent ecosystems is food security, specifically reef fisheries and aquaculture. Other types of provisioning services coral reefs provide are raw materials and medicinal sources. For example, novel drug discoveries were made during the past two decades from cone snails from the Philippines (Olivera and Teichert 2007). Moreover, coral reefs are important to livelihoods to local communities through tourism and related activities. It is estimated that the reef-based tourism in the Philippines have annual regional values of approximately 11 to 83 million US\$ (Tamayo et al., 2018). Division of space and labor in fisheries is highly gendered. Women engage in gleaning and nearshore reef fishing using scoop-nets, traps and fish baskets, and play a supporting role in preparing equipment, processing, and marketing men's fishing catch (Torell et al., 2021). Coral reefs also offer coastline protection from strong waves and surges caused by storms and typhoons through their massive fringing structures that readily breaks wave energy before hitting the coastline (Villanoy et al., 2012). A projection by Beck et al., (2018) estimates that the Philippines benefits greatly against the negative effects of strong typhoons coupled with the influence of sea-level rise, averting up to \$590 million worth of damage by keeping reefs healthy and ready to act in coastal protection.

The identified BCUs for the Philippines (Figure 7) are located within the Sulu Sea marine bioregion and the South Philippine Sea marine bioregion, specifically in the Bohol Sea. Areas prioritized for site-based action (as shown in Figure 7) include the municipalities of Aborlan, Narra, Sofronio, Espaniola, Brookespoint, Bataraza, Balabac, Rizal and Quezon. Consultation with local experts by WWF Philippines during the PIF stage resulted in the adjustments in BCU as to location in the Palawan area.

The northern Palawan sites identified locally as a marine key biodiversity area were chosen due to higher reef health indices, biodiversity, accessibility, less security and logistical issues, and better baseline data availability.

These sites are:

- **El Nido** - El Nido is a 1st class municipality in the province of Palawan. Its western area covers Bacuit Bay, a prominent site for ecotourism and coral reef ecological diversity. In the east lies Imorigue Channel, which also harbors extensive coral reefs and sandy beaches. Together with Taytay, it makes up the El Nido-Taytay Managed Resource Protected Area which covers 54,000 hectares of marine waters. Recent assessment of tourism sites in El Nido show fair to good coral reef cover (20 to 45%). Due to the long-term and effective management, reef fish species can attain their maximum sizes and coral reefs can support top predators such as sharks (MERF, 2020).

- **Taytay** - Taytay is a first-class municipality in the province of Palawan. It is bordered in the north by the municipalities of El Nido and Linapacan. Aside from being included in the El Nido-Taytay Managed Resource Protected Area, Taytay also houses the Malampaya Sound Protected Landscape and Seascape and the Lake Manguao Municipal Conservation Area and Ecotourism Development Zone. These protected zones include various coastal and marine ecosystems such as mangroves, corals, and seagrass. Ecotourism as well as prominent fishing communities can be found in the municipality.
- **Dumaran Channel** - This is the marine channel situated between the municipality of Dumaran and Araceli. Dumaran is a 3rd class municipality of Palawan while Araceli is a 4th class municipality. According to the Palawan Council for Sustainable Development (PCSD), this site is a good candidate for resilient reefs due to its very good coral conditions and oceanographic features.

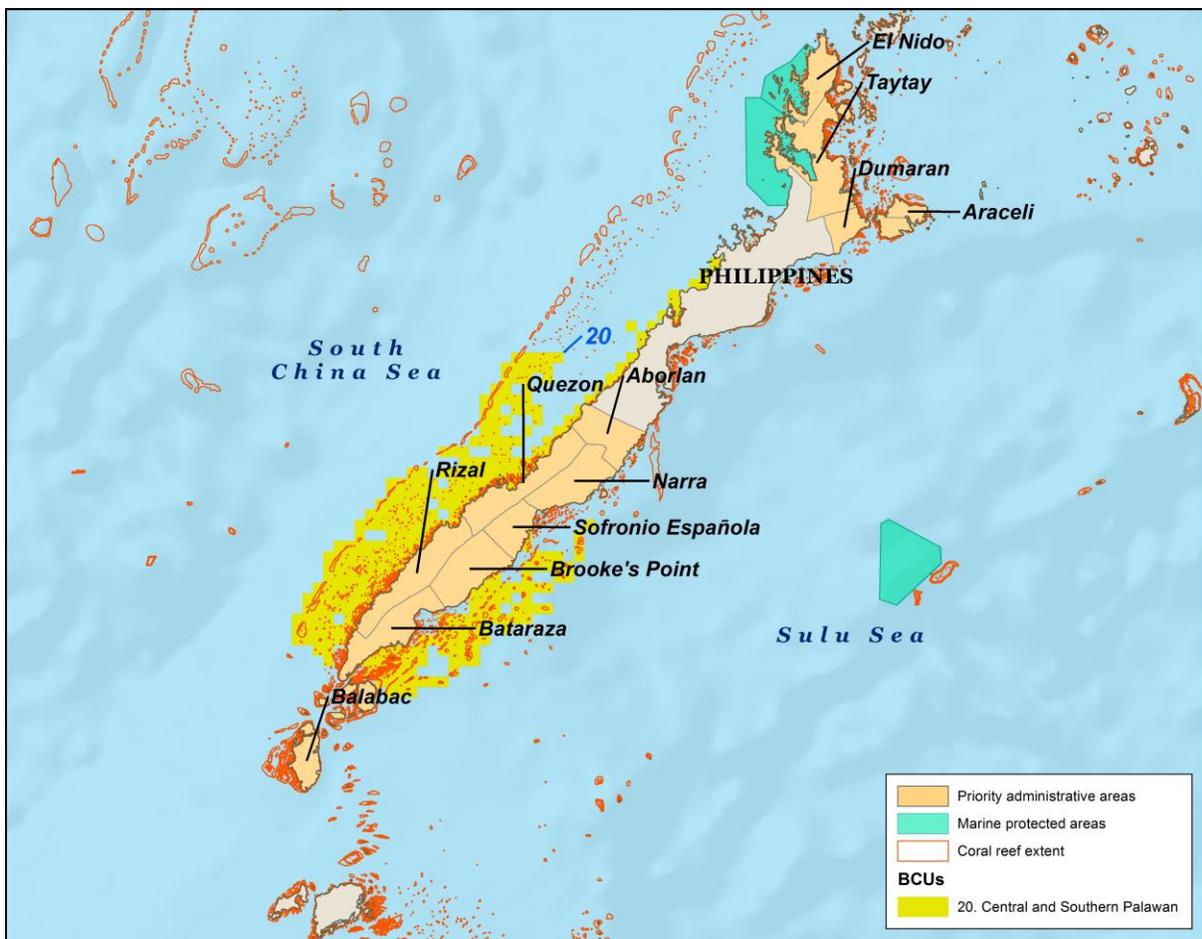


Figure 7 Climate refuge reefs (BCUs) and priority areas in the Philippines

Madagascar

Madagascar's coral reefs cover an area of 3,934 km² and account for 2% of the world's coral reefs. Madagascar's reefs are the most extensive, structurally varied and biologically diverse in the Western Indian Ocean marine ecoregion (Burke et al., 2011; Andréfouët et al., 2009; Obura, 2012). With 435 recorded coral species (Wafar M. et al., 2011), Madagascar's coral reefs shelter the greatest diversity of corals and

macroinvertebrates of the central and western Indian Ocean (Jadot et al., 2015). These coral reefs are home to over 1000 species of reef fish, as well as 2,500 marine invertebrates (Baumeister, 1997; Laboute and Maharavo, 1998).

In the southwestern landscape of Madagascar, particularly within the MPA of Soariake, the reef formation is fringing (WCS Madagascar, 2018 and 2019): the cover of living corals is 44% made up of 37 different genera. The area is an important habitat for 14 shark species, 4 species of rays, 5 species of marine turtles and 111 species of fish. The northwestern landscape of Madagascar includes the Ankivonjy and Ankarea MPAs as well as the reef corridor west of Nosy Be. The reef formation is also of the fringing type (WCS Madagascar, 2018 and 2019), with different reef banks (Banc de Castor, Banc du Serpent and Green Bench), and has shown a high level of resilience in the face of climate change, with very low mortality rates. The four kinds of corals there have not been affected by the bleaching phenomenon. The area also hosts a wide diversity of fauna: 30 species of marine mammals including six whale species, including the recently discovered Omura whale (*Balaenoptera omurai*) (Celchio, 2017); dolphins, dugong, 26 species of rays and sharks; 5 species of marine turtles, 106 species of fish in Ankivonjy and 109 in Ankarea. The MPA Ankivonjy is also home to a mangrove forest spanning 1268 ha, the health of which influences that of coral reefs. In the MPA of Ambodivahibe in the North-East of the Country, coral reefs are essential for the migration of species and biological connectivity in the Western Indian Ocean region (Large Marine Ecosystem of the Agulhas and Somali Currents Project and UNESCO World Marine Heritage Program) and associated ecosystems include at least 10 species of seagrass and 91 species of algae. There are also 271 species of reef fish of which 3 are endemic to the Indian Ocean and 7 mangrove species, which are feeding areas for shrimps and crabs as well as some fish species.

In the Southern Mozambique Channel Landscape (MPA Barren Islands), the diverse reef ecosystems of 87,000 hectare are nearly 90% deep area. Their coral reefs are among the richest and most productive in the region, with nearly 40 genera of hard corals belonging to 16 families and 33 families of fish, with a biomass of 2,648 kg / ha (Obura, 2009; Cripps, 2010, Graham, 2013).

In general, from a food security perspective, coral reef systems create habitat for hundreds of thousands of species, many of which support the livelihoods of coastal communities with economic and nutritional benefits. Communities around Ankivonjy and Ankarea MPAs, like all coastal regions, depend on the rich reef ecosystem for their livelihoods, largely dependent on fishing providing both a source of income, but also a source of protein for their daily diet. More than 90% of households eat fish every day; communities consume 14% of their catch, and the rest is dedicated to the local market. Around Ambodivahibe, 80% of the population are fishers and the degradation of coral reefs has impacts on the livelihoods of the population by reducing their income. In Madagascar small-scale fisheries, gender inequalities are underpinned by social norms and gender roles, which limit women's political and economic influence and access to opportunities and resources. Women combine household duties with intertidal gleaning and nearshore net fishing for subsistence—targeting octopus, sea cucumber, small fish, shrimp, and shells—while men fish offshore—targeting octopus, sea cucumber, sharks, pelagic fish, rays, shrimp, crabs, and turtles—and dive in the intertidal during high tide or bad weather. This gendered division of space and fisheries means that women and men hold different ecological knowledge (Langley 2006)

The BCUs identified in Madagascar are in the northern, northwestern, and northeastern parts. Priority areas selected for Madagascar (Figure 8) are:

- **Nosy Iranja MPA** – This is part of the Ankivonjy MPA (1.394 km²), located 50 km southwest of Nosy Be, includes coastal and marine ecosystems along the Ampasindava peninsula and offshore islands.

Nosy Iranja contains the most important nesting site for green turtles in Madagascar and deep-water habitats which are home to diverse, abundant, and endangered cetacean populations

- **Nosy Hara MPA** –Nosy Hara is a group of islands or archipelago located west of Diego Suarez. The coral reef beds in Nosy Hara are still among the most intact reefs along the sides of Madagascar. To date, these coral reefs host 332 of 340 coral species that are found in the Western Indian Ocean. They are home to an abundant variety of fish and young marine turtles that hatch on the deserted beaches. The low density of human population on the coast, the remoteness of the islets and the long period of Varatraza (strong southerly winds) make these reefs untouched habitats from looting and destructive practices of fishermen.
- **Loky Bay:** Coral reefs in the Loky Bay are generally healthy, with coral cover averaging 50% in some locations, and seagrass beds appearing in good condition. The two main environmental drivers in the coastal environment in the areas are sedimentation - particularly in the bays (Ambodivahibe, Nosy Ankao and Loky Bay) - and high exposure to wind and waves from the southern Indian Ocean. In general, Loky Bay showed greater coral cover, larger corals, and fewer bleached colonies than the southern part of northern areas. However, reefs are limited in growth and structure due to fishing pressure from resident and migrant fishers (Obura *et al.*, 2011).

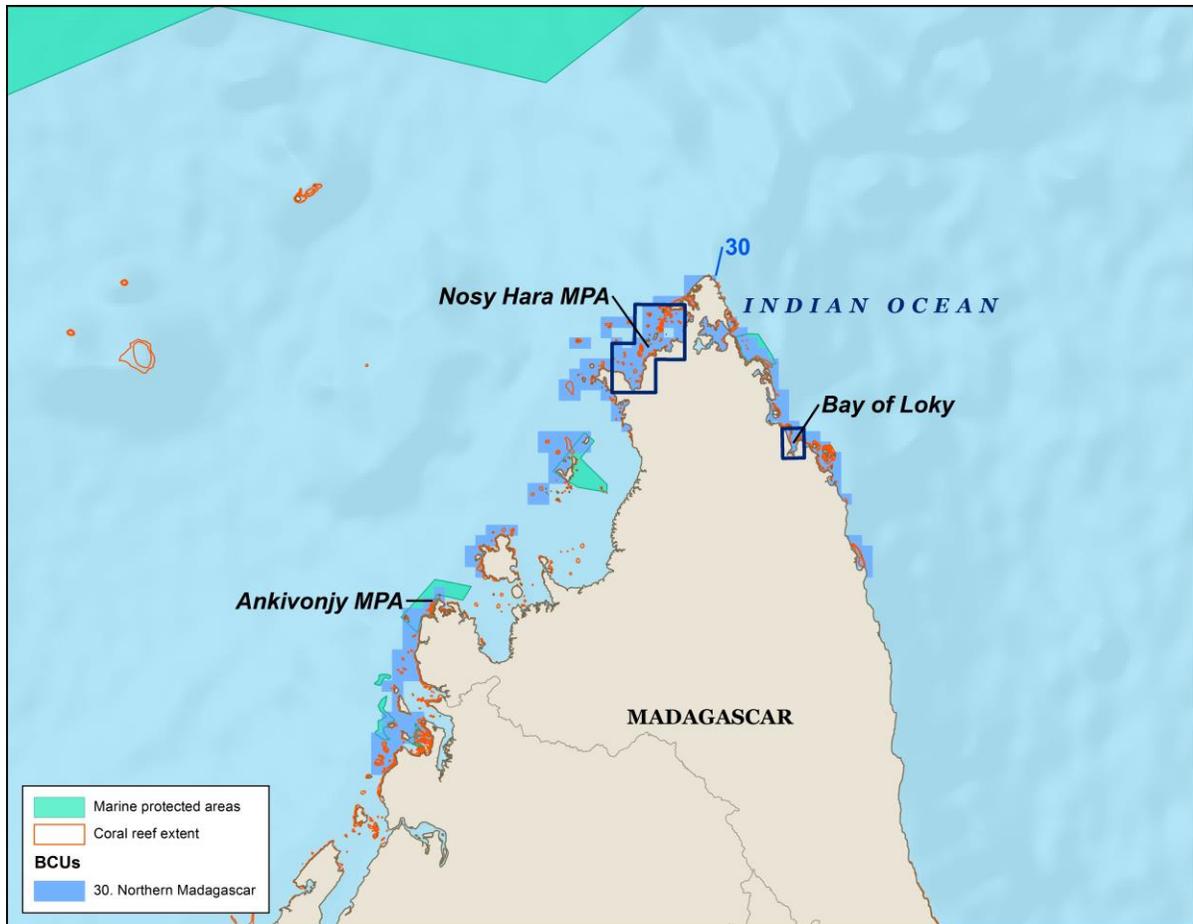


Figure 8 Climate refuge reefs (BCUs) and priority areas in Madagascar¹³

Tanzania

Coral reefs are located along about two thirds of Tanzania’s continental shelf and cover an area of about 3,580km². Most of these are comprised of fringing and patch reefs, restricted to a narrow strip (usually 1 to 3 km wide) with high levels of coral reef cover in Tanga, Mafia, Lindi (Songo Songo archipelago) and Mtwara (TCMP 2001, Wagner, 2004, Muhando 2008, NEMC 2018). The highest levels of diversity are found in Mafia Island Marine Park (NEMC, 2018). The total extent of mangroves in the country is 115,500 ha on Tanzania’s mainland and 18,000 in Zanzibar, with the largest continuous and well-developed mangrove forests found in the major estuaries of the Pangani, Wami, Ruvu, Rufiji and Ruvuma Rivers, and a total of nine species in the country. The Rufiji Delta has the largest stand of mangroves (53,000 ha) on the entire East African coast (Birdlife International, 2021). In Zanzibar, well-developed mangroves occur on Pemba Island. There are ten species of seagrasses that form the most extensive seagrass beds occurring along the Tanga coastline, in the deltas of the Ruvu, Wami and Rufiji Rivers, on Mafia Island, in the Songo Songo Archipelago and around Kilwa and Chwaka Bay (UNEP/Nairobi Convention Secretariat 2009, ASCLME 2012).

Coral reefs provide habitat to 70% of the artisanal fish production in Tanzania (Muhando 2009), serving as feeding, breeding and nursery grounds for a great variety of invertebrates and fish. According to WWF 2012,

¹³ Note: Unlike the other regions, priority areas in Madagascar are not administrative areas

through Ruvuma, Mafia and WWF-Kilwa Marine Eco-region (WWF-RUMAKI) the reef fish are comprised of 87 species whereby the density was 515.5 individuals per 1,000 m². They are also one of the most important tourist attractions in Tanzania. According to WWF (2017), coastal tourism in the Western Indian Ocean (WIO) region generates US\$10.4 billion annually. This tourism is highly dependent on both the physical assets of the coastline and beaches, and on functioning and healthy marine and coastal ecosystems (i.e., cultural/recreational services, as well as regulating and supporting services). In Tanzania, social norms limit women's access to certain industries however and female fish traders tend not to trade within the tourism sector (Fröcklin et al., 2013). In addition, there are constraints livelihood opportunities (e.g., diving with scuba gear on the reef (Lentisco & Lee 2015)), assets, mobility, and thus fishing grounds. Women are often excluded from formal fisheries management and tend not to be engaged in decision-making processes and women's vulnerability to stressors on the intertidal zone where they fish (e.g. tourism, migration, coastal development) is not well understood (Lentisco & Lee 2015) and there have been cases where women have been displaced from fisheries as they become more profitable through connections to international markets (e.g., the octopus fishery, Porter et al., 2008).

BCU are in Southern and Central Tanzania, and priority areas identified by stakeholders (Figure 9) include:

- **Rufiji-Mafia-Kilwa:** The Rufiji-Mafia-Kilwa seascape (also known as the RUMAKI Seascape) stretches for 365 km along the coast of the West Indian Ocean, south of Dar es Salaam. The Seascape is a marine Ramsar site comprised of Rufiji Delta; Mafia Island and surrounding smaller islands, sandbars, and coral reefs located just offshore; the Songo-Songo Archipelago to the south; and adjacent waters, including the Mafia Channel and waters between Mafia and Songo-Songo. The RUMAKI seascape is highly significant to Tanzania's biodiversity, comprising over 26% of the country's coral reef habitat (625km²) and over 50% of its mangrove forests (532km²). The Rufiji delta mangrove forest reserve (532km²) hosts the largest concentration of mangroves in Tanzania (approx. 50%). Rufiji has the highest mangrove species diversity of any site in the Western Indian Ocean, containing all the 9 species which is rare in a single site. The Mafia Island Marine Park (822 km²) MIM was established in 1996 and exhibits high coral reef biodiversity, with extended seagrass meadows and the beaches support a nesting female population of 80-100 green and hawksbill turtles. The Park also provides staging grounds for various palearctic migrating birds and sizeable colonies of the Comoros lesser fruit bat *Pteropus seychellensis comorensis*. There are also a variety of vulnerable and endangered marine species including over 100 whale sharks *Rhincodon typus*, 5 species of marine turtle and a small remnant population of dugong in the Mafia channel. The seascape contains eight Collaborative Fisheries Management Areas (CFMAs) which engage communities in natural resource governance through the Beach Management Units (BMUs). The CFMAs cover all areas outside the marine park and overlap partly with the park.
- **Tanga/Pangani:** Pangani within the Tanga region, supports several ecologically important and diverse habitats such as coral reefs, mangrove forests, seagrass beds, and coastal forests. The major economic activity in this area includes fishing, supported by agriculture at a subsistence level. The mangrove forests in the area are important breeding and nursery grounds for both marine and terrestrial fauna, including commercially important species such as sardines (*Rastrelliger kanagurta*), catfishes (Ariidae), milkfish (*Chanos chanos*), goatfish (Mullidae), apogionidae, clupeidae, crabs and mollusks.
- **Pemba Channel Conservation Area (PECCA):** The Pemba Channel Conservation Area is located to the west of Pemba Island and covers 42 nautical miles stretching from the southern to the northern tip. It has a two-mile width stretching from Fundo Island. The area is fully protected to

allow the area to be a source of reef fish and the area is well managed and closely monitored. However, it has been recognized that buffer areas with limited fishing around these no-take zones need to be established and enforced.



Figure 9 Climate refuge reefs (BCUs) and priority areas in Tanzania

1.3 Environmental Problem(s), Threats and Root Causes

Coral reef systems across the world’s oceans are currently experiencing major losses, including the Great Barrier Reef, the Indo-Pacific region, the Caribbean, and the Indian Ocean. Most of these reef systems have seen losses of 50 to 80 % of their coral cover in the last 50 years¹⁴.

1.3.1 Global Climatic Drivers

Until a few decades ago, decline in coral abundance largely driven by stresses such as pollution, overharvesting and destructive extraction of fish, corals and other organisms, and unsustainable coastal development. More recently, however, the principal drivers of global reef decline have been the warming

¹⁴ Bruno and Selig 2007; De’ath et al., 2012Hughes et al., 2017Côté et al., 2005; Gardner et al., 2003bBaker, Riegl, and Glynn 2008Riegl 2003

and acidification of the world's oceans, with the impact of these changes on organisms and ecosystems growing rapidly. These global climatic drivers (e.g., warming and acidification of oceans, and intensifying storms) have combined with local threats to drive some of the most rapid decreases in coral cover ever recorded (Hoegh-Guldberg et al., 2019). As the ocean warms and acidifies, there is a rapid and unprecedented decrease in the extent of coral cover (i.e., coral abundance). The IPCC expert consensus (IPCC SR1.5) concludes that, even if the average global temperature rise is limited to 1.5°C above the pre-industrial period, 70-90% of today's corals will be lost by 2100. At 2°C or above, only 1% of what we have today is likely to survive (IPCC, 2018, Hoegh-Guldberg et al., 2019).

Ecological changes driven by ocean warming and acidification include modified food webs, shifts in community structure and location, reduced habitat complexity, decreased fecundity and recruitment, changes to fisheries productivity and opportunity, and a shift in the carbonate budget of some ecosystems toward dissolution and erosion of calcium carbonate stocks (Hoegh-Guldberg et al., 2007). Projections of change in biological systems indicate future scenarios for coral reefs that will range from difficult to catastrophic, with serious major challenges for the 500 million people who depend on reef fish stocks for access to nutrition, as well as the estimated 30 million small-scale fishers who depend on coral reefs for their livelihoods (Hoegh-Guldberg, O. et al., 2015). Eventually the loss of coral cover and capacity for reef building will see a loss of the structural ability to provide coastal protection against major storm events.

Despite the global trend towards warmer and more acidic ocean conditions, it is important to keep in mind that the threats are not uniform. It is also evident that the natural resilience to warmer and more acidic conditions varies across geographies. Furthermore, reefs that are already near their physiological tipping points may prove to be incapable of adapting to climate change, regardless of efforts taken to reduce other stressors. Other reefs may appear to be degraded but could represent a resilient transition state. This heterogeneity suggests that coral preservation interventions should focus on those refuge reefs most likely to survive (as described in Section 1.1) and, where possible, those reefs which also are known to be significant larval 'source' reefs with strong capacity to regenerate corals in connected places. This regeneration is made possible through the transport of coral larvae in oceanographic currents. The connectivity of reef systems and their potential to regenerate regional reefs has been well documented, especially after disturbances such as large storms, outbreaks of coral predators (e.g., COTS) and mass bleaching events.

Protecting these refuge reefs will also play a crucial role in supporting the regeneration of coral reefs in the future. This work will truly come into its own once the climate has stabilized and investments into restoration are less likely to be undermined by increasing stress from climate change

1.3.2 Anthropogenic threats

Data from a global study carried out by Halpern et al., (2015) on cumulative human impacts on the world’s ocean was used in research by Kuempel, et al., (2021) to estimate human and economic pressures on the priority climate refuge reefs (Table 2). Pressures considered in the 2021 analysis are described in the Table 3.

Table 2 Normalised (between 0-1) marine human pressures on priority climate refuge reefs¹⁵

Country	Fiji BCU 52	Fiji BCU 61	Indonesia BCU 11	Indonesia BCU 13	Indonesia BCU 35	Indonesia BCU 43	Madagascar BCU 30	Philippines BCU 20	Solomon Islands BCU 42	Tanzania BCU 24	Tanzania BCU 25
Artisanal fishing	M	M	M	M	H	M	M	M	H	M	M
Dem. dest. fishing	M	L	M	M	H	H	M	H	M	M	M
Dem. non-dest. High	M	M	M	M	H	H	M	H	L	H	M
Dem. non-dest. Low	M	M	H	M	H	H	M	H	M	M	M
Inorganic	H	M	M	M	M	H	M	M	M	H	H
Invasives	L	H	M	H	M	H	M	L	M	H	H
Night lights	H	M	M	H	M	M	M	M	L	M	M
Ocean acidification	M	H	M	L	M	M	L	M	M	L	L
Ocean pollution	H	M	M	H	M	M	L	M	L	M	L
Pelagic High bycatch	H	L	M	M	M	M	L	H	M	H	H
Pelagic Low bycatch	M	L	H	M	M	H	L	H	M	M	L
Fertiliser	H	M	M	H	H	H	M	M	M	M	M
Pesticides	H	M	M	H	M	H	M	M	M	M	M
Population	M	M	H	H	H	M	M	M	H	M	M
SHipping	H	M	M	H	M	M	L	M	L	L	L
Sea level rise	M	M	H	M	H	H	M	M	H	M	M
Sea surface temperature	L	H	M	L	M	H	M	H	H	M	M
Ultraviolet radiation	H	M	L				L	M	M	M	M

¹⁵ Pressure data were sources from Halpern et al., (2015) representing major global marine pressures measured at a 1 km² resolution as of 2013. Colors represent the relative degree of risk from each pressure compared to 50 climate refuge reefs identified in Beyer et al. (2018). Green and “L” represents ‘low’ pressures in the lowest 25% of values, yellow, and “M” represents ‘medium’ pressures between 25-75% of values and red and “H” represents ‘high’ pressures above the top 75% of values for each pressure.

Table 3 Detailed description of normalized marine human pressures on climate refuge reefs

Pressures from Table 2	Rationale
Fishing <ul style="list-style-type: none"> • demersal destructive • demersal non-destructive low bycatch • demersal non-destructive high bycatch • pelagic low bycatch • pelagic high bycatch • artisanal* 	Fishing can have direct effects on coral reefs through habitat destruction and indirect effects through changes in species composition (Jennings & Polunin 1996). Artisanal and demersal fishing are likely the most relevant to coral reefs, but we also include pelagic fishing due to potential unknown effects and interactions between stressors and other coral associated ecosystems. We note pelagic fishing pressure is relatively low compared to other pressures considered in our analysis (Figure S4).
Inorganic pollutants*	Organic and inorganic pollutions can alter coral calcification, tissue growth, symbiosis, reproduction, and recruitment, ultimately deteriorating coral health (Fabricius 2005)
Organic pollutants	
Invasive species*	Invasive species (such as algae, invertebrates and fish) can alter coral reef community structure and reduce abundance, diversity and performance of native coral and fish species (Burke et al., 2011).
Light pollution	Light pollution can disrupt the reproductive cycle of coral reefs and other reef associated species, as well as potentially other physiological, biological, and behavioral cycles (Ayalon et al., 2021).
Ocean acidification*	Changes in aragonite saturation state reduce the calcifying ability of corals (Chan & Connolly 2013)
Ocean pollution	Marine-based pollution can undermine coral reef health through oil leaks, ship discharge and solid waste (Burke et al., 2011).
Nutrients	Fertilizer pollution increases nutrients on reefs, which can increase growth rates of competing algae, create dead zones, and increase coral susceptibility to disease and bleaching (Vega Thurber et al., 2014; Wurtsbaugh et al., 2019).
Population density	Population density serves as a proxy for coastal engineering, intertidal trampling, and noise pollution from land.
Shipping routes*	Shipping can have direct impacts on coral reefs through grounding and habitat destruction and indirect effects through changes in species composition through disturbance (e.g., spatial, noise, dredging) (Burke et al., 2011).
Sea level rise*	High rates of sea level rise can outpace coral reef growth, effectively drowning corals, and can cause greater land erosion (Perry et al., 2018).
Sea surface temperature anomalies	Thermal stress increases the risk of mass coral bleaching events (Heron et al., 2016; Hughes et al., 2017)
Ultraviolet (UV) radiation anomalies	Changes in UV radiation can cause death, growth inhibition and bleaching on coral reefs, ultimately impact coral reef community structure (Shick et al., 1996)
Benthic structures (oil rigs)	While oil rigs occupy a very small percentage of the ocean, we included this layer as the creation of benthic structures (oil rigs, pipelines) can degrade benthic communities and oil itself can have perverse impacts on coral (and associated ecosystems) survival and reproduction (Burke et al., 2011). Notably, the impact of oil rigs are low in our analysis (Figure S4), and some benthic structures can potentially promote coral growth (e.g., “Rigs to Reefs” (Macreadie et al., 2011).

Stakeholders in the 6 countries that engaged in PPG consultations prioritized and described the following threats, many of which are similar to those identified through the global analysis (Anthropogenic threats

Data from a global study carried out by Halpern et al., (2015) on cumulative human impacts on the world's ocean was used in research by Kuempel, et al., (2021) to estimate human and economic pressures on the priority climate refuge reefs (Table 2). Pressures considered in the 2021 analysis are described in the Table 3.

Table 2)

Overfishing and destructive fishing practices

Of all local pressures on coral reefs, overfishing and destructive fishing are amongst the most pervasive of immediate threats, affecting more than 55 percent of the world's reefs. Heavily fished reefs are left with mostly small fish and are prone to algal overgrowth due to the absence of larger herbivores to graze the algae. Overfished reefs also appear to be generally less resilient to stressors, more vulnerable to disease, and slower to recover from other human impacts.

In the **Philippines**, for example, a survey carried out between 1991 and 2004 indicated that more than 50% of the reef sites surveyed were overfished and incessant illegal, unreported, and unregulated (IUU) fishing significantly jeopardizes the ecological integrity of Philippine reefs resulting in lower resilience to perturbation (Adam et al., 2011, Burke et al., 2011, PEMSEA 2019).

In the **Solomon Islands**, overfishing is problematic particularly in narrow fringe reefs in densely populated areas, for example, the northwest coast of Malaita and west coast of Guadalcanal (Van der et al., 2020). In Tanzania, the management of coral reefs was recently tied to that of fisheries, which is controlled via licensing, policies, and regulations. In Solomon Islands overfishing and destructive fishing were identified as the most widespread threats, affecting more than 65 percent of reefs, especially around the more heavily populated central and eastern portions of the archipelago.

The ocean in **Tanzania** is, in theory, open access for nationals, so everyone has a right to fish. All fishers and fishing vessels are required to have a license but there are no quotas, so this is not restrictive. Except for industrial fishers, there is effectively no control exercised on the number of licenses issued and the fees are quite affordable. Overcrowding of foot fishers, gleaners, and tourists in intertidal zones results in excessive trampling of habitats and negatively impacts subsequent productivity levels.

In **Fiji**, the stress on fishing is greatest during times of economic hardship and/or natural disasters, as past reporting shows¹⁶. Of all local pressures on coral reefs, overfishing and destructive fishing are amongst the most pervasive immediate threats, affecting more than 55 percent of the world's reefs. Heavily fished reefs are left with mostly low numbers of small fish, and are prone to algal overgrowth due to the absence of larger herbivorous fish to graze the algae on associated reefs. A 2014-2018 study¹⁷ on the spawning potential

¹⁶ Chaston Radway K, Manley M, Mangubhai S, Sokowaqanilotu E, Lalavanua W, Bogiva A, Caginitoba A, Delai T, Draniatu M, Dulunaqio S, Fox M, Koroiwaqa I, Naisilisili W, Rabukawaqa A, Ravonoloa K, Veibi T (2016) Impact of Tropical Cyclone Winston on Fisheries-Dependent Communities in Fiji. Report No. 03/16. Wildlife Conservation Society, Suva, Fiji. 103 pp.

¹⁷ <https://conbio.onlinelibrary.wiley.com/doi/pdf/10.1111/csp2.273>

of 129 inshore species carried out in Fiji found that more than half the 34 species assessed were below the internationally benchmarked size limit, and concluded that over 57% of potential future reef fish yields would be lost unless better management practices were implemented.

In **Indonesia**, according to stakeholders consulted during the PPG as well as the anthropogenic threats identified by Hadi et al., (2020), the use of cyanide and blast fishing takes place in several places, including provinces of Maluku, Nusa Tenggara Province, South Sulawesi, West Kalimantan, and West Sumatera.

In **Madagascar**, fishers on foot or using wooden pirogue canoes target coral reef fishes and invertebrates often using destructive practices such as breaking apart corals to extract octopus. In Tanzania, the dragging of seine nets over coral reefs continues unchecked.

Destructive fishing methods, such as the use of explosives to kill fish, often destroy coral reefs in the process (Burke et al., 2012), with 50% to 80% mortality in reefs that experience regular bombing (L. M. Burke et al., 2002). Destructive fishing methods also include the use of fishing gear such as gill nets and beach seines, which drag along the ocean floor and often damage coral reef structure. The use of cyanide and blast fishing is prevalent in Indonesia, Solomon Islands and Tanzania. In Tanzania, although dynamite fishing appears to be greatly reduced now, this destructive fishing practice has destroyed many reefs in the country.

Mining

Coral mining was identified by stakeholders consulted during the PPG as a threat in all six of the GEF CRR countries except Indonesia and the Philippines. Overharvesting and poor management plans for sustainable harvesting of corals for the aquarium trade was a significant threat to the many coral reef systems across Fiji in the early 2000s. Aquarium Trade involved the export of ornamental fish, hard and soft corals, and live rock (Mangubhai et al., :2018). Most recently, the removal of beach rock and coral for building and infrastructure development has altered the integrity of fringing reefs which afford natural protection from erosion, with the building of coastal resorts and roads further aggravating the situation (Smith et al., 2018). Coral exports from Fiji accounted for approximately 10% of corals in the international trade over the period 2000–2010 and 60% of live rock in the international trade over the period 2000–2010 (Wood, Malsch, & Miller, 2012).

In the Solomon Islands, sand, gravel, and rocks are important construction materials for coastal villages and crushed coral is used to build public and logging roads as well as airstrips. In addition, corals are used to produce lime powder to be chewed with betel nuts (Van der et al., 2020).

In the Philippines, the mining industry contributes 1% to the country's gross domestic product with major minerals such as gold, copper, and nickel being extracted from mountain ridges and volcanoes (Licuanan 2019). Operations from these mining types contribute to deforestation and accelerated erosion, which is then carried by rivers and flood plumes to coral reefs making them a significant threat to coastal ecosystems (Burke et al., 2011; Licuanan 2019).

In Tanzania, coral mining had devastated many reefs in Mtwara, in the past, but has been, to a large extent, controlled in that district. However, it still occurs in a few other parts of the country such as Mafia. Another pressure on coral reefs is the extraction of living coral for use in building and in conversion into lime for

cement. Both live and dead corals are extracted from reefs, brought ashore where they are piled into kilns and burned to produce lime for local building and trade.

In Madagascar, both the mining of coral (in Toamasina in the east coast) as well as artisanal gold mining (particularly along Betsiboka) were identified as significant threats by stakeholders during the PPG. Gold mining along the Betsiboka River on the west coast of Madagascar causes erosion of soils that are carried by the rains and flow into the sea. The Betsiboka River transports laterites of about 250 tons/hectare per year in parts of the Mozambique Channel and contributes to coral destruction (Nairobi Convention). In Toamasina, some species of reefs are used by replacing the stones pumice in the sanitation system of septic tanks and sump. The extent and scale of the damage of these mining activities on coral reefs in Madagascar has not been studied to date.

Land-based pollution

Coastal development and watershed-based pollution threaten about 25% of the world's reefs. Mining for resources described above can exacerbate watershed-based pollution. Impacts of coastal development on the reef can occur either through direct physical damage such as dredging or land filling, or indirectly through increased runoff of sediment, pollution, and sewage (Burke, 2012).

Waters are grossly affected around point sources of pollution such as sewage outfalls, sugar mill effluent discharge areas, rubbish dumps and industrial areas. Because of changes in water quality, large portions of coral reefs in the coral coast are becoming algal reefs. The socioeconomic impacts of these changes on coastal dwellers are yet to be ascertained

In Indonesia, stakeholders emphasized that the condition of coral reef in provinces of West Java, Riau Archipelago and West Kalimantan was deteriorating largely because of poor water quality resulting from increasing levels of poorly managed waste and increasing sedimentation. This situation is exacerbated by pollution from the growing urban settlements along the coastal areas. Furthermore, impacts from increased tourism activity, particularly in Nusa Tenggara Province and West Sumatera also place considerable pressures on reefs (Amkieltiela et al 2020).

In Solomon Islands, stakeholders during PPG identified watershed-based pollution due to sediment and nutrient run-off from large-scale agriculture, logging, and mining as a significant threat, affecting about 50% of reefs in the Solomon Islands.

In Madagascar, site-specific studies suggest that key drivers of long-term reef sedimentation include the removal of forests, including mangroves, which leads to coral reefs being smothered by sediment, increasing the incidence of disease and suppressing growth (Mongabay.com, 2012).

In the Philippines, while the threats from destructive fishing practices have decreased over time, the impact of sedimentation and pollution has increased significantly. These increases arise from unsustainable land use, irresponsible mining practices, deforestation/illegal logging and improper waste disposal (Asian Development Bank, 2014). Water-shed based pollution introduced to the marine ecosystem via inundation, storms, and riverine inputs causes nutrient elevation, sedimentation, and solid waste and marine debris deposits that contribute to the damages of local coral reefs (Burke et al., 2011, PEMSEA 2019, Panga et al., 2021). Rapid coastal development, reclamation, and mining also contribute significantly to coral reef destruction in the country (PEMSEA 2019).

In Tanzania, stakeholder consultations confirmed that pollution along the coast is a significant threat to coral reefs. The main centers of pollution are Dar es Salaam, Tanga, and Zanzibar town and, to a lesser extent,

Mtwara, Lindi and Bagamoyo. Sources include poorly managed waste from industrial and domestic discharge as well as agrochemical pollution, and construction activities. While the impacts of pollution in rural areas are lower, deforestation and unsustainable agricultural practices lead to increased sediment loads in coastal waters, which are detrimental to coral growth (Wagner, 1999; Francis et al., 2001).

Marine-based pollution

Marine-based pollution and damage from ships is widely dispersed, threatening about 10% of reefs globally (Burke, 2012). Commercial, recreational, and passenger vessels can threaten reefs with contaminated bilge water, fuel leakages, raw sewage, solid waste, and invasive species. In addition, reefs are exposed to more direct physical damage from groundings, anchors, and oil spills.

In the Solomon Islands the threat from marine-based pollution is relatively minor, affecting about 4 percent of reefs (Burke et al., 2012).

In Indonesia, stakeholders identified shipwrecks as significant threats with multiple incidents occurring in the recent past. For example, in March 2017, the Caledonian cruise ship crashed in the coral reefs of Raja Ampat, impacting 18.9km² of reef area with estimated losses amounting to USD\$23 million. The impacts of discarded fishing nets (“ghost-nets”) and marine plastic litter in Indonesia is also becoming increasingly apparent. For example, a study carried out by Lamb et al on the relationship between marine plastic health and coral reef health in Southeast Asia, found that of the 124,000 hard corals (i.e., reef building corals) studied, 89% of those smothered in plastic were facing threats of disease as compared to only 4% in corals free of plastic. Plastic debris starves corals of oxygen and light, releasing toxins that enable bacteria and viruses to invade. Extreme weather and errors during fishing operations cause ghost nets to be lost at sea, which threaten animal and ocean health.

1.3.3 Root causes driving anthropogenic threats

Root causes identified by stakeholders across the six countries were associated with poverty and population growth as well as governance at local and national levels.

a) Population growth

Population densities in coastal areas are growing faster through migration and urbanization than those in non-coastal areas in many countries (Creel, 2003). The impacts of demographic change on coral reefs and associated ecosystems are exacerbated by poor land use and lack of marine and land-sea spatial planning as well as the failure to integrate ecosystem values in planning and decision-making processes. The latter is partially a result of limited awareness, understanding and appreciation of the importance of coral reefs and associated ecosystems.

In regions such as Sub-Saharan Africa and South Asia, the socioeconomic gains made in past years have been reversed as a result of the impacts of COVID-19 as well as climate change and conflict (World Bank, 2020). In all the countries except Fiji, poverty was identified as a root cause of anthropogenic threats – because of high levels of reliance by local communities on natural resources, limitations in alternative environmentally sustainable livelihood options, and low access to critical services such as health and education.

b) Government institutional processes

Limitations in local and/or traditional governance and national level governance emerged as a root cause during stakeholder consultations in all the countries. Madagascar and Tanzania emphasized challenges associated with the engagement of local communities as well as engaging the private sector, noting that there continue to be limitations in the abilities of government to effectively engage local communities and

private in the conservation and management of coral reefs and associated ecosystems. In some countries, it was noted that the introduction of local governments through decentralization resulted in the displacement of traditional/customary leadership. This is particularly problematic in many countries, where local governments do not have adequate capacities to enforce regulations and have weak relationships with traditional leaders. This situation is further exacerbated by limited knowledge and awareness of local communities, particularly the youth, of policies and regulations and their rights and responsibilities in relation to natural resource governance.

1.4 Barriers and their underlying drivers

Stakeholders consulted during project design identified five types of barriers that they felt were critical for this GEF CRR project. These were related to: i) Knowledge management; ii) Cross sectoral and stakeholder coordination; iii) Investments in coral reef conservation and management; iv) Awareness and appreciation of coral reefs; and iv) Engagement local communities.

Knowledge management: Insufficient knowledge sharing, coordination and use of knowledge to inform policy and practice

There is an increasing body of knowledge (at both local and global levels) about problems and solutions for coral reef protection and management. However, much of this information is often inaccessible, not adequately shared, or is otherwise underutilized by those stakeholders that could benefit from its meaningful application. More specifically, this includes:

- Limitations in access to relevant information, tools, and resources (including affordable and/or free access), in the capacity to effectively use them in context, as well as limitations in access to lessons learned, experience sharing and collaborative dialogue. Much of the available information is accessible only by expert users, formally trained scientific users, and English speakers. This results in excluding users with different educational and language backgrounds, as well as those with different ‘ways of knowing’ (such as Indigenous communities) and levels of readership.
- Challenges in incorporating data into evidence-based decision making. This is partially a result of significant data gaps for decision making, including social and gender-related data (as it pertains to use, control and decision making over reef resources and management). This type of data is often not collected or analyzed for use in decision making and the application of basic tools for sex and age disaggregated data is an essential first step in driving gender equality in coastal ecosystems (which, in turn, drives more equitable and sustainable livelihoods). Evidence informed policy and practice is also limited by capacities to utilize data as well as organizational cultures which are often hierarchical and do not encourage evidence informed dialogue and debate.

Underlying drivers to the limitations in knowledge management identified by stakeholders during the preparatory workshops are outlined in Table 4.

Table 4 Factors driving insufficient knowledge sharing and coordination

Drivers of the insufficient knowledge sharing and coordination barrier	Countries in which the factor is significant					
	FIJI	SB	IDSA	PHIL	MADG	TAZN
Insufficient and inadequate research						
Limited resources and technical capacities for ecological monitoring of biodiversity and ecosystems (including personnel, equipment, financial resources for running costs etc.)	X	X	X	X	X	X
Insufficient sharing and promotion of research and		X			X	X

Drivers of the insufficient knowledge sharing and coordination barrier	Countries in which the factor is significant					
	FIJI	SB	IDSA	PHIL	MADG	TAZN
Insufficient and inadequate research						
knowledge and coordination between research and policy						
Limitations in the quality of research due to a lack of standards, rules, and regulations on conducting research and using the results	X	X			X	X
Lack of standardization of research methods to enable consolidation and synthesis				X	X	
Low consideration for Indigenous and traditional knowledge					X	X
Low consideration for the value and importance of scientific research					X	
Insufficient integration of local and traditional knowledge with science based/expert driven knowledge		X	X			X
Research carried out is not accessed and used by policy makers and other decision makers, practitioners, and primary stakeholders						
Inadequacy of knowledge management systems to enable storage and shared access (including data platforms and coordination modalities)	X	X		X	X	X
Research carried out is not translated into formats that are relevant and accessible to policy makers and practitioners	X		X	X	X	X
Research is not made accessible at the local level (local communities and local governments)	X	X		X	X	X
Decision makers have a low appreciation of the importance of evidence-based decision making		X		X	X	X

In all the six countries, stakeholders felt that barriers were more related to access and use of research than to the level of research carried out in the country and the data and information generated. Some of the underlying drivers included failures to ensure that the outcomes of the research were packaged and communicated in a manner that was readily understandable to different stakeholder groups, including local communities and government agencies (for example, using policy briefs or public media). In the Solomon Islands it was felt that this was partially due to the inadequate levels of coordination between Government, CSOs and NGOs working in this space, which would better enable bridging the evidence-policy-action gaps. Stakeholders from the Solomon Islands emphasized the challenge of policy makers lacking access to information on good practices and innovative solutions already developed by practitioners and researchers. They also pointed out the challenges of government institutions not having knowledge management systems. Reports generated by NGOs are kept by the officer in charge and when NGOs who have worked with the communities leave, there is no continuity in the relationship with state actors and policy makers. In Indonesia, drivers identified by stakeholders included inadequate capacities to interpret and use data and information as well as the lack of integration of local and science-based knowledge, which would better strengthen ownership and use of research.

Stakeholders in both Madagascar and the Philippines identified the lack of standardization in the methodologies used by different state and non-state actors, resulting in incompatibility and noncontinuous

data for coral reef ecosystems resilience. In both countries, stakeholders also identified the lack of a national-level platform¹⁸ for coral monitoring specifically or open-source database accessible for use by decision makers and other stakeholders to inform policy and practice. In Madagascar, drivers were also associated with inadequate high-resolution data for baseline studies and monitoring changes in coastal land use, coral reefs, and associated ecosystems. Stakeholders pointed out that this is a result of both insufficient technical capacities as well as low regard and appreciation of the importance of research and Indigenous knowledge.

In Tanzania, stakeholders identified limitations in communication and sharing of information between scientists, practitioners, and communities. They pointed out that researchers are not required to share their findings with local communities and, even when communities are able to access research findings, they have limited capabilities to use them to inform their decisions and practices. There is also a significant gap between research and development, with limited availability of funding to scale up useful research results and models by the resource users. Consequently, a lot of research is abandoned by communities due to lack of capacity and resources to continue the activities established in research.

Lack of coordinated strategies to address the greatest threats to climate refuge coral reef conservation at national levels.

Stakeholders consulted in the six countries recognized the relationship between coral reefs and a wide range of sectors and stakeholders, and the limitations of focusing conservation efforts largely on protected areas. For example, according to stakeholders from Indonesia: *“Addressing the issue of destructive fishing for example needs law enforcement, involving economic drivers and local government to increase awareness and skills for sustainable fishing and alternative livelihoods. In different cases, coastal development needs a comprehensive approach among stakeholders from ridge (mountains or upper catchments) to reef (coastal zone). It is also important to recognize the impact of development on land to coral reefs. Pradisty (2020) highlights the increase of nutrient impact to coral reef health. This shows land use planning needs to [the] consider marine aspect and this can be done by increasing awareness and coordination among stakeholders”.*

In some countries, platforms have been established for multi-stakeholder and sectoral engagement in coral reef conservation. However, often, these platforms are unable to influence policy or ensure that the policy is translated into tangible action on the ground. Furthermore, platforms supported by projects and development partners often struggle with longer term sustainability. For example, Madagascar established the Reef Network, under the former National Committee for Integrated Management of Coastal Zones and the Ministry in charge of Environment and other actors in coastal and marine ecosystem domain, as a platform to bring stakeholders together to share knowledge and collectively ensure the sustainable management of coral reefs. The network was established as part of a regional project, did not have a post-project continuation strategy, and is therefore in need of revitalization today.

In Solomon Islands, stakeholders highlighted the deep ‘silo’ culture that limits coordination between stakeholders and Government Ministries. The existing machinery of state was inherited from the colonial Government and has not adapted to the current context where cross sectoral and collective efforts are critical for achieving meaningful outcomes. Solomon Islands is gradually establishing working groups to encourage cross sectoral coordination such as the Coral Triangle National Coordination Committee that oversees the implementation of the Coral Triangle Initiative program.

¹⁸ The Philippine Coral Reefs Information Network or PhilReefs was established as a platform for knowledge sharing through the publication of “Reefs Through Time” series but this initiative was hampered by the lack of sustainable financing.

In Indonesia, there is a national seascape working group, but it is currently inactive and there are no platforms in the country that enable stakeholders to engage and coordinate at strategic and policy levels. However, the Ministry of Marine Affairs and Fisheries and the National Research Agency and Innovation have already signed an agreement to establish a coral reef network. This signed agreement indeed needs to be formulated and executed. In Tanzania, there are few platforms for discussion of management issues both at Ministerial as well as the community levels. More recently, the Ministry of Fisheries created a priority fisheries task force, composed of researchers to advise the Director of Fisheries as well as the local level stakeholders on the management of priority fisheries, including coral reef fisheries.

Insufficient and inadequate investments for climate refuge coral reefs conservation and sustainable livelihoods of associated communities.

Investment into coral reef conservation and management is currently spread thinly across many projects too often with insufficient emphasis on pathways and investment for scaling up gains. A recent analysis undertaken by the UN Environment Programme revealed that 90% of all coral reef projects were valued below US\$1 million¹⁹. The status quo is not delivering the changes required and the window to secure coral reefs for the future is rapidly closing. Additionally, conservation efforts are not focused on climate refuge reefs, and fail to simultaneously address (1) specific threats affecting those coral reefs with the highest potential to rekindle coral reefs ecosystems as global climate impacts slow; and (2) sustainable and equitable livelihood options for communities directly dependent on and directly impacting those coral reefs.

Underlying drivers behind limited investments in coral reef conservation identified by stakeholders included:

- Inadequate participation of the private sector and investors in conservation as users and stakeholders of marine resources.
- Lack of a clear regulatory framework with incentives for investment (partnership frameworks, tax regimes etc.) aligned with private sector interests (**note - this driver goes beyond the scope of the GEF CRR project*).
- Investments in conservation and management are often channeled through short term projects which are insufficient as they do not enable effective engagement with the systemic drivers underpinning threats to coral reefs. The latter requires longer term integrated (cross-sectoral) programmatic perspectives.
- National strategic and economic models that drive investments in a country rarely recognize and account for the importance of ecosystems (often because of limited understanding of policy makers of their value and importance)

The situation across the six countries is very different. For example, in countries such as the Solomon Islands, investments (such as those from the Coral Triangle initiative) are focused on developing community-based approaches for resource management. Stakeholders involved in the PPG felt that limited investments in the conservation of coral reefs is attributable to a lack of appreciation of coral reefs as an important adaptation response to climate change across national, provincial and community levels. In Indonesia, on the other hand, stakeholders pointed out that investments are focused on coral reefs and law enforcement, with inadequate investment in community awareness and livelihoods. This situation has unfolded because of inadequate collaboration and different priorities of stakeholder groups – for example, between law enforcers and local government responsible for providing alternative livelihoods or between private sector and the

¹⁹ http://globalfundcoralreefs.org/wp-content/uploads/2021/07/GFCR_TOR_13July21-2.pdf

ministry responsible for community welfare. In Tanzania, it was felt that investments for both coral reef conservation and sustainable livelihoods of the communities dependent on them are insufficient due to lack of long term secure tenure, inadequate of favorable political and institutional environment which do not attract private conservation investment.

Lack of awareness at global, national, and local levels on the significance of climate refuge reef systems.

Globally, there is a growing awareness of the value of coral reefs (Obura, Aeby, et al., 2019). In Fiji stakeholders noted that there have been significant investments in raising awareness. In the other five countries, stakeholders participating in the design process noted that at national and local levels, levels of awareness could be improved. This includes the awareness and understanding of governments and the wider public on the significance of climate refuge coral reefs for national economies, livelihoods, food security and wellbeing of local communities.

Within each country, there were slight differences in the specific areas identified by stakeholders during PPG consultations. In the Solomon Islands, a key concern was related to the awareness of stakeholders of the importance of coral reefs as an adaptative response to climate change. Stakeholders involved in the design process felt that there are limited efforts and investments in developing community-friendly technical information that can be easily accessed and used by local communities. Furthermore, stakeholders also pointed out that the involvement of students and youth in conservation efforts is becoming increasingly critical. In the case of Madagascar, stakeholders felt that while the importance of the blue economy has been recognized by the government, there continues to be gaps in awareness and understanding of the importance of conserving and protecting marine and coastal ecosystems, including coral reefs, for the blue economy. In Indonesia and Tanzania, stakeholders identified the limited awareness and understanding of local communities and local governments of the importance of climate refuge coral reefs to the health of marine systems as well as the impacts of unsustainable fishing practices and pollution on coral reefs. In the Philippines it was felt that barriers to awareness stemmed from the lack of evidence to influence stakeholder to better support conservation action. For example, there are insufficient detailed studies to demonstrate the economic values of coral reefs and to understand the ecological impacts of climate change. Stakeholders also pointed out that inadequate translation of research in a form that is accessible to policy makers and local communities also contributes to this.

Poor local level natural resource governance and engagement of the men, women, and youth directly dependent on coral reefs.

Stakeholders in all countries, except for the Solomon Islands, noted that while the legislative and policy frameworks have been strengthened over the years to allow for community engagement in natural resource governance, there continue to be multiple challenges in realizing this in practice.

In the Solomon Islands, stakeholders pointed out that while communities have maintained their traditional knowledge and place in governance alongside the State governance structures, national mechanisms to formally allow for the participation of local communities in identifying and prioritizing solutions (such as to the current climate challenges) are inadequate. Stakeholders also emphasized the importance of recognizing the complex nature of the challenges related to natural resource governance.

In Fiji, stakeholders involved in the PPG felt that key barriers included the limited access to reliable and updated information by local communities as well as inadequate capacities of local communities to use that information in prioritizing threats and identifying solutions of relevance to local challenges.

In both Madagascar and Tanzania, the transfer to communities of fishery resources and fishery ecosystems management responsibilities is recognized under current legislative frameworks. However, community capacities continue to be insufficient to take up these rights and responsibilities and restrictive social norms continue to prevent engagement in decision-making and leadership by women, as discussed above (in Section 1.2.2). In Indonesia, stakeholders involved in the PPG felt that limitations in natural resource governance and management are a result of poor levels of awareness and commitment on the importance of ecosystem and natural resources of both coastal communities as well as local governments and the local members of parliament.

1.5 Regional, National and Sectoral Context

The sections below provide an overview of the global, regional, and national context of relevance to the GEF CRR project. This includes policies, programs, strategies, plans as well as commitments to global conventions.

1.5.1 Regional context

An analysis of the LME SAPs endorsed at the country level shows that all of them highlight coral reef degradation as one of the key environmental problems in the LMEs and prioritize coral reef conservation in their objectives. The proposed CRR project is fully aligned with the SAPs priorities and proposed actions related to coral reef protection. The CRR project will complement existing GEF interventions aligned to SAPs strategic actions, creating capacities, knowledge management platforms, coral reef monitoring tools, awareness-raising/education, national action plans and investment portfolios that will facilitate on the ground implementation of the endorsed SAPs. This includes the following:

Tanzania & Madagascar: Agulhas and Somali Coastal Current Large Marine Ecosystems

Strategic Action Plan for the Sustainable Management of the Western Indian Ocean Large Marine Ecosystems, Published: 06 May 2019

The SAP highlights the disturbance, damage, and loss of coral reef habitats as one of the main issues of concern in the LMEs. The SAP establishes specific actions for: monitoring and assessing the health of the coral reefs; science-based governance and adaptive management, and ensuring community and other stakeholders' involvement, including the private sector.

Priority actions identified in the SAP that the GEF CRR has the potential to contribute to include the following:

- Develop and implement monitoring and assessment mechanisms/protocols and have regional meetings to share lessons learned
- Develop assessment and comparison reports to highlight altering trends in ecosystem goods and services along with cost-benefit analyses
- Understand and research the resource-users and the socio-economic benefits of the reef

Indonesia & Philippines: Indonesian Sea/Sulu-Celebes Sea

Sustainable Development Strategy for the Seas of East Asia Implementation Plan (SDS-SEA IP) 2017-2022
Sustainable Development Strategy for the Seas of East Asia (SDS-SEA, Published: 17 Oct 2019)

The SAP highlights threats to coral reefs as one of the main environmental problems of the LME. Coral reef conservation actions are prioritized under a Biodiversity Conservation and Management Program. Prioritized actions include baseline assessments, management plans, improved governance systems and sustainable financing mechanisms.

Priority actions identified in the SAP that the GEF CRR has the potential to contribute to include the following:

- Publish SOC reports with data/information on socio-economic and ecological benefits and impacts to coastal communities
- Enhance public awareness and understanding of coastal and marine environmental and resource management issues and processes
- Utilize science and traditional knowledge in decision making processes

Solomon Islands & Fiji: Pacific Warm Water Pool / Small Islands States

Strategic Action Programme for International Waters of Pacific Island, Published: 15 Sep 2014

Coral reefs are one of the critical habitats identified by the SAP as a priority concern in the LME. Actions proposed include management and institutional strengthening, capacity-building, awareness/education, research/information for decision-making and sustainable investment promotion.

Priority actions identified in the SAP that the GEF CRR has the potential to contribute to include the following:

- Facilitate and catalyze GEF funding and "regular" assistance from the IAs and other donors,
- benefit from and be coordinated with other relevant national, bilateral, regional, and international sustainable environment/ development initiatives in the Pacific Islands,

Philippines & Indonesia: South China Sea and Gulf of Thailand

Strategic Action Program for the South China Sea and Gulf of Thailand, Published for implementation between 2008- 2020.

SAP for the South China Sea prioritized corals identifying live coral cover as a key indicator of environmental health. 37 regional actions were proposed in SAP.

Priority actions identified in the SAP that the GEF CRR has the potential to contribute to include the following:

- Enhancement of resource and habitat management
- Public awareness and communications
- Research and monitoring
- Sustainability and capacity building
- Tracking results from monitoring nationally and regionally
- Relationships between central and local government and private sector partners strengthened

Other regional policies/strategies of relevance include:

The [Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security \(CTI-CFF\)](#): A multilateral partnership of six countries collaborating to sustain marine and coastal resources through addressing critical challenges such as food security, climate change and marine biodiversity. CTIs goals include “establishing a fully functioning and effectively managed region-wide Coral Triangle Marine Protected Area System (CTMPAS)”. Countries have developed a Region-wide Early Action Plan for Climate Change Adaptation (REAP) which includes establishing “effective adaptive measures for coastal communities and investing on the ability to conduct climate change vulnerability assessments and to plan for improving resilience of coastal communities”. In the CTI-CFF, national countries are required to report against the objectives of CTI CFF. Reefs fall under Objective A of the Regional Plan of Action CTI CFF, which is focused on: Health of coastal and marine ecosystems, priority threatened species and fisheries in the Coral Triangle region improved through effective management actions. This project will contribute to improving countries use of data in monitoring as well as strengthening national coordination, contributing to strengthening the CT6 members capacities to monitor the achievement in the CTI-CFF.

The Nairobi Convention: Signed by 10 countries in the Western Indian Ocean (WIO) (including Madagascar and Tanzania), the Convention provides a platform for governments, civil society, and the private sector to work together for the sustainable management and use of the marine and coastal environment. The Convention recognizes coral reefs as a priority and established the Nairobi Convention Coral Reef Task Force (CRTF) during the Third meeting of the Conference of Parties (COP3). COP3 decisions explicitly speak to the protection of coral reefs and associated ecosystems, urging all parties to establish national bodies to coordinate coral reef activities within each country and to develop national coral reef action plans or strategies where appropriate. The COP decision further requested the Executive Director of the United Nations Environment Programme to establish a Coral Reef Task Force to co-ordinate work on coral reefs throughout the region, including the development of a regional action plan, with reference to the work program of the Nairobi Convention, initiatives and projects being implemented within the region. Component 2 of the GEF CRR project, including the establishment of national hubs for climate refuge reefs in Tanzania and Madagascar, is directly aligned and will support the implementation of this decision.

1.5.2 National and Sectoral context

Fiji

Fiji was the first country in the world to ratify the Paris Agreement and presided over the UNFCCC COP23 in 2017-18. Since 2012, the Government of Fiji (GoF) has been developing and reforming overarching strategies, policies and plans with an environmental/ecosystem-based approach to address natural hazards and unsustainable resource management. In response to these global commitments the Department of Environment has worked to align and institutionalize national level regulatory instruments (Environment Management Act 2005, Climate Change Act 2021 & Endangered Species Act 2002), policies (Coral Policy of the Ministry of the Environment) and strategies (NBSAP 2020-2025)"

National Ocean Policy 2020: The NOP provides a holistic framework for integrated action and partnerships on all of Fiji's national, regional, and global ocean-related commitments. It recognizes and aligns itself to ongoing approaches in various ocean management sectors and provides overarching support and integration across these sectors. The NOP frames a progression to the integrated management of Fiji's entire ocean (the Area Within National Jurisdiction, AWNJ) by 2030, to ensure the resilience and sustainability of marine ecosystems while maximizing opportunities for socio-economic benefits. The NOP's sustainability target extends to its maritime boundaries regardless of climate change and sea level rise. The role of the NOP is to set-out a comprehensive and cohesive pathway to a sustainable ocean. It seeks to do this by supporting current initiatives, identifying, and implementing more effective practices such as legislative and institutional arrangements and multi-sectoral challenges for future initiatives; and promoting synergies among the Government and non-government sectors involved in the common future of the ocean.

Solomon Islands

Solomon Islands National Ocean Policy (SINOP 2018): The SINOP recognized 80% of the land, foreshore and reef are under customary law and governance. Thus, it aims to protect and increase the value of marine resources and the inherent value of the marine ecosystems and species upon which that wealth relies on through an integrated approach to ocean management, emphasizing the importance of a governance framework that ensure a consistent and coordinated approach. Key strategic actions that the GEF CRR project will contribute to include the following:

- Promoting the importance and significance of Solomon Islands' Ocean environment in national, sub-regional, regional, and international platforms.

- Adopting ecosystem-based approaches for protection and management of the ocean environment and its marine resources.
- Developing and implementing a valuation system and financial mechanism to account for loss and damages of coastal and marine ecosystems – mangroves, seagrass, and coral reefs, including pelagic and deep-water ecosystems (seamounts, canyons etc.) - for the purpose of protection, rehabilitation and/or restoration

Finally, this policy recognized climate change as an immediate threat for Solomon Islands, therefore it begs for an integrated approach to developing solutions to minimize or mitigate risks and threats. It agrees that local communities' resilience needs to be strengthened. It supports the need to promote research and studies on the impact and responses needed to address climate change threats. The GEF CRR project is directly aligned to all these priorities.

CTI-CFF Regional Plan of Action Coral Triangle Initiative – National Plan of Action (CTI-NPOA) (Under review): The CTI - NPoA policy promotes a people-centered and integrated resource management approach that relies on a core of community-based management as a national strategy to improve food security, adaptive capacity (climate change and other pressures), conservation of target or threatened species and habitats appropriate to the context of Solomon Islands. GEF CRR is aligned with 3 priority themes of the initiative:

- Theme 2: Development of policy, legislation, partnerships and other strategies and guidance – this theme promotes development of required legislation and policy frameworks that is informed by best practices and available information to secure livelihoods and adaptation targets.
- Theme 3: Data and information management for coordination and decision making – utilize existing information for strategic planning and determine priority gaps for research and monitoring
- Theme 4: Capacity Building, Awareness and Education – target capacity building for provinces. Promote mentoring and exchanges as key learning approaches. Recognize networking as an important capacity building and institutional strengthening tool

Solomon Islands National Fisheries Policy 2019-2029: The National Fisheries Policy focuses on conservation, management, development and sustainable use of the fisheries and aquatic resources of Solomon Islands. It recognizes the impact of climate change on inshore fisheries and national food security. Therefore, it promotes research into new and emerging aquaculture opportunities to develop science-based policies and implement development plans. Key action relevant for the CRR are.

- Aquaculture - Objective 2: Develop and establish a sustainable and well-managed aquaculture sector that supports rural livelihoods, food security, economic return, and stock enhancement. This will be realized through creating a conducive environment for development and growth in all levels of the aquaculture sector through suitable infrastructure, capacity development and technology innovation. Component 3 of the GEF CRR project may contribute to identifying potential investments for the identified priorities, which include:
 - Sustainable use will be facilitated through improved preservation, market access and enhanced livelihood opportunities for rural men and women, including vulnerable and marginalized groups, that access, use and benefit from inshore and inland fisheries
 - Strong partnerships with provincial governments and civil society partners will facilitate conservation, management, and development of inshore and inland fisheries
 - Develop and establish a sustainable and well-managed aquaculture sector that supports rural livelihoods, food security, economic return, and stock enhancement

Fisheries Management Plan (Coral) 2020: The Fisheries management Plan for corals is brief and is specifically focused around limiting the export trade of coral under a licensing system. It includes an assessment component to ensure the harvesting of coral for trade does not have a detrimental impact on the coral ecosystem, habitat, and surrounding life. This assessment component provides an opportunity for CRR1 to support a robust national monitoring system for climate refuge reef systems across Solomon Islands.

Gender Equality and Women’s Development Policy (GEWD, 2016-2020): Under the responsibility of the Ministry of Women, Youth and Children’s Affairs, the GEWD recognizes the importance of men and women working in planning, creating partnerships, and supporting stronger engagement and coordination between all line and sectoral ministries, outer islands governance mechanisms, civil society organizations and development partners. The project’s Gender Action Plan (see Annex 1) ensures women are included in the National Hub Technical Working Groups that will develop gender-responsive national/sub national climate refuge reef conservation plans in collaboration with other stakeholders. Women and youth will also be represented during community visioning meetings.

Community Based Resource Management (CBRM) Upscale Strategy: The Ministry of Fisheries and Marine Resources is committed to managing sustainable and equitable fisheries in Solomon Islands. This strategy is important to understand the gaps and opportunities to engage with Provinces and communities, particularly with regards to the establishment of the National Hub and development of the national/sub-national action plans for climate refuge reef conservation (Component 2.2.)

Ridges to Reefs Conservation Plan for Choiseul Province, Solomon Islands: Lauru Land Conference of Tribal Communities established a Lauru Ridges to Reefs Protected Areas Network that will safeguard Solomon Islands cultural and natural heritage. The plan explains that Coral reefs, which provide many ecosystem services to island people, are highly sensitive to temperature and chemical changes in seawater because of Climate Change and increased carbon dioxide (CO₂) in the atmosphere. The CRR GEF project will provide an opportunity to survey stakeholders and gather cultural knowledge to improve ecosystem management.

Indonesia

Indonesia has established its **MPA Vision 2030 and Roadmap to MPA management** which is aimed at securing 10% of marine waters in Indonesia for biodiversity protection and sustainable use. Priority areas identified for GEF CRR fall within national MPAs, given their high potential for regeneration. Seven Areas of Work (AoWs) have been identified as being critical to the realization of this vision. The GEF CRR initiative contributes to four of the seven AoWs as follows.

- AoW1: Integrated Central and Regional Program Planning and Funding: The national coral reef hub and evidence informed action plans for climate refuge reef conservation (GEF CRR Component 2) are directly aligned with the priority to strengthen horizontal and vertical coordination between the regional and national level agencies.
- AoW2: Human Resources, Competencies & Capacity: The learning events and processes that will be provided under Component 1.1. will contribute directly to both the strengthening of staffing of MPAs as well as the plans for *“expanding and institutionalizing skill-building for MPA staff and associated stakeholders”*
- AoW5: Sustainable Financing for MPAs – Component 3 of the GEF CRR is centered around increasing financing opportunities and mechanisms.
- AoW 7: MPA Communications and Outreach Platform – Component 1 of the GEF CRR will contribute to the platform to promote communication across all stakeholders, increasing alignment and supporting timely decision making.

The GEF CRR will contribute to the update and support the implementation of the **National Action Plan on Coral Reef Conservation (2017-2021)**. The update process is scheduled to take place in 2022 under the leadership of MMAF-DG of Marine Spatial management. The outcomes of the threat/opportunity analysis and cost-benefit analysis delivered under Component 2.2 will be important in informing the national action plan. Furthermore, Component 2.1. will contribute directly to the planning processes, supporting multistakeholder engagement as well as the integration of traditional knowledge and views and priorities of local communities. Investment options for the delivery of the National Action Plan (specifically in relation to climate refuge reefs) will be identified under Component 3 while the communication and awareness raising activities under Component 4 will contribute to disseminating the agreed plan of action as well as mobilizing support for its implementation.

Under the **Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF)**, countries are required to contribute to the finalization of the Regional Plan of Action CTI-CFF and thereafter develop and implement their national plans of action. This GEF CRR project will contribute to monitoring and planning processes through its Components 1 & 2. It further has the potential to inform prioritization of the CTI-CFF through the climate refuge reef approach.

Philippines

DENR-BMB Technical Bulletin 2017-05 or guidelines on the assessment of coastal and marine ecosystems, and Technical Bulletin 2019-04 or technical guide on biodiversity assessment and monitoring system for coastal and marine ecosystems. Technical Bulletin 2017-05 and 2019-04 are guidelines released by Department of Environment and Natural Resources – Biodiversity Management Bureau to provide standard protocols for monitoring and assessing coastal and marine ecosystems focusing mainly on coral reefs, reef fishes, mangroves, and seagrass beds. The GEF-CRRI will need to refer to these bulletins in developing the outputs for Component 1.2.

Philippine Fisheries Code of 1998 or Republic Act No. 8550 and Amendment for the Philippine Fisheries Code of 1998 or Republic Act No. 10654: The Philippine Fisheries Code provides for the development, management, and conservation of fisheries and aquatic resources, integrating all laws pertinent thereto, and for other purposes. While the amendment of the code is an act to prevent, deter and eliminate illegal, unreported, and unregulated fishing. This is another legal basis for the establishment of marine protected areas covering climate refuge coral reefs and multi-sectoral involvement in protection efforts.

The **Establishment of Fisheries Management Areas (FMA) for the Conservation and Management of Fisheries in Philippine Waters or Fisheries Administrative Order (FAO) No. 263** and the **Ecosystem-Based Approach to Fisheries Management (EAFM) framework:** The main objective of the policy is to delineate FMAs for the sustainable management of fisheries. The establishment of these areas will be through a science- or ecosystem-based, participatory, and transparent management framework referred to as the EAFM framework. The FMA will be an important point of reference for the studies and the planning processes carried out for Component 2.

Executive Order No. 533 or adopting Integrated Coastal Management as a national strategy: This is to ensure the sustainable development of the country's coastal, marine environment and natural resources with the establishment of supporting mechanisms for implementation. Protecting climate refuge coral reefs should be in the context of sustainable development or integrated in existing conservation plans.

The Philippines is also included in the **Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF)**. Similar to Indonesia and Solomon Islands, it is also required to provide inputs to the Regional Plan of Action CTI-CFF. The GEF-CRR outcomes and goals can contribute to the sustainable management of marine

fisheries resources, dissemination of best practices, investment strategies, and ecosystem policies across governing bodies of various protected seascapes, and climate-change adaptation initiatives.

Expanded National Integrated Protected Areas (ENIPAS) Act RA No. 11038 amending RA No.7586 or the Establishment and Management of National Integrated Protected Areas System (NIPAS) provides all declared protected areas national legislation in maintaining ecological integrity. This includes provisions for scientific and technical support for biodiversity conservation.

Philippine Fisheries Code (RA No. 8550 as amended by RA No. 10654)

Local Government Code or RA No. 7160 includes the legal definition of municipal waters. This code is one of the legal bases in establishing marine protected areas and ordinances. All marine protected areas excluded in the NIPAS act fall under the jurisdiction of local government units.

The **Environmentally Critical Areas Network (ECAN)** is an integrated, ridge-to-reef strategy to safeguard the natural capital of Palawan Province and properly manage it as a fragile island ecosystem. Its use is prescribed in the Strategic Environmental Plan (SEP) for Palawan Act. High priority BCUs are in the Palawan province and the GEF-CRRI can support and benefit with the framework. The PCSD or the Palawan Council for sustainable development have the jurisdiction in managing all environmental programs in Palawan. The national vision and action plan for refuge reefs developed under Component 2 of the GEF CRR project will need to refer to the ECAN.

Tanzania

National Fisheries Sector Policy and Strategy Statement (1997) - The policy emphasizes the need for protection of productivity and biological diversity of coastal and aquatic systems through the prevention of habitat destruction, pollution, and overexploitation. The GEF CRR project contributes to these priorities with a specific focus on climate refuge coral reefs.

Fisheries Act (2003) Tanzania Mainland - An Act to repeal and replace the Fisheries Act, 1970, to make provisions for sustainable development, protection, conservation, aquaculture development, regulation and control of fish, fish products, aquatic flora, and its products, and for related matters. The Act does not allow the fishing activities in any Marine Reserves, Parks, or sanctuaries in order to protect corals. The act also provides for the protection of critical habitats. The GEF CRR project is in alignment with this Act as it provides an opportunity to increase the awareness of protecting the corals in coastal communities in the priority areas.

Tanzania National Integrated Coastal Environment Management Strategy: The NICEMS outlines the commitment to sustainable coastal governance THROUGH 2025; champions ICM and establishes the foundation for coastal governance in Tanzania. Apart from identifying the six broad governance issues facing the coastal and marine environment, it also lays down seven strategies that are implementable to solve the identified issues through the ICM approach. Moreover, this Strategy defines the boundary of operation and gives the institutional structure for coastal management in Tanzania. The CRR GEF Project will aid in this strategy by providing additional coastal management resources and data.

National Environmental Management Act (2004)- This is an Act to provide for legal and institutional framework for sustainable management of environment; to outline principles for management, impact and risk assessments, prevention and control of pollution, waste management, environmental quality standards, public participation, compliance and enforcement; to provide a basis for implementation of international instruments of environment; to provide for implementation of the National Environment Policy; to repeal the National Environment Management Act, 1983 and to provide for continued existence of the National

Environment Management Council; to provide for the establishment of the National Environmental Trust Fund and to provide for other related matters. The GEF CRR project will ensure alignment with the provisions of the Act in the development of the national action plan for refuge reefs as well as the investment portfolios.

Madagascar

National Strategy for Scientific Research in Madagascar (2013): This strategy outlines the methods adapted to the country in the field of research. The CRR project will be able to refer to it to provide guidance at the regional/international level and align to its objectives, specifically:

Objective 1 of the strategy: *"To define research priorities consistent with the needs of economic and social development"* includes the constitution and strengthening of innovation networks. These networks are based on collaboration and exchanges between a wide range of partners, including producer-researchers and users of innovation. The Strategy states that at "the national level, it would be recommended to work on strengthening communication between the different actors. Entities working in the same areas of innovations should be able to meet and consult each other, in specific thematic networks. At the regional and international level, virtual communication could promote and facilitate such collaboration. Components 1 and 2 of the CRR project can be demonstrative of this objective, especially since this also includes the promotion and support of local technologies and indigenous know-how, the articulation of modern knowledge and traditional knowledge and accompanying measures to promote research, notably for sustainable resources management.

Blue Economy Policy Letter (2015): The policy provides a framework of principles and gives guidance for the implementation of the recommendations of the national strategy for the development of aquaculture and the national strategy for sustainable fisheries management. The policy identifies the importance of conserving key ecosystems, including coral reefs. The blue policy proposes the priorities to guide public and private investments in the fisheries sector and organizes its interventions around five specific objectives, the second and third of which are of relevance to this project and should be taken into consideration in the development of the national action plan for refuge reefs as well as prioritization of investment opportunities:

- the enhancement of productivity and the economic contribution of the sector, and
- the improvement of the resilience of fishermen and aquaculturists to hazards and disasters.

National Strategy for the Sustainable Development of Madagascar's Marine and Coastal Areas (2010): The Strategy aims to promote the sustainable development of coastal and marine areas through the implementation of integrated coastal zone management, including the protection and conservation of coastal and marine resources and ecosystems. Of relevance to this GEF project are the following specific objectives:

- Specific objective 3: "To improve the living conditions of coastal communities and make them participate in the economic development of the country" and
- Specific objective 5: " To ensure the prevention and reduction of marine pollutions and the effects of erosion and sedimentation retains more attention to the preservation of coral reefs.

National Action Plan for Integrated Coastal Zone Management 2019-2023:

The document includes 10 Specific Objectives, 26 Expected Results and 80 Actions. The four components of the CRR project align with the following specific objectives:

- Specific objective 1.1 To improve the governance context of coastal zones and marines to promote sustainable development

- Specific objective 1.2 To promote the monitoring and evaluation system of ICZM actions
- Specific objective. 1.3 To promote the knowledge of the population and stakeholders on the ICZM process
- Specific objective 1.4 To develop financing instruments and mechanisms
- Specific Objective 2.2 To promote the blue economy in sustainable development actions in coastal and marine zones whose results and activities are related to coral reefs.

National Climate Change Action Plan (2019) defines the priorities for action in the face of climate change, which include both the fisheries and coastal zones sectors which are of relevance to components 1, 2 and 3 of this GEF project. More specifically:

- For the Fisheries sector, strategic priority 1 includes the protection of corals and mangroves and the development of knowledge.
- For the Coastal Zones sector, strategic priority 3 concerns the development and promotion of sustainable economic activities in coastal zones.

National Pollution Management Strategy (2019): The strategy is based on the complexity of the pollution problems and responds to the national need for policy guidance on the management of different types of pollution, including marine pollution. Objective 2.1 of the strategy speaks to the strengthening of knowledge of environments and pollutants and provides for the networking of local databases to constitute a national database on the state of pollution, including marine pollution, provision of information and scientific data on the state of environmental pollution and the linking of existing national networks dealing with pollution issues. Components 1 and 2 of the GEF CRR project align with these priorities.

Reference Guide to Locally Managed Marine Areas (LMMA) in Madagascar (2019): The guide aims to define and clarify the LMMA concept, but also to provide guidance to LMMA promoters and users of marine and coastal resources. The GEF CRR emphasis on local community participation and the integration of traditional knowledge and vision of local communities is well aligned with this reference guide.

Development of Marine Spatial Planning Policy and Strategy (*in progress*): This document has not yet been designed, but its preparation is under consideration, after consultations between the MEDD, the MPEB (Ministry in charge of fisheries and blue economy) and the Ministry in charge of territory development. The development of the document is motivated by the need to have a framework for coordinating actions affecting marine and coastal areas, with a view to ensuring the sustainability of actions, as well as intersectionality. It will consider the jurisdictional, social, environmental, and institutional aspects. The elaboration of such a document contributes to the protection of coastal ecosystems including coral reef. It is worthy to note that the public process is still ongoing and wider stakeholders involved in the GEF CRR project are aware of the urgent need to integrate coral reef in MSP.

1.6 Baseline Scenario

The GEF CRR project sets out to consolidate the gains made through previous investments and to leverage a set of existing and planned initiatives at global, regional, and national levels, that aim to preserve coral reef ecosystems in the prioritized geographies, in each of the CRR countries. The baseline initiatives for the GEF CRR project, identified at the global, regional, and national level, are described in detail in Annex 2. This section provides a summary overview of the types of the project baseline initiatives identified for each project component.

Baseline initiatives of relevance to Component 1

Component 1 will intentionally build on existing networks, data sharing, and knowledge management platforms related to marine and coral reef conservation.

The baseline initiatives identified during the PPG will inform the stakeholder and needs analysis (Component 1.1.1) carried out at the onset of implementation.

Baseline initiatives relevant to the learning initiatives under Component 1.1. at the national level include capacity building centers such as the Pacific Centre for Environment and Sustainable Development (PaC-SD) in the Solomon Islands and the CTC training center for marine conservation in Indonesia. The GEF CRR project will build on the programs and networks established by these centers, drawing on their experiences and knowledge to ensure that the knowledge proposal developed responds to the needs and realities of the specific context.

With regards to the coral reef monitoring work under Outcome 1.2, at the global level, the project will leverage a set of existing platforms and systems to increase data availability and accessibility in the 6 countries. Baseline initiatives under this outcome include the Allen Coral Atlas (ACA) established by Vulcan and currently managed by Arizona State University, the National Oceanic and Atmospheric Administration (NOAA) Coral Reef Watch (CRW), as well as Data MERMAID Initiatives (WCS). The project will build also on the platforms, tools, and experience on massive open online training courses (MOOCs) established by UQ as well as the tools developed by the GEF project 'Capturing Coral Reef & Related Ecosystem Services (CCRES)', upscaling their utility, uptake and use across the six countries for climate refuge reef conservation and management. The project will increase the awareness and accessibility of the existing data products and platforms and use of these platforms by actors and organizations for evidence informed conservation and management of climate refuge reefs. It will also expand the existing use of global satellite products to produce additional tools and dashboards focused on the BCU areas. The project will establish linkages between global, regional and national data platforms, portals and monitoring networks such as the Pacific Environmental Portal established by the Secretariat of the South Pacific Regional Environmental Programme (SPREP) and the Partnership in Environmental Management (PEMSEA) in East Asia; coastal hazard and climate early warning systems such as the Project C-Rise in South Africa, Mozambique and Madagascar; coral reef monitoring systems established at national level, such as the Coral Reef Mapping established by LAPAN in Indonesia and the database on coral reefs established for the National Action Plan for Integrated Coastal Zone Management (PANGIZC) in Madagascar.

Baseline initiatives of relevance to Component 2

Component two builds on existing stakeholder engagement platforms and networks as well as the outputs and outcomes of projects focusing on strengthening community engagement in conservation and management of coastal and marine resources in the 6 countries.

In each of the countries, the project has identified existing platforms and forums to utilize for the National Hubs. These are:

- **Fiji: Marine Working Group (MWG)** – An advisory committee under the Protected Areas Committee (PAC), which reports to the National Environment Council (NEC). The purpose of the MWG is to advise the PAC on coastal and marine issues with particular emphasis on marine protected areas. Members include government, non-government organisations, academia, and the private sector.
- **Solomon Islands: National Coordinating Committee on Coral Reefs, Fisheries & Food Security (NCC)**. NCC was established as a mechanism to coordinate and promote country level implementation of the national and regional CTI-CFF Plans of Action. The Committee is led by the

Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM) and the Ministry of Fisheries and Marine Resources (MFMR). The Committee has a multi-stakeholder membership and has been endorsed by Cabinet.

- **Indonesia: Indonesia Coral Reef Network** – A new network initiative under development with the leadership of the Indonesian Government (Ministry of Marine Affairs and Fisheries and the National Agency of Research and Innovation)
- **Philippines: MPA Support Network (MSN)**
- **Madagascar: The Madagascar Reefs Network (Réseau Récif)** – A platform for which the MEDD is among the leaders, is established to ensure the effective management of marine and coastal ecosystems through monitoring the health of Madagascar’s reefs. The platform is not legally constituted and is intended to enable stakeholders to exchange experiences, lessons learned and good practices for the sustainable conservation of coral reefs.
- **Tanzania: The Tanzania Coral Reef Task Force (TzCRTF)** was established as part of the Western Indian Ocean Coral Reef Task Force (CRTF), formed under the Nairobi Convention. The National Environment Management Council (NEMC) is the national focal point responsible for overseeing task for activities. TzCRTF is responsible for coordinating activities that address the implementation of decisions related to coral reefs and associated ecosystems and brings together both government and non-government bodies, across different sectors.

At national level, there are also several initiatives that have successfully developed tools and approaches for ensuring community voice and effective community participation in governance and management that constitute an important baseline for the project. These include initiatives carried out by the CRRi global partners such as the Fish Forever programs implemented by RARE in the Philippines and Indonesia; the Improvement of Biodiversity Monitoring in the Barren Islands (western coast) by Blue Ventures in Madagascar; and the Moving Urban Poor Communities towards Resilience (MOVE UP) programme that CARE is implementing in the Philippines. Other baseline initiatives focusing on community governance of natural resources at the national level include the Arnavons Marine Conservation Area (AMCA) by TNC in the Solomon Islands. The project will also draw on existing national data sets that provide social and gender related information from coral-reef dependent communities to inform the national action planning processes.

At the regional and global levels, the GEF CRR project will build on initiatives led by the CRRi global partners. This includes:

- The Blue Action Fund – Current projects implemented by WWF and WCS are aimed at developing an expanded network of climate resilient, sustainable, and effectively managed Marine Protected Areas (MPAs) across the West Indian Ocean region and Melanesia. This includes areas in Kenya, Tanzania, Madagascar, Fiji, and Solomon Islands. The initiative aims to achieve ambitious goals, including the creation and improved management of MPAs, the promotion of sustainable livelihoods in relation to fisheries management, and strengthened local community involvement in the stewardship of marine natural resources. The GEF CRR project will draw on the network established by the initiative for the establishment of the National Hubs in Madagascar, Fiji, and Solomon Islands. It will further seek to utilize the opportunity provided by this network of MPAs for the campaign and awareness raising projects to ensure a wider reach and to increase the appreciation of climate refuge reefs amongst the MPA community
- The WWF Margaret A. Cargill Philanthropies (MACP), Phase 2, implemented in Indonesia, Madagascar, and Tanzania. This project is aimed at supporting learning and action for community-

based conservation in coastal communities. Underlying project implementation is a strong learning agenda bringing together advances in science and holistic M&E to continue to improve coral reef conservation. Work in Indonesia has supported coastal marine management - integrating fisheries, marine protected areas, and community-based conservation. In Madagascar, the project is aimed at strengthening community resilience in the Northern part of Madagascar (Diana Region), through adaptive marine resource management, including coral reef protection. In Tanzania this project will work to support learning and action for community-based livelihood and conservation initiatives for coastal communities in the targeted sites, addressing Poverty-Environment-Gender Nexus. The GEF CRR project will build on the outcomes and experiences of this initiative in the National Hubs.

- 50 Reefs conservation, WCS in partnership with Bloomberg Philanthropies' Vibrant Oceans Initiative (VOI). Climate change, overfishing, pollution, and unsustainable development threaten the survival of coral reefs. As part of the Vibrant Oceans Initiative, WCS works closely with government and local partners advocating for policies that strengthen the role of Indigenous Peoples and local communities in fisheries management and catalyzing political support for new marine protected areas. Internationally, our coral reef and policy experts are working to ensure actionable and science-based policies for coral reefs are prioritized in the post-2020 Convention on Biological Diversity, to help safeguard our ocean's biodiversity centers and the food security and livelihoods of millions. WCS works to protect climate-resilient reefs in four countries (Fiji, Indonesia, Tanzania, and Kenya), centering community-led conservation efforts. The initiative is focused on the following: strategic partnerships, national policy reform, local conservation and fisheries management, and data-driven strategy and global transparency using the MERMAID monitoring platform (datamermaid.org).

Baseline initiatives of relevance to Component 3

Baseline initiatives focused on increasing financial resources available to coral reef conservation are somewhat limited as compared to those relevant to the other components. At the global level, the project will build on the experiences and Biodiversity Finance Initiative (BIOFIN) led by UNDP and explore the Global Fund for Coral Reefs for blended finance investment.

At the national level, baseline initiatives were identified in Fiji, Indonesia, the Philippines, and Madagascar. Examples include the Environment and Climate Adaptation Levy (ECAL) in Fiji led by the Government, the Fish Forever program, as well as innovative finance strategies being led by RARE in Indonesia and the Philippines and by BIOFIN in Madagascar and the Philippines. The project will also build on the experiences of the CARE country offices as well as WWF in microfinance such as the village savings and loan associations established by CARE country offices.

Baseline initiatives of relevance to Component 4

At the global level, the project will work closely with RARE's Coastal 500 initiative in the design and roll out of the global campaigns and awareness raising activities. The project will also build on the experiences and approaches used by Rare's 'Fish Forever Program' behavior adoption campaigns that aim to encourage positive behaviors from relevant stakeholders in support of sustainable coastal resource and fisheries management.

At the national level, the project will build on the Ocean Planning Team/PEUMP's social media campaign that promotes the significance of the ocean as a vital ecosystem such as the coral reefs that are unique in local cultures, sustain life and have potential climate adaptation measures. In Indonesia, the project will benefit from several different awareness campaigns that are underway with the leadership of the Government as well as WWF Indonesia. These include the Coral Stock Center, Threatened Species Awareness Program, Marine and Fishery Campaign as well as the awareness program being led by Blue Ventures to build awareness of government in six provinces to officially recognize LMMAs.

1.7 Coordination with other relevant GEF & non-GEF Initiatives

Several initiatives of relevance for the CRR project were identified at global, regional, and national level. This section provides a summary overview of the types of initiatives identified. Information such as GEF Project ID or lead agency for all identified GEF and Non-GEF projects can be found Annex 3. The project will coordinate with and build on these initiatives to i) benefit from lessons learned; and ii) effectively leverage relevant activities to maximize efficiency and impact.

At the global and regional level, three large scale global programs were identified: i) The GEF-funded Blue Nature Alliance (BNA), a global partnership led by Conservation International focused on the establishment of new and existing ocean conservation areas. BNA works in similar geographies with the GEF CRR project, which would be able to complement BNA efforts by providing access to data through the monitoring platforms, strengthening capacities for use of data in decision making and identifying sustainable business opportunities; ii) The Partnership in Environmental Management for the Seas of East Asia (PEMSEA) is an intergovernmental organization that builds intergovernmental and intersectoral partnerships, building capacities for integrated coastal and ocean management. The GEF CRR project will seek to engage with the networks, such as learning centers, established by PEMSEA and ensure cross exchange of knowledge materials; and iii) Marine Spatial Planning (MSP) – Pacific-European Union Marine Partnership Programme (PEUMP Project) is a multi-partner project that aims to improve the economic, social, and environmental benefits for 15 Pacific states included in the African Caribbean Pacific (ACP) group through stronger regional economic integration and the sustainable management of natural resources and the environment. The GEF CRR project will share information and knowledge with the PEUMP programme.

At national level, Fiji identified four GEF supported projects that are of relevance to this GEF CRR initiative. This includes the UNDP/GEF project (ID 5398), implemented by the Ministry of Environment and focused on a 'Ridge to Reef' approach, two initiatives aimed at strengthening financial resilience and ecosystem resilience for coral reefs (including one on public-private partnerships for coral reef insurance led by ADB and a second developing and deploying financing products to improve community resilience led by WTW in collaboration with WWF Pacific. The fourth initiative is focused on strengthening community engagement through the integration of LMMAs into Fiji's Marine Protected Area systems. Given the relevance of all these initiatives, Executing Agencies of these GEF projects will be invited to participate in the National Hubs.

Solomon Islands identified six initiatives of relevance, three of which are GEF supported initiative. The GEF Pacific Ridge to Reef (R2R) and is focused on pollution and raising institutional and civil society awareness and capacity for action. GEF - Pacific Ecosystem Based Adaptation to Climate Change (PEBACC) program, the GEF - Pacific Adaptation to Climate Change (PACC) program and the Marine Spatial Planning (MSP) – PEUMP Project (an ocean planning program). Outcomes and lessons emerging from the programs focused on adaptation will inform the planned National Action Plan for Resilient Reefs (in light of the priority that stakeholders participating in the PPG placed on the need to strengthen understanding of linkages between coral reefs and climate change adaptations) and the project will ensure that lessons and information is shared between the MSP and Component 1 activities, particularly with regards to the Climate Data Platform.

Six initiatives of relevance were identified in Indonesia, of which two are GEF-supported initiatives, both of which are focused on strengthening the sustainability of fisheries in the Country: i) The Coastal Fisheries Initiative (CFI) and the Ecosystem Approach to Fisheries Management in Eastern Indonesia. The other initiatives identified include the ATSEA-2 (regional collaboration and coordination in the Arafura and Timor Seas (ATS) region through implementation of the regional strategic action program (SAP); Birdshhead seascape, a place-based initiative which has established a dedicated conservation fund, the Blue Abadi Fund, to disburse grants to communities and agencies; COREMAP CTI III which includes the conservation and management of coral reefs in MPAs; and ISLME which plays a catalytic role in addressing transboundary concerns by assisting Indonesia and Timor-Leste to restore and sustain coastal and marine fish stocks and associated biodiversity through the collaborative development and subsequent implementation of the Strategic Action Programme (SAP). All initiatives have experiences and lessons of relevance to the GEF CRR project and will be invited to share these through the National Hub for consideration when developing the National Action Plan for Climate Refuge Reefs.

In the Philippines, projects of relevance included the Coastal and Marine Management Program (CMEMP), a national program of DENR focused on the effective management of the country's coastal and marine ecosystems thereby increasing their ability to provide ecological goods and services to improve the quality of life of the coastal population particularly by ensuring food security, climate change resilience and disaster risk reduction; two projects involving planning and monitoring of relevance to Components 1 and 2 of the GEF CRR – the Environmentally Critical Areas Network (ECAN) being led by PCSD and the project, Connectivity of Large MPAs contributing to refuge reefs and food security: Effective management of Large Marine Protected Areas led by WWF; Fish Right which has carried out a series of studies and established the IUU database which will be important to make reference to in the development of the National Action Plan for Climate Refuge Reefs; two projects that involve the development of financing strategies – the Financing infrastructures and Facilities that promote carbon sequestration and/or Ocean Acidification and the project, Increasing Coral Resilience by Strengthening Marine Key Biodiversity Areas being implemented by WWF Philippines and DENR-BMB; as well as the regional project, Implementing the Strategic Action Programme for the South China Sea and Gulf of Thailand (SCS-SAP) which has similar objectives to that of the GEF CRR and will therefore be consulted to ensure synergies and avoid redundancy of outputs. Additionally, during the project implementation the Coral Reef Rescue project will coordinate with the Strengthening Marine Protected Areas to Conserve the Marine Key Biodiversity Areas in the Philippines (SMARTSeas PH) to learn from their experiences and leverage the outputs and impacts for this project in the Philippines.

Madagascar identified six GEF supported initiatives of relevance to this project and with which the GEF CRR project will establish close communication to ensure that strategies are aligned and that they draw on the lessons and experiences emerging to date. These include: Southwest Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFISH2); Strengthening the Network of New Protected Areas; Expanding and consolidating Madagascar's MPA network; Strategic Action Programme for Policy Harmonization and Institutional Reform in the Western Indian Ocean Region (WIO LME SAPPHIRE); Inclusive conservation of sea turtles and seagrass habitats in the north and north-west of Madagascar; and Implementation of the Strategic Action Programme for the protection of the Western Indian Ocean from land-based sources and activities (WIOSAP). In addition, the Integrated Management of the Marine and Coastal Resources of the Northern Mozambique Channel (NoCaMo) is also of relevance as one of its objectives include the protection of coral reefs through CBNRM approaches. NoCaMo will be invited to join the National Hub as implementing partners include CRR partners and there is significant room for synergies between the two initiatives.

Tanzania identified 6 projects that are relevant to the GEF CRR Project. One project is a GEF Funded project, The Inclusive Conservation Initiative led by CI and IUCN that will run until 2026.

Section 2 PROJECT EXECUTION STRATEGY

2.1 Project Objective and Theory of Change

The overall project objective is: “To strengthen capacity and solutions that ensure the long-term survival of climate refuge coral reef ecosystems, thereby conserving their biodiversity and supporting the blue economies and communities dependent on them.”

This project is designed based on the premise that if strong enabling conditions established, including individual knowledge, and understanding as well as institutional policies, structures, and processes, then increased investments can be mobilized. This, in turn, will enable and motivate stakeholders across sectors to work together for the conservation and management of climate refuge coral reefs. The collaborative effort across stakeholders and sectors will minimize risks and maximize the conservation returns on the benefit. Conserving climate refuge coral reefs creates a critical seed bank to support the regeneration of coral reefs globally.

The underlying theory of change of this project is that:

- *If* we create learning and knowledge sharing opportunities for climate refuge coral reef conservation across the 6 project countries, and facilitate tools for near-real time monitoring of reef status;
- Facilitate national multistakeholder platforms for climate refuge threat and solutions identification, and for developing and endorsing collaborative climate refuge conservation national action plans; and,
- Increase investment opportunities on environmentally sustainable businesses and livelihood alternatives with a positive environmental impact in the climate refuge reefs; then
- We will be setting up the enabling conditions for climate refuge conservation and will provide a foundation for global reef maintenance and recovery in the long term.

This Project’s theory of change (Figure 10) is underpinned by several core beliefs which are informed by science, as follows:

We have already lost half of the world's coral reefs and are likely to lose as much as 70-90% by mid-century if trends in local and global stresses continue (IPCC, 2018; WWF, 2020). Coral reef systems are central to the ocean ecosystem and the collapse of reefs could leave much of the ocean lifeless” (Loria, 2018), with the ripple effects from the loss of coral reefs potentially devastating for the wellbeing of both humans and biodiversity. The scale and complexity of the challenge is daunting and requires highly strategic investments that will catalyze transformational change at a scale and depth necessary to both save coral reefs as well as change the conditions that are driving the situation today.

This involves: -

- Focusing efforts on reefs within partner countries that are least exposed to climate change (i.e., climate refuge reefs) and are well positioned to also regenerate reefs as climate stressors stabilize; and which are critically important to the lives and livelihoods of the communities and economies that are dependent on them (also described in Section 1); and

- Ensuring that the necessary *capabilities, opportunities, and motivation*²⁰ are in place at both the individual and institutional levels to create the conditions for long-term behavioral²¹ and institutional change.

This will be realized through directing energies and investments to areas within the climate refuge reefs prioritized by national and local stakeholders for action in the 6 countries. Within each country and at the global level, this project will consolidate and build on previous efforts (often carried out in a disjointed manner by different institutions) through the establishment of the following:

- A **global network of knowledge and best practice plus the planning and expansion of a monitoring platform**, ensuring accessibility of the best tools and science available as well as the skills and knowledge for communities, decision makers and practitioners to utilize the tools and science to inform and improve policy and practice at multiple levels.
- A **national multisectoral and stakeholder hub** in each of the 6 countries to enable the collaborative design and implementation of national and subnational action plans for the conservation of refuge reefs in their countries, informed by an analysis of threats, costs and benefits of conservation action vis a vis business as usual and the traditional knowledge and vision of local communities.
- An investment portfolio with demonstrative sustainable livelihood projects and potential investors identified for the priority areas; and
- A widespread awareness and communications strategy targeting **influential individuals and institutions** as well as the wider public on the value and importance of climate refuge reefs to local communities using their own voices as well on as the value and importance to economies and biodiversity nationally and globally.

In doing so, the present GEF project will ensure that there is a strong enabling environment in each of the countries to mobilize new investments and capabilities to support the action necessary for transformational change. This enabling environment includes:

- Collaboration and coordination across the diversity of sectors and stakeholders that have an influence or impact on the conservation and management of climate refuge reefs. This, in turn, will lead to negotiated synergistic solutions and reduce risks to future investments in climate refuge reefs. For example, a solution jointly designed between local communities and the environmental, mining and the agricultural sectors is more likely to be successful than a solution driven by only one or two of these stakeholders²²;
- Positioning and voice of women and men from local communities that depend and/or have an impact on climate refuge coral reefs in the decision making, planning and delivery of investment.

²⁰ Informed by the COM-B model which demonstrates that behavior occurs because of interaction between three necessary conditions: Capability – the psychological and physical capacity to engage; Motivation – processes that energize and direct behavior, including analytical and informed decision making; and Opportunity – the wider contextual factors that catalyze and enable changes in behavior

²¹ The project will also draw on Rare’s Levers of Behavior Change Framework that identifies critical levers to shift behaviors (described in: https://stapgef.org/sites/default/files/2020-02/STAP%20Chair%27s%20Report%20to%20the%20GEF%20Council_December%202020.pdf?null=)

²² During stakeholder consultations to develop the CRRI global strategy, examples were shared across many countries of sectors such as mining undermining the efforts of environment and conservation and stakeholders emphasised the necessity and urgency of establishing integrated and holistic approaches to conservation and management of climate refuge reefs.

- Access and capabilities to use data, tools and resources in evidence informed planning and practice – ensuring that the identification of priorities is informed by science as well as traditional and Indigenous knowledge.
- Readiness for investments, identifying reef-friendly businesses and investment opportunities and working closely with those with highest potential to be investor ready; and
- Awareness and support for climate refuge reefs amongst the wider public and particularly of influential individuals and institutions.

In realizing these outcomes, the project will not only maximize potential for mobilization of new investments but also reduce short- and long-term investment risk.

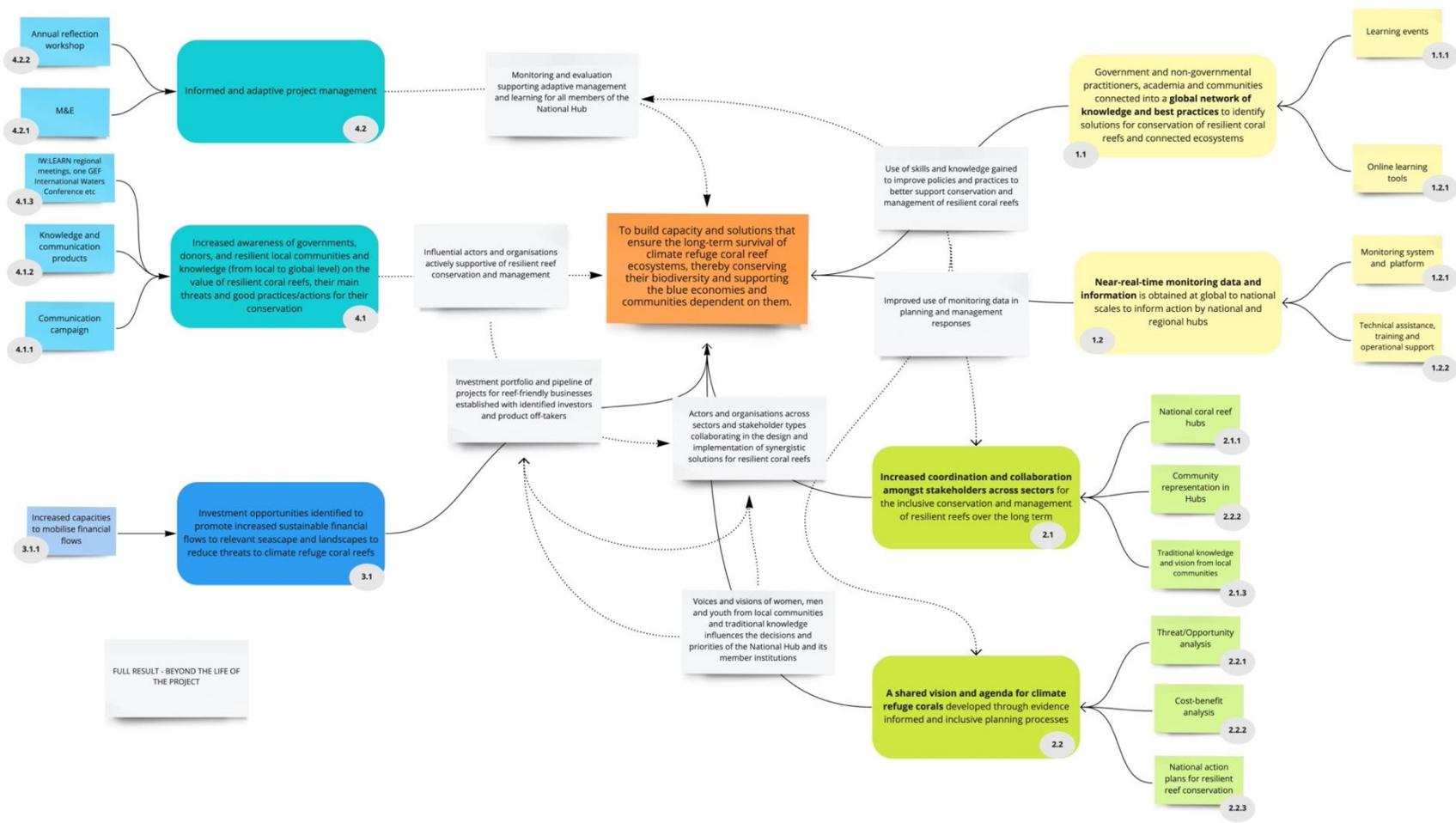


Figure 10 Illustrated overview of the project's theory of change

2.2 Project Components and Expected Outcomes

The project will be achieved through outputs and outcomes delivered through four Components:

- Component 1: Global to local capacity strengthening for climate refuge coral reefs monitoring and conservation.
- Component 2: Planning for climate refuge coral reef rescue at the National Level
- Component 3: Financial solutions for climate refuge coral reef rescue
- Component 4: Knowledge Management & Monitoring and Evaluation

2.2.1 Component 1: Global to local capacity strengthening for climate refuge coral reef monitoring and conservation (GEF budget USD\$1,073,855.02).

Through activities that ***promote sharing, accessing, and using knowledge to inform action***, Component 1 will promote global to local capacity strengthening for the monitoring and conservation of climate refuge coral reefs. Outputs include the connection of stakeholders to a global knowledge network and best practices, as well as integration of near-real time monitoring²³ of key climate variables (see NOAA's Coral Reef Watch program) into management strategies. The learning events will be designed to create space and opportunity for exchanging information, experiences and strategies as well as providing access to practical resources, tools, and training. They will be essential for assisting coastal communities in understanding the impacts of global change on critical resources and the changes to follow. This will involve encouraging and supporting individuals participating in the learning events to continue to interact with one another around shared interests and concerns through communities of practice using online platforms. The project will also train and strengthen capacities within project countries on how to use, interpret and adapt near-real time monitoring data for early warning systems and decision-making frameworks.

The learning events (Outcome 1.1) and the monitoring system (Outcome 1.2) under Component 1 will utilize the CRRRI Knowledge Hub (described in more detail in the baseline tables provided in Annex 2). The CRRRI Knowledge Hub is an online platform that has been conceptualized to provide a space for knowledge exchange amongst stakeholders across the world involved in the conservation and management of climate refuge reefs. The Hub exists in its first prototype iteration²⁴ and is being developed to comprise four focus areas: (1) Supporting research, (2) conservation and community development action, (3) teaching and learning, and (4) monitoring and evaluation. It is being developed to be accessible to users with a diverse range of backgrounds, expertise, and connectivity (i.e., internet), as well as in languages and cultures relevant to the CRRRI countries.

The outcomes in this Component will be realized through a collaborative effort led by the lead executing agency at the global level who will work with local stakeholders to bring together representatives of

²³ Near real-time monitoring refers to data collected by satellites and other sensors of environmental conditions that are available at regular, relatively rapid time frames (i.e., hours, days, months) and is enabled by technologies such as, but not restricted to, satellite and electronic measurement networks. These data can detect daily or more frequent measurements of sea surface temperature, colour oceanography (proxies for pollution in many circumstances) and sediment run-off. The capacity of these systems is currently escalating as satellite networks expand both temporarily and geographically.

²⁴ hub.coralreefrescueinitiative.org

Technical Working Groups (TWGs) established under National Hubs²⁵ across the six countries. This group will work together as a 'Knowledge Unit' or peer reference group that provides strategic guidance to ensure that the overall vision, approach, activities, and outputs are responsive and relevant to the needs and realities within each country. The TWG will comprise experts and knowledge holders in a range of areas (including technical, pedagogical, Indigenous etc.). This mechanism of participatory collaboration will also allow for consistency of strategies, relevance of produced content (including curriculum development and delivery methods), as well as overall alignment with the goals of the GEF CRR project and its stakeholders.

Outcome 1.1 Government and non-government practitioners, academia and local communities are connected into networks of knowledge and best practices to identify solutions for the conservation of climate refuge coral reefs and connected ecosystems.

The challenges that the six participating countries face in conserving and managing climate refuge reefs are complex and context specific. There are advantages from working together locally, regionally, and internationally including the opportunity to engage with principles and strategies that may have worked elsewhere and to promote more effective brokering of problems and solutions across contexts.

Under Outcome 1.1, the project will take advantage of the opportunities presented by the recent rapid evolution of online learning and training for increased knowledge and capacity strengthening in the six countries. Online learning design will be coordinated by the University of Queensland (UQ), (specifically through its Institute for Teaching and Learning Innovation, ITALI, and UQx department). The project will build on UQx tools and extensive experience in the development of massive open online courses (MOOCs) which present a powerful way to connect the global university network to problem solving in less resourced areas of the planet.

Using these online learning events (including webinars, workshops, and customized discussion forums), the aim is to connect stakeholders to a global network of knowledge and ensure that the six countries can engage in active and deep dialogue as they individually and collectively address the challenges and solutions for conserving priority climate refuge coral reefs. It is understood by UQ from previous projects that some of the most important lasting legacies of international projects are the personal connections as well as technical networks of people that have a common interest in conserving, preserving, and maintaining the health of coral reefs and other related coastal ecosystems (e.g., mangroves, seagrass, coastal forests).

Output 1.1.1 At least six learning events at regional / global level for at least 500 practitioners (e.g., staff, policy makers, scientists, students, community members).

Six learning events at regional and global scales will be facilitated over the four years of the project, with a total of at least 500 practitioner participants. The purpose of the events is to build skills and knowledge of policy makers, practitioners, scientists, community members and students on the benefits of conserving and managing climate refuge reefs. Specific types of learning events will be defined at the onset of the project, based on an assessment of country needs and realities. They may include webinars, online workshops (including using collaborative tools like Mural), and customized discussion forums. It is imagined that these learning events will be delivered online through interactive media. However, there may be potential for live events in some circumstances if it is deemed to be most appropriate to the national context, if travel is

²⁵ Technical Working Groups are one of the structures under the National Hubs, established to enable stakeholder engagement in the design and implementation of specific activities in this project. This is further described in Section 2.2.2

permitted (re: COVID-19), and resources permit. The most relevant type of learning event will be collaboratively determined and will be appropriate to topic, audience and learning objectives. Ideally, learning events will be facilitated in multiple languages appropriate to the six countries (taking into consideration the availability of resources). The project will aim to ensure that learning events are accessible to previously marginalized or under-represented groups, designing inclusive strategies and approaches geared towards enabling the participation of women, youth, and people with disabilities.

Learning events may include a series of webinars that would potentially involve practitioners from different expertise and knowledge areas coming together to strengthen capacities, for example, in areas such as monitoring, governance, local community inclusion, innovative finance for climate refuge coral reefs, and blended finance with private sector. This may also involve discussions around issues identified as critically important for climate refuge reefs by stakeholders (for example, climate change, unsustainable coastal development, and small-scale fishery reform). Similarly, practitioners and stakeholders may come together in workshops to identify approaches to address common threats and challenges as they arise, such as thermal stress related coral bleaching or community access to services and resources. Specialty workshops may also be convened as required across local, regional, and global networks to share best practice and troubleshoot issues and solutions. Workshops would allow for approaches to be discussed and refined, enabling on the ground action. These online learning events are cost effective given the broad scope of this project, allow for flexibility in interactions and encourage communities of practice across the six nations and global community. The focus of learning events, workshops and associated communities of practice will also be informed by the priorities identified by communities and other stakeholders through the visioning and planning processes in Component 2.

Activities specific to this Output:

Activity 1.1.1.1 Establish and coordinate a ‘Knowledge Unit’ peer reference group, which is composed of experts and knowledge holders in a range of areas, including a gender expert (this will involve designing ToRs, mechanisms for country inputs, working modalities and formalizing partnerships). The Knowledge Unit is envisioned to be a global body with representatives from all countries. Country representatives will participate as members of a National Hub Technical Working Group. The Knowledge Unit will participate in all activities under this outcome, ensuring that content and approach is relevant to the specific context and needs of different countries as well as ensuring ownership by stakeholders.

Activity 1.1.1.2 Convene and coordinate the Knowledge Unit to jointly develop a joint vision, strategic framework, and process plan for this global network of knowledge and to guide the unit in working together to deliver the activities and outputs under this Component - ensuring that the vision, strategic framework, and process plan cater for inclusiveness and equity, including gender equity and access to knowledge by marginalized groups. This includes principles of incorporating community-led learning as well as the use of traditional knowledge in learning processes where appropriate.

Activity 1.1.1.3 Conduct needs assessments in each of the project countries for key parts of the Component 1 agenda, led by the ‘Knowledge Unit’ to establish country-specific needs (to identify learning content needs, languages, interests, barriers, and incentives for active engagement etc. The needs assessment will be carried out in a gender sensitive manner and include identification of opportunities for community-led learning, as well as the engagement with local knowledge in the potential learning processes and activities. The needs assessment will inform all subsequent activities in this Outcome.

Activity 1.1.1.4 Work with the Knowledge Unit to develop a ‘Knowledge Proposal’ for teaching and learning. The Knowledge Proposal will describe (1) proposed learning approach, objectives, and principles (including

gender considerations), (2) proposed curriculum/content, (3) proposed design of delivery methods (including offline options), (4) potential contributors, coordinators/moderators for communities of practice for all outputs in Outcome 1.1, and (5) a proposed outline for online MOOCs (to be delivered under 1.1.2).

The Knowledge Proposal will also include a strategy for establishing and facilitating ongoing dialogue and exchange through communities of practice, building on momentum of all learning activities in the Outcome. The proposal will also include strategy for monitoring, evaluation as well as adaptive management and planning for future learning and knowledge exchange (both online and in-person).

Activity 1.1.1.5 Present ‘Knowledge Proposal’ to local and national stakeholders in the National Hubs through the Technical Working Groups for feedback and ground-truthing (include representatives from across government and non-government institutions, communities, and academic bodies in the project countries) (includes the incorporation of feedback and reassessment of activities as required). This activity may involve a short series of presentations (for example, a separate presentation for the proposed ‘skeleton’ outline of the MOOCs (1.1.2) to give adequate space for stakeholder and partner perspectives to be heard and, if possible, integrated into the course planning.

Activity 1.1.1.6 Coordinate and deliver learning events in line with the finalized Knowledge Proposal (developed in 1.1.1.4), adhering to principles of gender equity (including equal participation of both female and male participants and no male-only panels)

Activity 1.1.1.7 Catalyze and support dialogue around topics of interest through facilitating the establishment and active participation of stakeholders in communities of practice

Activity 1.1.1.8 Monitor, evaluate and reflect regularly on the effectiveness of the learning strategy and events (including communities of practice), as well as the extent to which gender equity principles have been adhered to and adjust and revise the curriculum/content, processes and delivery as needed (including sharing the evaluation outcomes with the Knowledge Unit and other relevant stakeholders).

Output 1.1.2 Online learning tools such as massive, open, on-line learning (plus alternative offline options) developed and benefiting at least 2,500 relevant stakeholders (including communities, universities, and schools) across diverse expertise levels and languages (where possible).

Online teaching and learning methods will be developed to benefit at least 2,500 relevant stakeholders over a four-year period. The purpose of the proposed needs-based, online-learning output is to strengthen capacity and willingness of stakeholders to conserve and manage climate refuge reefs through enabling knowledge sharing and building lasting communities of practice.

UQ is internationally recognized for its leadership in the development of massive open online courses or MOOCs and has extensive experience using online technologies to deliver training, collaborative workshops, and webinars. To date, UQ’s Institute for Teaching and Learning Innovation and UQx department has developed 69 online courses and 10 online programs, including three MicroMasters and one online Masters in a broad range of topics that are hosted on the wide reaching global [edX platform](#). UQx courses on edX have attracted a total of over 4 million learners from over 145 countries since they first began to offer courses in 2013. Learners originate from a broad range of countries, including developing country contexts and communities. The edX platform reached over 35 million learners in 2020 alone and future modeling indicates further substantial uptake in the global online arena.

One of the most successful and long-running MOOC courses created by UQx (and long-term collaborators) is ‘*Tropical coastal ecosystems*’ (TROPIC101x). This course gives learners the skills and knowledge needed to understand the problems and solutions for helping preserve tropical coastal ecosystems such as coral reefs.

Over 45,000 learners have enrolled in the TROPIC101 course since its inception, building quite a sizable online alumnus that adds tremendous value and opportunity.

Informed by a needs assessment, the aim is to harness UQ's strengths and assets, in collaboration with the members of the Knowledge Unit, created under Output 1.1.1, to build a set of capacity strengthening MOOCs. The aim is to develop the MOOCs involving academics, practitioners, and knowledge holders within the six CRRRI countries to act as consultants and content contributors to ensure that all teaching and learning content is widely accessible to users with a wide range of experiences and cultural backgrounds, as well as being offered (partly or in full) in other relevant languages where possible.

The MOOCs will be designed and developed with a focus on topics that are centrally relevant to achieving long-term survival of climate refuge reefs and are of common interest across all or most of the six countries. This may include, for example, monitoring coral reefs and sustainable financing for coral reef conservation. Learning experiences would involve lectures, assessment as well as self-learning/assessment options, and the experience of UQ to date (described earlier) demonstrates that this is attractive and valuable to practitioners looking to gain skills, while manageable within their existing day-to-day workloads. The MOOCs will incorporate the training needs relevant to Outcome 1.2. (for example, training in using and interpreting near-real time data, moving from early-warning systems to actions with near-real time monitoring data, cleaning/maintaining on-the-ground monitoring data and its use to improve near-real time monitoring and decision making).

Courses will be free for participants wishing to 'audit', or access particular content of interest to them for a limited time. There will be the option of a subsidized fee for learners wishing to earn certificates. The run time of the courses will be collaboratively determined, with the emphasis being on self-paced and instructor-moderated learning experiences. In the 'Knowledge Proposal' (1.1.1.4), the project will develop mechanisms for encouraging and motivating active engagement with the learning tools and for targeting and incentivizing relevant stakeholders.

With the possibility of other funding sources (such as the GCF), there is a vision to develop longer term sustainability of the courses (beyond the life of the current project) and expand learning pathways to include potential short-form credentials. The umbrella nature of the Knowledge Hub will continue to keep building sustainable opportunities for other novel courses, programs, and strengthening of capacity.

Activities:

The activities under this output will be informed by a needs assessment (1.1.1.3) and the knowledge proposal (1.1.1.4) delivered under Output 1.1.1

Activity 1.1.2.1 Work with UQx to develop timelines, budgets and work plans for the development of up to 4 massive, open, online courses (MOOCs) in accordance with the 'Knowledge Proposal' (developed in activity 1.1.1.4).

Activity 1.1.2.2 Conduct content strategy sessions and MOOC-design workshops to (1) establish principles and approaches for the development of content to ensure that it can be used and understood across learners and guarantee gender-inclusive, contextually relevant, and culturally sensitive language and principles, and (2) design MOOCs that are aligned with the needs of the target audience (identified as part of the needs assessment).

Activity 1.1.2.3 Create content and build up to 4 MOOCs (beta versions) that are accessible to male and female learners with diverse expertise and backgrounds and connectivity/bandwidth contexts, in

collaboration with the ‘Knowledge Unit’ and according to the ‘skeleton’ outline accepted in the ‘Knowledge Proposal’.

Activity 1.1.2.4 Select and invite a group of stakeholders to ‘beta-test’ the MOOCs and follow up with workshops to gain feedback (including adjusting to and actioning this feedback, where possible) from both male and female end-users from a diversity of expertise and backgrounds.

Activity 1.1.2.5 Fully execute and make ‘live’ up to 4 MOOCs, ensuring equal participation of male and female participants including the actioning of plans for ongoing coordination, moderation, maintenance, incentivization and oversight that would be outlined in the ‘Knowledge Proposal’).

Implementation Mechanism: Outcome 1.1. will be led by UQ, working closely with stakeholders from the six countries through the Knowledge Unit. In addition, the project will also draw upon the wealth of knowledge and experience of the CRRRI global partners including Rare’s ‘Fish Forever’ Global Training Hub and Science and Technology team and including the Care team in the Knowledge Unit and the development of content.

Global/UQ personnel for coordination: Contractor 1 (specialist in building knowledge hubs, coordinating on-line teaching course development, stakeholder engagement, project management and knowledge exchange strategies). This full-time position will be responsible for the delivery and coordination of Component 1.1. Teaching and learning expertise will also be drawn on by another contract component with staff from ITALI.

Related projects and programs: CRRRI Knowledge Hub, UQ’s Institute for Teaching and Learning Innovation and UQx department.

Outcome 1.2 Near-real-time monitoring data and information is obtained at global to national scales to inform action by national and regional hubs

Understanding physical, ecological, and socio-economic trends within climate refuge coral reefs and connected ecosystems is extremely important for tracking the health of the system now and into the future. Monitoring data is also essential for determining the success (or not) of interventions over time and informing adaptive management of climate refuge reefs. Technology can and should play an important role in aggregating various types of data to provide views and reports that allows the project to identify early warning signs of degradation and monitor the impact of interventions, while showing important trends to potential funders, researchers, governments, field operators and local communities (Obura et al., 2021). Newly available technologies can now monitor coral reefs in near-real time, but there is a critical gap in applications to on-the-ground decision making.

Under this outcome, the project will work in collaboration with partners, such as the Allen Coral Atlas and NOAA (Coral Reef Watch), to prototype a global climate monitoring system for managers and other users. The prototype monitoring system will include the identification of key climate, ecological and socio-economic indicators and identification of data sources and protocols. The project will focus on the climate data sets, establishing a Coral Reef & Climate Data Platform that will be hosted on the CRRRI Knowledge Hub. The Climate Data Platform will utilize and build on currently available datasets (e.g., satellite-based measurement systems that measure key variables such as habitat structure and composition (Roelfsema et al., 2018), sea surface temperature, wave stress, turbidity (Li et al., 2022) and light that automatically refresh on a regular basis) downscaled to BCUs and priority reefs within the six countries. The aim is to gradually expand the system to include biological, sociological, and economic data platforms as new resources are mobilized (outside of the scope of this GEF project). The project will also help countries build strategies for the sharing and management of corresponding datasets, which will be made accessible through the Climate Data Platform and Knowledge Hub.

The project will also strengthen capacities in the six countries for practitioners to utilize this system, allowing them to identify early detection of potential changes (or risk of change) in the condition of the climate refuge coral reefs in each of the six countries. This will facilitate better planning, targeted monitoring, and climate refuge reef conservation and restoration efforts. Further, some satellite data sets will have alarm triggers that alert the six countries when specified targets are exceeded and significant impacts are likely (e.g., significant heat or coastal flood damage). At a higher level, this work will drive near-real time monitoring to be more inclusive, consistent, driven by user needs, scalable, and help to close the gap in using near-real time data to inform actions.

Output 1.2.1 Global climate refuge coral reef monitoring system prototype and Climate Data Platform developed and implemented in the 6 countries for management response by the national and regional hubs.

Under Output 1.2.1, the project will develop a prototype global climate refuge coral reef monitoring system across the six project countries. The project will help identify a set of core indicators specific to priority coral reefs, which have linkages to globally recognized indicators and existing monitoring and reporting within countries. This monitoring system will take a holistic and integrated approach, including climate, ecological (e.g., habitat and species states, levels of threat) and socio-economic data (e.g., indicators covering wealth/poverty status, gender equality and social inclusion, livelihood security). The project will ensure use and suitability at national to global levels by consulting with representative stakeholder during indicator development. As mentioned earlier, while the GEF CRR project will work with the countries to identify and agree on indicators across climate, ecological and socio-economic dimensions, it will only be able to focus on gathering and making accessible the climate related indicators through the Climate Data Platform, drawing on existing datasets. Further, in-country expertise for data collection and analysis, as well as the use of data for management and policy development, will be developed (with the training integrated into the learning activities under Outcome 1.1). This will also involve supporting countries to utilize the data to inform the development of the National Action Plan for Climate Refuge Reefs (Component 2)

Aggregating these data to the priority reefs that have the least exposure to climate change within the six countries will improve the understanding and monitoring capabilities of these variables and help to guide on-the-ground monitoring and management. The outcome builds on work of long-term UQ-collaborator, the National Oceanic and Atmospheric Administration (NOAA) Coral Reef Watch (CRW). There are now over 40 years of continuous satellite records used by scientists all over the world with many new satellite measurements ready to be applied (e.g., light x temperature; precipitation, turbidity; marine flooding; wind; etc., Liu et al., 2014, Skirving et al., 2020). The proposed GEF project plans to extend the collaboration with CRW and engage the support of their technology experts to help build the Climate Data Platform. This will involve the inclusion of priority climate refuge reef sites, with the aim to ensure that available CRW variables are tracked within all priority climate refuge reefs within the six countries (by Year 2). This will include data on regional and local bleaching heat stress gauges, time series graphics, maps, and a satellite bleaching alert email system.

The Coral Reefs & Climate Data Platform will ensure accessibility to these datasets, which the countries will be able to utilize for free. Data will be presented in an intuitive format, linking with tools available through the Allen Coral Atlas²⁶, DataMERMAID²⁷ and other partners and national data platforms informed by needs

²⁶ Managed by Arizona State University (allencoralatlas.org)

²⁷ Managed by WCS (datamermaid.org)

analyses across the six countries and NGO partners. The intention is to ensure that the data management system is user-friendly and provides site-based managers and other stakeholders with knowledge to underpin evidence-based decision-making and adaptive management. At the request of national governments, the Coral Reef Rescue Initiative will facilitate, with funding from other co-financing sources, the development of specific National Coral Reefs & Climate Platforms (articulated to the Global Coral Reefs & Climate Data Platform) to respond to additional specific government information needs.

The project will pay careful attention to the handling of protected and/or sensitive data in the development of the Coral Reefs & Climate Data Platform. National generated data will be owned by respective national government and stakeholders, and, only with their consent, the collected information will be used to advise strategies. Workshops with national governments and other national stakeholders will identify existing data sources that are available, and as part of this process will examine the sensitivity of the data and how to handle them. When required, data use and sharing agreements with national governments will be established through Memorandums of Understanding which will clarify what data can be shared and accessed and by whom, and for how long. Sensitive information related to countries will be used only with the National Governments approval. The project will share non-sensitive global information through its monitoring platform to enhance global action on protecting resilient reefs, especially amongst the participating countries of the project.

Policy makers, practitioners, as well as local communities will be trained from basic to advanced levels of understanding on how to work with and interpret the satellite data, how to upload, clean and manage ground-truth data and how to use these combinations of data in project management (including use in the delivery of Component 4) and other decision-making processes (including use in planning and prioritization in Component 2).

Activities

Activity 1.2.1.1 Develop in-country needs assessments of country specific monitoring and reporting needs across various levels (national, international). This will include ecological and socio-economic factors and monitoring training needs (including establishment of content needs and interests, barriers, and incentives for active engagement etc., taking into consideration the differences, and different needs, of women and men)

Activity 1.2.1.2 In collaboration with national partners, develop a strategy and implementation plan for the national and regional monitoring system, including the use of existing data sources and monitoring programs/protocols across ecological and socio-economic indicators where possible.

Activity 1.2.1.3 Develop collaboration and data sharing agreements with key initiative and national partners (involving National Hubs and potentially, the PMU) to ensure transparent, open-access use of data from the remote monitoring platform.

Activity 1.2.1.4 Integrate existing near-real time data into the Climate Data Platform, with transparent repeatable processes for cleaning, managing, and integrating data sources as well as summarizing and visualizing data to inform and appeal to different stakeholder groups (taking into consideration both women and men users)

Activity 1.2.1.5 Expand beta version of the Climate Data Platform to explore how to add the ecological and socio-economic indicators (working with key partners such as NOAA) and trial it with key stakeholders to ensure it is easy to use and suits different needs in accordance with 1.2.1.4.

Implementation Mechanism: This output will be led by a full time UQ-based coordinator who will work in collaboration with partners such as Allen Coral Atlas, NOAA CRW, WWF, and other technology specialists. UQ will work closely with national partners through the National Hubs.

Related projects and programs: NOAA Coral Reef Watch, Allen Coral Atlas, DataMERMAID, WWF Coastal Community Led Conservation Platform²⁸.

Output 1.2.2. Technical assistance, training, and operational support for on the ground monitoring activities (management, decision making, platform calibration and ground truthing), with participation of local communities, in the 6 countries.

This output aims to support: 1) training and operational support to key stakeholders (e.g., natural resource managers, conservation practitioners, government agencies) for best practice on-the-ground monitoring in order to ground truth near-real time monitoring, 2) capacity strengthening in data management to ensure datasets and strategic analyses are comparable, reproducible, transparent and easy to distribute to various groups (e.g., communities, stakeholders, policy makers, funders) through the Climate Data Platform, 3) technical capacity strengthening to understand and utilize near-real time monitoring data in adaptive management and conservation decision making across levels.

The Project will assist countries through National Hubs as they lead in facilitating the integration of training, on-the-ground monitoring, near-real time monitoring and decision processes based on country needs. This output aims to empower governments and conservation practitioners in the 6 countries to interpret and understand the significance of their data for global coral reef monitoring, more efficiently use time and resources, and ensure collected data can be leveraged to support technological advancements and critical decision processes across the six project countries.

Activities

Activity 1.2.2.1 Conduct an in-country needs assessment to identify appropriate ways to strengthen the use of the data in decision making (by different types of stakeholders, particularly those represented in the National Hub) and ensure effective community outreach, taking into consideration limited connectivity and the different realities and need for equal representation of women and men. This may include knowledge of and skills to access, analyze and utilize data as well as appropriate ways to interpret and contextualize different types of data for different user groups.

Activity 1.2.2.2 Develop equal education and training opportunities for both women and men, using appropriate means of delivery (informed by the needs assessment), such as a MOOC, workshops, and webinars. Content will include 1) utilizing the Climate Data Portal - training on how and what data is collected, and how this information can be incorporated into decision making, 2) integration of readily available on-the-ground data with satellite derived data and 3) relevant data collection and management training needs as identified in 1.2.1.1.

Implementation Mechanism: This output will be led by a full time UQ-based coordinator, in collaboration with partners including CRRI Global Partners²⁹. Note, the budget for learning activities under 1.2.2.2 has been integrated into that of the learning activities under 1.1. to maximize efficiencies

²⁸ <https://coastalcommunityledconservation.org/>

²⁹ For example, RARE's Fish Forever Science & Technology team.

Related projects and programs: NOAA Coral Reef Watch, Allen Coral Atlas, Global Coral Reef Monitoring Network, GEO Blue Planet, Global Ocean Observing System, DataMERMAID, Elinor; RARE’s Fish Forever Data Portal

Global/UQ personnel for coordination: Contractor (specialist in data management, full-time, based at UQ but globally focused). This full-time position would be responsible for the delivery and coordination of 1.2.

2.2.2 Component 2: Planning for climate refuge coral reef rescue at the national level (GEF budget USD\$2,977,814.26)

Coral reefs and the livelihoods of local communities dependent on these reefs are influenced and impacted by a wide range of sectors and stakeholders – locally, nationally, regionally, and globally. This includes traditional leaders, local and national government agencies responsible for conservation and natural resource management (including fisheries as well as forestry in the case of mangroves), as well as rural and urban development (agriculture, mining, tourism), private sector actors and research institutes.

Inclusive good governance of climate refuge coral reefs is central in their management and conservation. This includes cohesive and sustainable structures and processes for collaborative diagnosis of threats and root causes, measured prioritization of solutions informed by critical and negotiated analysis of costs and benefits, joint policy and decision making as well as the mobilization of the support and resources necessary to translate decisions into action (Morrison et al., 2020).

This component builds on multisectoral stakeholder platforms and processes that currently exist within the six countries to establish integrated approaches specifically aimed at ensuring inclusive management and conservation of climate refuge coral reefs. The theory of change of this component is informed by lessons and experiences with integrated coastal zone management and natural resource governance from the 6 countries and beyond (described in Section 3.7.5):

- Threats to coral reefs are driven by root causes that emerge from multiple scales. They therefore cannot be addressed by placing the burden of responsibility at the local level alone. Solutions must have the political support of the wide range and diversity of actors and institutions responsible for the drivers of reef degradation.
- Solutions can only be effective if they are based on an analytical understanding of the relationships between interventions from across different sectors and stakeholders and are negotiated to minimize the extent to which one negates the effectiveness of another. Solutions need to be synergistic – negotiated to ensure that interventions are reinforcing so that ‘the combined outcomes exceed the individual effects’ (Ibid). This will need to involve reconciling conservation and development outcomes and aspirations at multiple levels.
- Identifying and planning for synergistic solutions requires that governance structures and processes ensure that the power dynamics between different actors and institutions enable cooperation, learning and adaptive management and action - including finding ways to harness the diversity of knowledge, ways of knowing, values, and aspirations. It also requires awareness of and commitment to upholding human and environmental rights.

To establish inclusive and sustainable good governance structures and processes to underpin planning for climate refuge coral reef rescue at the national level, the intended outcomes under this Component are:

- (Outcome 2.1) Increased coordination and collaboration amongst stakeholders across sectors for the inclusive conservation and management of climate refuge reefs over the long term and
- (Outcome 2.2) A shared vision and agenda for climate refuge reefs developed through an evidence informed and inclusive planning processes

These outcomes will be achieved through building on existing capacities, structures, and processes within each country, including embedding the National Hubs within existing coordination platforms established for marine protected and conserved areas and integrated coastal zone management as follows (refer to Section 1.6, baseline initiatives under Component 2 for a description of each of these platforms):

- Fiji: Marine Working Group: (MWG)
- Solomon Islands: National Coordinating Committee on Coral Reefs, Fisheries & Food Security
- Indonesia: Indonesia Coral Reef Network (affiliated with CTI-CFF TWG-Seascape, TWG-MPA (under development), TWG Climate Change Adaptation)
- Philippines: MPA Support Network (MSN)
- Madagascar: Réseau Récif
- Tanzania: National Coral Reef Task Force

Specific actions will be taken to ensure that processes are inclusive and fair, allowing for equal voice and opportunity to all stakeholders – particularly the women, men, and youth that are dependent on climate refuge reefs. Efforts will be made to ensure formal recognition and integration within existing government structures and processes at both local and national levels to allow for ownership and longer-term sustainability. This will include integration of the shared vision for climate refuge reefs and synergistic solutions identified for their conservation and management within policies, strategies and plans of relevant economic growth, development, and conservation sectors.

The National Hub and the multistakeholder and sectoral processes that take place within the Hub are closely linked to the other three Components of this project (as illustrated in Figure 11). The knowledge and data made accessible under Component 1 as well as the capacities to utilize this knowledge will be instrumental in ensuring that planning processes are evidence informed. The priorities identified through the planning processes in Component 2 will guide the identification and prioritization of investment opportunities in Component 3. Component 4 will seek to build awareness and support for the National Hub and the Vision and Action Plan for Climate Refuge Reefs through the communication and awareness raising activities, as well as the firsthand narratives by communities on the significance of climate refuge reefs to their livelihoods and cultures.

The design of this Component seeks to deliberately promote the longer-term sustainability of the Hub and the Vision for Climate Refuge Reefs. Hubs will be established as a sub-structure within existing platforms and processes in the country (as described in Annex 4). Efforts made to work with the relevant government structures to formally recognize the National Hub and for stakeholder representatives to include it in their annual plans and budgets (Activity 2.1.1.5). Technical and planning processes carried out across the project will use the Hubs as the core mechanism to engage stakeholders and build ownership of the project's outcomes. Furthermore, a sustainability strategy for the National Hub and National Vision and Action Plan for climate refuge reefs will be developed early on during the project with roll out initiated as soon as possible (Activity 2.2.3.4).

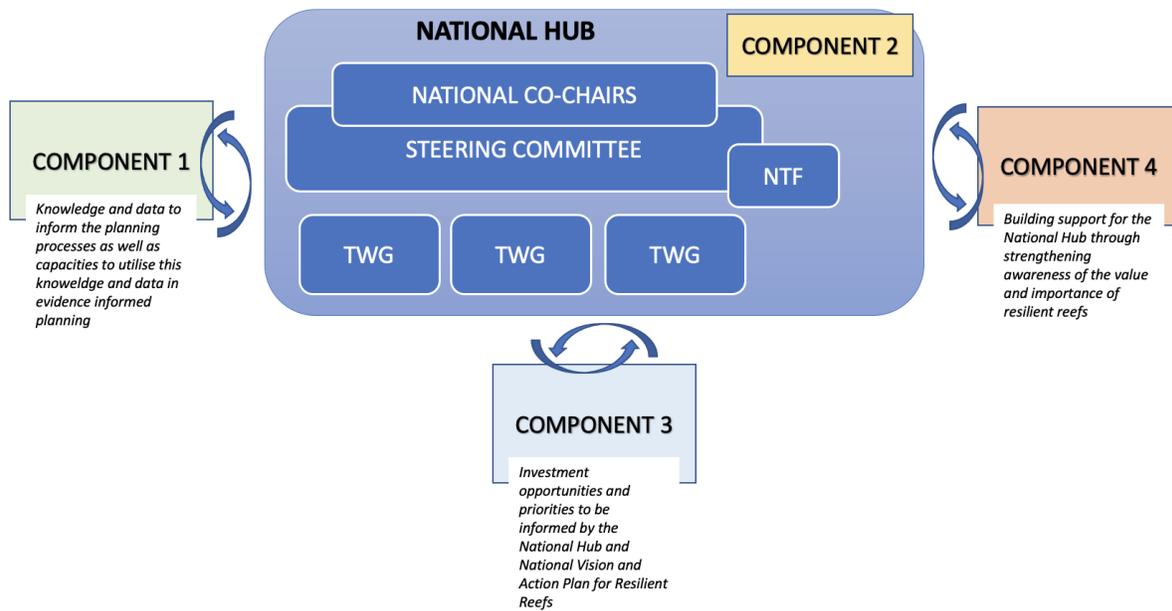


Figure 11 Planning structures and processes and their relationship with the GEF CRR Components

Outcome 2.1. Increased coordination and collaboration amongst stakeholders across sectors for the inclusive conservation and management of climate refuge reefs over the long term.

Outcome 2.1 will establish and strengthen the structures and capacities necessary to ensure that planning processes are inclusive and informed. Core structures will include a National Hub consisting of a diversity of actors and organizations working together through technical working groups with the strategic and political guidance of a high-level Steering Committee. Members of the National Hub will work together to define and establish their operating modalities (such as membership, representation and partnership engagement, communication, and outreach) in adherence to good practices and principles of inclusion, equity, transparency, and accountability.

Stakeholders will be supported to define a shared vision for the National Hubs, one that is informed by the vision and voice of the women, men and youth that are directly dependent on climate refuge reefs. To enable this, the project will support local communities to articulate their vision for multi stakeholder governance processes as well as build the capacities of government, non-governmental and private sector agencies participating in the Hub to ensure equal voice and influence of local communities participating in the Hub.

Output 2.1.1. Six National Climate Refuge Coral Reef Hubs (stakeholder coordination platforms) created, connected, and strengthened, including key sectors such as marine, planning, environment, health, to lead the planning process under 2.2.

Under 2.1.1., the project will establish a multistakeholder and multisectoral governance platform for collaborative and coordinated planning within each country focused on climate refuge reefs – the National Hub for Climate Refuge Coral Reefs. The Hub will bring together representatives from civil society, non-governmental organizations (including representatives of the CRR global partners which have presence at national level), and the public and private sectors to develop a shared understanding of the importance of

climate refuge reefs, the underlying drivers affecting their survival positively and negatively, and synergistic solutions to address these drivers and root causes.

As described earlier, Hubs will be formed as part of an existing structure, hosted by the relevant Ministry with the GEF CRR National Technical Facilitator (NTF) providing advisory and facilitation support as the Secretariat to the Hub (the NTF is described in further detail in Section 2.3.5). Strategic guidance and oversight together with political support will be provided by a Steering Committee composed of senior representatives from participating Ministries (environment, agriculture, mining, lands, tourism etc.), government and non-governmental agencies as well as the business community and private sector. The Steering Committee will be chaired by the focal Ministry and co-chaired by the relevant WWF Country Office.³⁰ Technical Working Groups (TWG) will be established as required for the different work streams that the CRR GEF project is focusing on, as well as others that the Hub chooses to focus on. This may include Technical Working Groups for: Component 1 (the Knowledge Unit Peer Reference Group, to be established under Activity 1.1.1.2); Component 3 (to coordinate and provide guidance to scoping and the developing of the investment portfolio); and Component 4 (to support and provide guidance to the design and roll out of the communications strategy (4.1.1) as well as the knowledge management and communications products (4.1.2)).

The Hub will provide a platform for consensus building towards a shared vision, strategy and the identification of synergistic solutions aimed at addressing root causes of degradation of climate refuge reefs in each country. The Hub will be informed by different types of knowledge (including the science driven knowledge made accessible through the monitoring platform established under Component 1.2., as well as traditional and indigenous knowledge and studies carried out under Component 2.2. It will also create an important space for sharing, negotiating, and navigating conflict around divergent values and aspirations that have a bearing on survival of climate refuge reefs.

The National Hubs will also act as coordination centers for the GEF CRR project (described in more detail in Section 2.3), supporting project implementation and providing inputs, monitoring, and clearing out operational work plans and budgets. Under Activity 2.1.1.5, the project will work with the government and other members of the hub to ensure that the roles and mandate are formally recognized, thereby establishing a sustainable mechanism for stakeholders to continue to work together once the project ends and new investments (such as GCF) are mobilized.

Activities

Activity 2.1.1.1 Conduct a gender-sensitive stakeholder and institutional analysis to identify and understand the potential influence and impact of local, national, and regional actors and institutions on governance processes for the planning, conservation, and management of climate refuge reefs.

Activity 2.1.1.2 Conduct a lesson learnt exercise to learn from existing natural resource governance multi-stakeholder processes regionally and globally to identify ways in which to increase the likelihood of the effectiveness and sustainability of the national hubs - taking into consideration the unique differences of women and men.

³⁰ It is proposed that the Steering Committee will be co-chaired by WWF country office in Fiji

Activity 2.1.1.3 Convene a multi-stakeholder workshop involving all relevant stakeholder representatives to develop a shared national vision for the national hubs for climate refuge coral reef conservation (ensuring equal participation and voice of women, men, and marginalized communities).

Activity 2.1.1.4 Establish a gender balanced multi-stakeholder Technical Working Group to develop/adapt and establish governance and operational modalities for the national hubs (including the establishment of the Secretariat, Steering Committees and Technical Working Groups, Partnership engagement and communication strategies).

Activity 2.1.1.5 Work with relevant Government structures to formally recognize the responsibilities of the National Hub in relation to the conservation of climate refuge reefs and all stakeholder representatives to include their engagement in the Hub in their annual workplans and budgets.

Activity 2.1.1.6 Convene the National Hubs regularly to review progress, plan and reflect on lessons learnt. This will include quarterly review and annual reflection and work planning meetings using process facilitation approaches that allow for equal voice and participation of women and men, as well as representatives of marginalized communities.

Implementation Mechanism: This output will be led by the NTF in each country, with support from the lead executing agency, UQ.

Related projects and programs: National Hubs will build on existing platforms and structures in each country, as described in Annex 4

Output 2.1.2. Training, and operational support for strengthening community representation in national hubs, to effectively participate in the planning process under Outcome 2.2 and activities under Component 3.

Output 2.1.2 is aimed at ensuring that there are the necessary capacities and conditions in place to enable the climate refuge reef communities to meaningfully engage in the planning processes, as equal participants driving and shaping the decisions that will affect the climate refuge reefs that are a core part of who they are and of their livelihoods. This will involve building the understanding, skills, and appreciation of all members of the Hub on community led approaches as well as ensuring that local communities have the skills they need to engage in knowledge generation and use, planning processes and investment and business opportunities. Ensuring that this capacity strengthening will be accessible to women and youth and marginalized groups will be a priority.

The content and approach of the capacity and conditions strengthening program will be led from the national level to ensure relevance to the specific context and needs of each country and is to be informed by a community driven assessment of existing gaps and barriers to community-led approaches to conservation and development within each country. Focusing on the priority areas, the Technical Working Group will facilitate community discussions to define the characteristics of community-led conservation development and conservation and the conditions and capacities necessary to overcome existing barriers and address gaps.

Activities

Activity 2.1.2.1 (If necessary and appropriate) Form a Technical Working Group to work with women and men in local communities in priority areas to conduct a gender-differentiated analysis of capacities and conditions gaps necessary for community led processes and approaches in the governance and operationalization of the National Hubs. The Technical Working Group will be comprised of representatives

of the different stakeholder groups (gender-balanced) and facilitated by an expert in community led and gender sensitive approaches,

Activity 2.1.2.2. Develop a gender responsive capacity strengthening program to address gaps identified in the assessment carried out under 2.1.2.1, taking into consideration the stakeholder, institution and lessons learned assessments carried out under 2.1.1

Activity 2.1.2.3 Deliver the capacities and conditions strengthening program designed in 2.1.2.2, training of local communities as well as other stakeholder representatives participating in the Hub in areas such as:

- Training of Government and NGO stakeholder representatives in effective community engagement (facilitation, gender equity and rights-based approaches, safeguards, conflict resolution etc.).
- Training of local community representatives in areas such as negotiation and leadership skills, rights, and responsibilities with regards to engaging in multistakeholder natural resource governance processes as well as engaging with the private sector, protocols and procedures governing the National Hub etc.
- Relationship and trust building between local communities and different stakeholder groups, addressing conflicts that may have arisen in the past if necessary.
- Strengthening local level structures and mechanisms to ensure inclusive and equitable voice and influence of women, men and youth in local communities, particularly vulnerable and marginalized individuals, and groups. This will need to include ensuring that there are effective mechanisms in place for individuals to raise concerns and define measures to avoid conflicts and adverse impacts on individuals and households.

Implementation Mechanism: This output will be led by the NTF in each country, who will work closely with members of the National Hub through a Technical Working Group.

Related projects and programs: Fish Forever programs implemented by RARE in the Philippines and Indonesia; the Improvement of Biodiversity Monitoring in the Barren Islands (western coast) by Blue Ventures in Madagascar; and the Moving Urban Poor Communities towards Resilience (MOVE UP) programme that CARE is implementing in the Philippines. Other baseline initiatives focusing on community governance of natural resources include the Arnavons Marine Conservation Area (AMCA) by TNC in the Solomon Islands and the COREMAP CTI-3 initiative in Indonesia.

Output 2.1.3. Consultative and collaborative process to integrate traditional knowledge and vision from local communities in national strategies for climate refuge reef conservation.

Under Output 2.1.3, the project will support local communities in priority areas trained under 2.1.2 to come together to collectively define the changes they feel are fundamental to the survival of climate refuge reefs over the long term and how best these changes can be realized through the multi-stakeholder and sectoral processes to be established within the National Hubs as well as the investment opportunities defined under Component 3. This will involve creating spaces for expression of different and unique realities and needs of women, men, youth, marginalized and vulnerable individuals to develop a shared and collective community vision for the conservation and management of climate refuge coral reefs. The approaches and tools for the visioning processes are to be based on existing traditional and local practices within each priority area.

Community visions may include an articulation of the individual and collective aspirations related to how best the underlying systemic drivers³¹ of degradation can be addressed, to preserve and enhance the benefits of climate refuge coral reefs for local livelihoods, including:

- A collective vision for the future of the climate refuge reefs in their areas and territories.
- Principles and values to guide and underpin community-led planning, conservation, and management of climate refuge reefs; and
- An identification of systemic drivers of degradation within a particular priority area with strategic directions as to how they might be addressed and the strengths of the community that should be built upon to do so

The visions will be shared with the members of the Technical Working Group to consolidate and develop an overarching community vision for the climate refuge reefs at national level. The Community Vision will be shared with a wider group of stakeholders from different sectors and levels for a discussion around ways in which this vision might also inform national and local strategies, plans and processes (identified during the institutional analysis carried out under 2.1.1) that have an impact or influence on climate refuge reefs.

Activities

Activity 2.1.3.1 (If necessary and appropriate) Establish a National Hub Technical Working Group, facilitated by an expert on indigenous knowledge and comprising of community representatives (ensuring equal participation of women and men and including youth) from priority areas for climate refuge coral reef conservation to collaboratively guide and support processes and activities to integrate traditional knowledge and visions of local communities in national strategies (ensuring gender sensitivity and equality).

Activity 2.1.3.2 Convene the technical working group to define and agree on principles and values to inform their work as well as to co-design the methodology and process to guide the planning.

Activity 2.1.3.3. Conduct community visioning meetings in each of the priority areas (ensuring equality of participation and voice for women, men, and youth to share their vision for climate refuge coral reef conservation as well as the integration of traditional knowledge and engagement of local communities in governance and decision making at local and national levels)

Activity 2.1.3.4 Convene the technical working group to consolidate the outcomes of community visioning meetings to develop an overarching vision speaking to community aspirations of women and men for climate refuge coral reefs and community engagement in inclusive and equitable governance and decision making at local and national levels

Activity 2.1.3.5 Convene a multi-stakeholder (gender balanced) workshop involving relevant policy makers and planners from local governments as well as community representatives to share the community vision and identify and agree on strategic actions to which stakeholders commit to integrating the community vision for climate refuge reef conservation in national and local strategies and plans that have a direct or indirect impact on climate refuge coral reefs

³¹ Such as Structural drivers (Policies, Practices & Resource Flows); Relational Drivers (Relationships, Networks, Power Dynamics); Transformational Drivers (Value Systems, Mental Models, Beliefs)

Implementation Mechanism: Activities and outputs will be delivered at national level. The NTF is responsible for working in collaboration with members of the National Hub, ensuring that Technical Working Groups are established, sub-contracting for technical expertise etc. as required.

Related projects and programs: The National Hubs will be integrated into existing platforms and forums in each country (described in Annex 4) and draw on existing methods and tools available as appropriate, such as those developed by RARE's Global Training Hub to co-create community visions and identify systemic motivations and barriers for sustainable small-scale fisheries management.

Outcome 2.2. A shared vision and agenda for climate refuge reefs developed through an evidence informed and inclusive planning processes

Outcome 2.2. is focused on the development of integrated national/sub-national action plans developed through inclusive planning processes informed by a sound analysis of threats, opportunities, costs and benefits of conservation and management of climate refuge reefs. The outcomes of the analysis processes will inform the development of a national level action plan for climate refuge reef conservation. Informed by the Community Vision (developed under 2.1.3), the planning process will involve facilitating stakeholders to deliberate and negotiate outcomes that combine multiscale and synergistic economic, social, and ecological interventions. Structures, processes, and resources necessary to operationalize the plan will be identified and a sustainability strategy for the National Hub and for the delivery of the Action Plan will be developed. The investment opportunities identified under Component 3 will contribute to the delivery of the action plan and sustainability strategy. In addition, efforts will be made to ensure the priorities identified are integrated and mainstreamed across the strategies, plans and budgets of the different sectors and stakeholders involved. These will be supported by high level and widespread public support mobilized through the communication strategy carried out under Component 4.1.1.

Output 2.2.1. Threat/opportunity analysis (drawing on science and traditional knowledge) for each of the priority climate refuge reefs conducted to understand drivers of reef health in the 6 countries.

Analysis will be co-designed and carried out with the guidance of a technical expert and representatives of different stakeholder groups and sectors working together through a Technical Working Group under the National Hub. The Working Group provides an opportunity for members of the National Hub to participate in developing the research methodology, defining key questions, data sources and appropriate data collection tools and methods particularly participatory tools for engaging local communities and drawing on traditional knowledge and wisdom. The extent to which Hub members are willing and able to participate in these processes may differ from country to country and the terms of reference of the Technical Working Groups will be tailored to each context. In some cases, for example, Working Groups may simply be engaged to review and validate terms of reference, methodology and/or the final outputs.

The analysis will be increasingly informed by the data and knowledge made accessible under Component 1 and engage different stakeholder groups in sense making to allow for the use of the data to draw out the different perspectives and facilitate consensus building of stakeholder groups around root causes, drivers, costs and benefits of inaction and business as usual. Ideally, sense making should involve horizon scanning – looking outwards at global and regional trends and drivers shaping the current situation as well as internally within national and local institutions.

Activities

Activity 2.2.1.1 Establish a National Hub Technical Working Group comprising of representatives of relevant stakeholders (*including members from the traditional knowledge and vision working group as well as key

decision makers and ensuring equal participation of women and men as well as gender expertise) to design and guide/oversee the analysis.

Activity 2.2.1.2 With input and guidance from the Technical Working Group, develop terms of reference and recruit a consultant/team to conduct the analysis (ensuring that the analysis is contextually relevant and culturally and gender sensitive).

Activity 2.2.1.3 Convene the Technical Working Group to develop or review and validate the conceptual framework and approach to guide the analysis (including key research questions, data requirements and sources, methodology for data gathering and approaches for stakeholder engagement in sense making - ensuring that the methodology and approach is underpinned by principles of gender equality and sensitivity)

Activity 2.2.1.4 Conduct the analysis, focusing on priority areas as case study sites, convening the technical working group regularly for a debriefing to ensure that they are informed of findings as they emerge and to provide them with an opportunity to provide strategic guidance and support as necessary

Activity 2.2.1.5 Convene the National Hub (inviting key decision makers, community representatives and other stakeholders as appropriate - ensuring equal participation of women and men) in a validation and sensemaking workshop to utilize and build on the outcomes of the analysis, drawing out different perspectives and facilitating consensus around threats and opportunities to the survival of climate refuge reefs using horizon scanning (or other approaches that enable forward looking analysis and an assessment of emerging trends).

Activity 2.2.1.6 Finalize the analysis and package and disseminate it widely to inform policy and practice using forms and media appropriate to different audiences, taking into consideration both women and men (informed by the awareness assessment carried out under 4.1.1.1)

Implementation Mechanism: Activities and outputs will be delivered at national level. The NTF is responsible for working in collaboration with members of the National Hub, ensuring that Technical Working Groups are established, sub-contracting for technical expertise etc. as required.

Related projects and programs: The project will draw upon existing studies, assessments, and data sets in each country.

Output 2.2.2. Cost-benefit analysis (losses due to the impacts vs gains from the unsustainable fishing and other practices) in the 6 countries

The cost-benefit analysis will enable stakeholders to engage in an informed deliberation around the added value of investing in the survival of climate refuge reefs as opposed to business-as-usual scenarios, taking into consideration ridge to reef relationships (for example, a continuation of unsustainable fishing, land use or investment practices vis a vis investment in coral reef management, ecosystem restoration, climate smart agriculture, renewable energy etc.). The cost benefit analysis takes into consideration social, economic, and environmental costs and benefits and follows a similar approach to that of the threats-opportunities analysis (and activities such as the sense-making) may be combined if felt to be appropriate. The analysis will map out differentiated costs and benefits of different sectors as well as stakeholders – including differences between women, men, youth and marginalized and vulnerable groups.

Activities

Activity 2.2.2.1 Establish a National Hub Technical Working Group comprising of representatives of relevant stakeholders (*including members from the traditional knowledge and vision task force as well as key

decision makers and ensuring equal participation of women and men as well as gender expertise) to design and guide/oversee the analysis.

Activity 2.2.2.2 With input and guidance from the Working Group, develop terms of reference and recruit a consultant/team to conduct the analysis (ensuring that the analysis is contextually relevant and culturally and gender sensitive)

Activity 2.2.2.3 Convene the Technical Working Group to develop or review and validate the conceptual framework and approach to guide the analysis (including identification of key research questions, data requirements and sources, methodology for data gathering and approaches for stakeholder engagement in sense making - ensuring that the methodology and approach is underpinned by principles of gender equality and sensitivity).

Activity 2.2.2.4 Conduct the analysis, focusing on priority areas as case study sites, convening the technical working group regularly for a debriefing to ensure that they are informed of findings as they emerge and to provide them with an opportunity to provide strategic guidance and support as necessary

Activity 2.2.2.5 Convene the National Hub (inviting key decision makers, community representatives and other stakeholders as appropriate - ensuring equal participation of women and men) in a validation and sensemaking workshop to utilize and build on the outcomes of the analysis, drawing out different perspectives and facilitating consensus around the findings of the cost-benefit analysis

Activity 2.2.2.6 Finalize the analysis and package and disseminate it widely to inform policy and practice using forms and media appropriate to different audiences, taking into consideration both women and men (informed by the awareness assessment carried out under 4.1.1.1)

Implementation Mechanism: Activities and outputs will be delivered at national level. The NTF is responsible for working in collaboration with members of the National Hub, ensuring that Technical Working Groups are established, sub-contracting for technical expertise etc. as required.

Related projects and programs: The project will draw upon existing studies, assessments, and data sets in each country.

Output 2.2.3. 6 National/sub-national action plans for climate refuge reef conservation (responding to threats identified in 2.1 and including solutions identified in Component 1) developed in the 6 countries, including sustainable finance strategies

For each of the 6 countries, national hubs will develop national action plans that are informed by the institutional and lessons learned analysis carried out under 2.1.1, the community vision developed under 2.1.3 as well as the threats and cost-benefit analysis developed under 2.2.2. National Action Plans will describe a negotiated and shared vision for climate refuge coral reefs in the country, prioritized synergistic outcomes and strategic actions, operational modalities, and resources necessary to deliver the action plan as well as ensure that stakeholders are engaged in monitoring, learning and adaptive management. Strategies, plans and budgets of the different institutions and organizations involved, as well as Hubs will integrate the National Action Plans, and mechanisms to ensure longer term sustainability will be developed (Activity 2.2.3.4).

The strategic actions identified in the National Actions Plans should, ideally: a) seek to address the systemic drivers and underlying root causes of threats to climate refuge reefs; and b) focus on synergistic solutions that are aimed at combining the efforts and outcomes of policies, management or implementation practices between sectors and/or reducing situations where the impacts of one sector negates the efforts of another

sector, in order to support the conservation and management of climate refuge reefs. For example, the combination of policy and practical solutions aimed at strengthening sustainable agriculture, and enhancing food security and household incomes, while contributing to mitigating climate change and preserving ecosystem services and the natural resource base (through improving soil stability, reducing coastal runoff and pollution).

Activities

Activity 2.2.3.1 Convene the National Hub during a 1-day workshop to develop a joint overarching vision for Climate Refuge Coral Reefs (involving a community and gender expert to ensure equal voice and participation of women, men and marginalized groups and ensuring a gender sensitive facilitation approach), informed by the Community Vision; Institutional; Lessons Learned Threat/Opportunity; and Cost-Benefit Analysis). This would involve raising awareness on the significance of climate refuge reefs and the establishment of shared commitment towards the collaborative engagement in the conservation of climate refuge coral reefs with a description of what this commitment means for the different stakeholder groups.

Activity 2.2.3.2 Convene the National Hub for a 2–3-day strategic planning forum (involving a community and gender expert to ensure equal voice and participation of women, men, and marginalized groups) to identify and agree on strategic objectives, interventions, operational modalities and identify resource requirements to enable the realization of the shared vision.

Activity 2.2.3.3. Contract a consultant to conduct an analysis to identify national and local level strategies and plans across different sectors that have an impact on climate refuge coral reefs and to meet with the respective institutions to identify opportunities and barriers for integration of the shared vision and strategy for climate refuge reef conservation within their institutional strategies and plans.

Activity 2.2.3.4 Contract a consultant to develop a sustainability strategy, identifying needs and opportunities for the longer-term functioning of the National Hubs and delivery of the Vision and National Action Plan for Climate Refuge Reefs.

Activity 2.2.3.5 Consolidate and write up the National Action Plan for the Conservation of Climate Refuge Reefs and convene a high-level meeting led by the National Hub Steering Committee and involving Government, Civil Society, and the Private Sector to endorse and sign off on the strategy.

Activity 2.2.3.6 Convene a high-level meeting led by the National Hub Steering Committee to review the progress with regards to integration, mainstreaming and delivery of the National strategy for the Conservation of Climate Refuge Reefs, sharing lessons, raising awareness on climate refuge reefs, and identifying challenges and mitigation measures.

Implementation Mechanism: Activities and outputs will be delivered at national level. The NTF is responsible for working in collaboration with members of the National Hub, ensuring that Technical Working Groups are established, sub-contracting for technical expertise etc. as required.

Related projects and programs: N/A

2.2.3 Component 3: Financial solutions for climate refuge coral reef rescue (GEF budget USD\$1,643,688.70).

Coral reefs face threats from a range of economic activities that are present in each of the CRR countries, including unsustainable tourism, transport, fisheries, agriculture, forestry, waste & pollution management amongst others. To address these threats, there needs to be a shift from conventional business models that

treat damage to coral reefs as an externality, to business models that align to the [sustainable blue economy finance principles](#)³². The sustainable blue economy includes but is not limited to the adoption of sustainable fisheries and aquaculture practices, ecotourism, circular waste management, regenerative agriculture, sustainable forest management and coastal restoration. There are a growing number of new reef-positive business models centered around the protection and restoration of reef ecosystems.

Component 3 positions CRRRI to take advantage of the opportunities offered by the growing interest in sustainable blue economy business models around the world, while influencing the way in which each of these economies develop to ensure that they reduce and avoid harm to climate refuge coral reefs. A sustainable blue economy will provide social and economic benefits for reef-dependent communities, protect, and restore the core functions of marine ecosystems, and secure economic stability over time with new economic sectors developed.

Currently, credible investment opportunities in the sustainable blue economy space are limited. Small scale businesses struggle to access capital for growth and larger enterprises are not able to adapt their business models without external support. There is a need to strengthen efforts to identify these opportunities and provide technical assistance to develop a portfolio of 'investor ready' opportunities in the blue economy in each of the CRRRI countries.

Outcome 3.1. Investment opportunities identified to promote increased sustainable financial flows to relevant seascapes and landscapes to reduce threats to climate refuge coral reefs.

This outcome will be achieved by identifying the key economic sectors causing the degradation of coral reefs and supporting the development of new business models in these sectors, along with the adaptation of existing business models towards the sustainable blue economy. It will place particular emphasis on business models that create sustainable livelihood opportunities and community-centered enterprises.

This approach will build on the capacities created in each country for climate refuge coral reef monitoring and conservation (Component 1) and will be informed by the threat analysis, cost benefit analysis and prioritization of actions under the National Action Plans for Climate Refuge Coral Reef Rescue (Component 2). It also acknowledges that across the target countries there are already initiatives underway to identify and develop community-based opportunities in 'reef-friendly' businesses and livelihood opportunities (for example, Box 2). The Project will actively collaborate with and build upon the achievements of these initiatives to date, coordinating and supplementing activities to identify investment options to scale up financing for reef-friendly businesses in the target countries. This may include engagement with ongoing microfinance efforts such as the village savings and loan associations³³ established by CARE country offices as well as the village savings and loan scheme implemented by WWF in the Solomon Islands.

³² A sustainable blue economy provides social and economic benefits for current and future generations; restores, protects and maintains marine ecosystems and is based on clean technologies. Sustainable blue economy principles are described in: https://wwfint.awsassets.panda.org/downloads/15_1471_blue_economy_6_pages_final.pdf

³³ These include women-led savings and credit groups, supported to be self-governed, with business plans, stressing social solidarity and with a focus on enterprise and leadership skills.

Box 2 The Fisheries, Coastal Resources and Livelihood Project

The overall goal of the Fisheries, Coastal Resources and Livelihood Project (FishCORAL) in the Philippines is to reduce poverty for 180,000 households in poor coastal communities, improve food and nutrition security and increase household incomes in the Philippines. This will be achieved by building fishing communities' capacity to sustainably manage fishery and coastal resources and by ensuring sustainable engagement in diversified livelihood activities. This includes promoting fisheries related micro-enterprises including seaweed culture and fish processing and boosting the marine ecosystem by replanting vegetation and creating fish sanctuaries⁵. The CRRI could engage with this project to explore how the community-based enterprises created through the project (and benefitting CRRI areas) could be further supported to scale, and how the lessons from the project could be applied to the development of CRRI Component 3 activities in the country.

Activities proposed under this outcome are designed to align with and complement potential support for the CRRI from the Global Fund for Coral Reefs (GFCR) in particular. The GFCR is a blended finance vehicle which provides concessional or commercial debt and equity financing in reef-friendly businesses. It has prioritized a set of countries in its strategy which includes Fiji, Tanzania, Solomon Islands, Indonesia, and Philippines. Country business portfolios supported through this GEF project under Component 3 can be presented to the GFCR for blended finance investment, greatly increasing their chances of long-term success. In some countries, other bilateral agencies are also investing in developing blue economy business portfolios. The portfolio development activities described below will be tailored to meet the requirements of these funding opportunities (as far as is feasible and appropriate). Funding is also being sought from the Green Climate Fund (GCF) (to begin between 2023 and 2024) to further build on the project through creating permanent business support facilities in each target country. These would constitute a 'Community Facility' for community-level businesses and projects and a 'Development Facility' to provide further support and access to loan finance for larger more established businesses, potentially in partnership with local development banks. GCF funding may also be used to build on and sustain the private sector and investment-related enabling environment activities within this project.³⁴

Output 3.1.1 Technical assistance in countries to mobilize private and public investment opportunities for their national priorities identified under 2.2.4.

During the design phase of this Project, a national-level preliminary analysis of existing financial solutions and private sector initiatives to promote 'reef-friendly' business practices was undertaken. Output 3.1.1 will complement and deepen this exercise, to: (i) generate the necessary information to identify the key economic sectors impacting the target climate refuge coral reefs in each country; (ii) learn from experiences from other countries in promoting private sector focused solutions for coral reef conservation; and (iii) raise

³⁴ In Fiji, this investments aim to support Great See Reef focused blue and green economy private sector businesses through the strengthening of governmental investment, climate and environment policy and regulatory frameworks and investment agencies, and will lay the foundation for a market access and innovation agency, which will activate market access through powerful knowledge transfer and capacity building thus helping Fijian businesses achieve positive financial and environmental returns faster.

awareness and engage the private sector on the economic importance of climate refuge coral reefs in each country.

Detailed analysis will be carried out in each country on the key economic sectors affecting coral reefs along with existing financing opportunities for reef-friendly business and the potential future flows of finance affecting coral reefs. This will employ a participatory approach through the organization of multi-stakeholder local and national workshops, individual consultations, and field visits to reef areas, utilizing the National Hub structures and processes. For industries found to have the greatest impacts on coral reefs, awareness raising activities will be carried out to help engage them on the significance of these impacts and to lay the foundations for collaboration under Output 3.1.2.

Activities

Activity 3.1.1.1 Establish a National Hub Technical Working Group comprising of government, international and non-governmental organizations, private sector, and community representatives to support and guide activities under Component 3 - ensuring equal participation of women and men in the Technical Working Group.

Activity 3.1.1.2 Conduct benchmarking studies to analyze the experiences of other countries in developing coral reef friendly investment and business opportunities, what has worked and what hasn't worked (taking into consideration the different and unique realities of men and women).

Activity 3.1.1.3 Working with the Technical Working Group established under the National Hub, conduct analysis of key economic sectors driving coral reef degradation (focusing on economic sectors identified through the threats/opportunity and cost/benefit analysis carried out under Component 2) in order to identify existing platforms that could be used to engage with these industries and current and potential future funding flows for reef-friendly investments and businesses, including public and private sector initiatives – ensuring that gender considerations are integrated in the analysis.

Activity 3.1.1.4 Using the communication and awareness products developed under Component 4, implement awareness raising efforts with larger businesses on the pressure being placed on coral reefs and the opportunities and constraints to reduce their impact on them (along with business benefits), including presenting the Project at high level conferences and major business events.

Activity 3.1.1.5 Conduct a series of field visits to areas adjacent to climate refuge reef sites to engage with private sector actors, in countries where this is considered necessary. This may include inviting government decision makers and investors to understand the realities on the ground and the importance of investment in these areas. Field visits will intentionally include areas that allow for women's roles, activities, needs and potential to be visible.

Implementation Mechanism: This output will be led by the NTFs, with support from global expertise managed and coordinated by the lead executing agency

Related projects and programs: GCF CRR1 Country Projects (with the possibility of co-financing from the GFCR), under development in Fiji and the Solomon Islands as well as existing national level initiatives.

Output 3.1.2 Scoping of at least 100 existing and potential sustainable businesses, including community based small and medium enterprises (in the 6 countries), including options for business expansion and start up.

Following the initial identification of key sectors and the engagement of key stakeholders in each country (through Output 3.1.1) the Project will identify existing initiatives that can become part of a pipeline of

projects to be supported and scaled up through private and blended finance. For this, Output 3.1.2 will define a set of criteria for what is to be considered a 'reef-friendly' business and community based small and medium enterprises (SMEs). With the common set of criteria, the different country teams will implement a scoping exercise to identify reef-friendly businesses and investment opportunities. Priority will be given to initiatives that include livelihoods enhancement and strong community benefits in their business models.³⁵

Activities

Activity 3.1.2.1 Working with the Technical Working Group, develop and agree on a common set of gender sensitive criteria that defines a 'reef-friendly' business and develop a protocol/guide for use by selected businesses to support them in implementing sustainable blue economy models related to coral reefs. These criteria may cover points related to the extent to which businesses and enterprises can demonstrate an additional positive contribution to reef conservation, significant changes to their existing business model that eliminate their negative impacts on reefs and make a positive contribution to local livelihoods, particularly that of women-led and vulnerable households.

Activity 3.1.2.2 Carry out a mapping exercise to identify reef-friendly businesses and SME investment and support opportunities, including different scales (from community-based initiatives to larger companies) and different stages (from start-up to expansion), ensuring that the mapping exercise is carried out in a gender-responsive manner

Activity 3.1.2.3 Analyze larger and established businesses to help identify where there may be opportunities for investment in their operations and supply chains to reduce their impacts (or enhance positive impacts) on coral reefs. This could include interviews with a selection of businesses operating in these sectors to understand better their constraints and limitations vis a vis more reef friendly behaviors.

Activity 3.1.2.4 Analyze needs and identify opportunities identified for SMEs to manage risks and needs to maximize their potential to strengthen livelihood security in a manner that is inclusive and equitable (with a particular focus on women and vulnerable groups). This may include strengthening women-led enterprises and economic empowerment through enabling access to financial services and strengthening financial literacy³⁶.

Implementation Mechanism: This output will be led by the NTFs, with support from global expertise managed and coordinated by the lead executing agency

Related projects and programs: Funding opportunities will be explored from the Global Fund for Coral Reefs, as well as the GCF (described in Annex 2). The project will also build on existing models and approaches for community-based livelihood initiatives (such as micro enterprises) as described in Section 0.

Output 3.1.3 Technical assistance to national teams to prepare business filtering and support frameworks.

After the initial scoping exercise implemented through Output 3.1.2, the Project will analyze the identified businesses and initiatives in greater depth, and shortlist them based on the extent to which they meet the

³⁵ These screenings are already underway in Fiji and the Solomons Islands. In the Solomons, WWF has received GFCR financing to build an investment pipeline. In Fiji, the business screening process has been underway since 2019 and will be finalized as part of the GCF PPF for the CRRRI Fiji Country Project.

³⁶ For example, through the use of Village Savings and Loan Associations supported by Care across the world.

criteria defined under Output 3.1.2. Output 3.1.3 will also include the development of tools to identify the technical assistance needs of the shortlisted projects.

Activities

Activity 3.1.3.1 Working with the Technical Working Group, assess the long list of businesses and community-based enterprises identified against the criteria developed under Output 3.1.2 in greater depth. Based on this assessment, identify a short list of reef-friendly businesses and SMEs to receive further support from the Project - ensuring that this includes women-led as well as businesses that directly benefit women.

Activity 3.1.3.2 Develop a needs assessment framework to assess the technical needs of each of the shortlisted businesses and SMEs in greater depth and apply this framework to each business and SME in a collaborative manner in collaboration with the National Hub Technical Working Group to identify these needs (taking into consideration the different and unique realities of women-led businesses and enterprises).

Implementation Mechanism: This project will be led by the NTFs, with support from global expertise managed and coordinated by the lead executing agency

Related projects and programs: Funding opportunities will be explored from the Global Fund for Coral Reefs, as well as the GCF (described in Annex 2). The project will also build on existing models and approaches for community-based livelihood initiatives (such as micro enterprises) as described in Section 1.6.

Output 3.1.4 Investments portfolio developed, including demonstrative sustainable livelihood projects in priority reefs in the 6 countries.

With the results achieved by the previous Outputs, the country teams will be able to engage with the short-listed businesses and SMEs and provide them with the technical assistance required for them to attract investment and adopt sustainable blue economy models. Output 3.1.4 will deliver an initial pipeline in each country with reef-friendly businesses and SMEs that may be presented to potential investors. Technical assistance provided by the Project will help bring these businesses closer to becoming 'investor ready'. Targeted support will be provided for the development of the community-based SMEs. For businesses that are investor ready, support will be provided in helping them target relevant investors and prepare for this engagement. This Output will also support learning exchanges between country teams to help share knowledge and improve overall Project performance.

Activities

Activity 3.1.4.1 Provide technical assistance to the shortlisted businesses and SMEs to help them further improve their potential positive impact on coral reefs and improve their business planning to reach a stage where they can attract investments.

Activity 3.1.4.2 Once businesses have received technical assistance and have 'investor-ready' business plans in place, support will be provided to prepare them for investor engagement via marketing material preparation and coaching.

Activity 3.1.4.3 Provide technical assistance to community groups (particularly women-led groups) to address the needs identified under 3.1.2.4. This may involve support in establishing groups, training on group governance and management, support to establish a constitution and by-laws etc. to strengthen the group's ability to access financial services and establish and manage enterprises.

Activity 3.1.4.4 Identify a short list of relevant investors and potential product 'off takers' in each country and facilitate their engagement with the shortlisted/ supported businesses.

Implementation Mechanism: Activities and outputs will be delivered at national level with the support of a global consultant contracted by UQ. The NTF is responsible for working in collaboration with members of the National Hub, ensuring that Technical Working Groups are established, sub-contracting for technical expertise etc. as required.

Related projects and programs: Funding opportunities will be explored from the Global Fund for Coral Reefs, as well as the GCF (described in Annex 2). The project will also build on existing models and approaches for community-based livelihood initiatives (such as micro enterprises) as described in Section 0.

2.2.4 Component 4: Knowledge Management and Monitoring and Evaluation (GEF budget USD\$971,309.10).

The development of knowledge and understanding of climate refuge reefs is relatively new and, as such, there is a limited understanding amongst policy makers, local communities and the wider public on their significance. Furthermore, in most countries, levels of awareness around the importance of coral reefs, their rate of loss and implications for economies and livelihoods continues to be inadequate to ensure widespread support for their survival.

This component focuses on strengthening support for climate refuge reefs and reaches out to raise awareness to actors and institutions that have the most influence and impact on climate refuge reefs and efforts to ensure their survival. It will create spaces for communities to share their own realities, their reliance on cultural and traditional ties to climate refuge reefs, using their own voices.

Component 4 will also ensure that the project uses monitoring of project progress, experiences, and lessons for adaptive management as well as sharing and communicating more widely at the regional and global level.

The project will actively participate in and contribute to IW: LEARN, including PMU attendance at regional meetings, the GEF IW Conference, and twinning exchanges. A website will be developed that is linked and searchable through IW: LEARN's International Waters Information Management System. This will be used to disseminate project results internationally and to relevant practitioners.

Outcome 4.1. Increased awareness of governments, donors and climate refuge local communities, and knowledge (from local to global level) on the value of climate refuge coral reefs, their main threats, and good practices/actions for their conservation.

High level and widespread support for climate refuge reefs will be important for the success of this project and similar interventions in the future. The project will build on the opportunities created by the increasing levels of awareness and engagement by the wider public across the world on the loss of nature and climate change through social media and other platforms. The project will harness the opportunities provided via growing support for the environment and biodiversity to build awareness and support for climate refuge reefs and their importance for the survival of coral reefs, livelihoods, and economies. It will develop and roll out communication strategy targeting those with the most influence and impact on climate refuge reefs to the extent that is realistic, including heads of state, ministers, local communities, investors and other influential actors and groups. Communication activities will use the knowledge generated under Component 1 and informed by the analysis and priorities identified under Component 2.

This component also seeks to provide local communities the opportunity to share their wealth of traditional and indigenous knowledge within their countries and beyond. Focusing on the climate refuge reefs in priority areas, the project will support local communities to share their histories, customs and cultures through their own voices, ways of knowing and valuing.

Narratives, lessons and experiences generated will be shared through the knowledge platform and capacity strengthening activities under Component 1, through meetings of the National Hub (Component 2), with investors and government officials in the awareness raising activities under Component 3 as well as regionally and globally through the IW:LEARN meetings, GEF International Waters Conference and other relevant events and platforms.

Output 4.1.1: Communication and awareness raising strategy (reaching the highest level of influence possible, including heads of state and ministers from the 6 countries, as well as local communities in the climate refuge reefs) designed and implemented at local and global level including firsthand narratives on how coral decline is affecting livelihoods.

The objective of the communications strategy is twofold: i) Mobilizing support for the National Hub and the engagement of a diversity of sectors and stakeholders in the planning processes; and ii) To build support and start to influence the behavioral changes necessary to realize the vision and priorities identified in the National Action Plan. Target audiences include individuals and institutions that have the most potential to influence efforts to ensure the survival of climate refuge reefs, such as heads of state, ministers, traditional and religious leaders and business community leaders and investors. Formats and media used will be tailored to each context and audience, informed by an awareness analysis.

Activities

Activity 4.1.1.1: At global level, informed by the global CRRi communications strategy, develop a shared communications strategy countries and provide support to countries to guide communication and awareness raising activities across all countries to ensure there is cohesion in targets and messaging.

Activity 4.1.1.2 At national level, contract a consultant (with gender expertise) to carry out an assessment of levels of awareness and understanding of different stakeholders on the significance of climate refuge coral reefs and to identify barriers and opportunities to influence changes in policies and behaviors - taking into consideration the different and unique realities of men and women, different cultures and backgrounds

Activity 4.1.1.3 Convene a National Hub meeting to share findings of awareness assessment and identify and prioritize target groups for the communication strategy aimed at influencing mindsets, values, and behaviors to better enable the conservation of climate refuge reefs

Activity 4.1.1.4 Informed by the outcomes of the National Hub meeting as well as the stakeholder and institutional analysis carried out under 2.1.1), develop, test, and finalize a communication strategy targeting different stakeholder groups, ensuring that the communication and awareness raising activities include gender-related messages to showcase the differentiated impact of coral decline in livelihoods in women and men

Activity 4.1.1.5 Deliver the communication strategy, drawing on the knowledge (including lessons and experiences) generated through activities in Components 1,2 &3.

Implementation Mechanism: The Global CRRi team will coordinate design and delivery of the strategy and communications efforts to ensure complementarity and a global concentrated effort. This will be informed by

the community narratives and other knowledge pieces generated by local stakeholders through the National Hubs.

Related projects and programs: RARE's Coastal 500 initiative; Rare's 'Fish Forever Program'; Ocean Planning Team/PEUMP's ; Coral Stock Center, Threatened Species Awareness Program, Marine and Fishery Campaign in Indonesia as well as the awareness program being led by Blue Ventures in Indonesia to build awareness of government in six provinces to officially recognize LMMAs.

4.1.2: Knowledge management and communication products, such as firsthand narratives and lessons on community driven solutions for coral reef conservation.

The project will support local communities to capture and share their relationships and experiences with climate refuge reefs within countries as well as globally. It will do so using participatory tools (such as participatory video or photo voice) that allow for local communities to reflect on, articulate, capture, and share through their own ways of viewing their worlds and their own voices.

Activities

Activity 4.1.2.1 Develop guidelines on appropriate methods and tools to capture and share narratives, lessons and experiences of local communities and practitioners (including, for example, photovoice, participatory video) - taking into consideration women's specific needs and preferences.

Activity 4.1.2.2 With inputs from members of the National Hub, develop ToRs and subcontract an organization with experience and expertise in gender and culturally sensitive participatory tools and approaches for knowledge management and communication products to provide support for activities 4.1.2.3 to 4.1.2.5.

Activity 4.1.2.3 Train and support local communities and local organizations supporting and working with local communities to capture values, histories, and experiences, ensuring that participation is gender balanced and is inclusive, engaging marginalized individuals and groups.

Activity 4.1.2.4 Document and disseminate lessons and experiences targeting different audiences and informed by the communication strategy developed under 4.1.1.2.

Activity 4.1.2.5 Consolidate lessons and experiences emerging at the national level and repackage for dissemination to global audiences using appropriate media and platforms shared through the knowledge hub.

Output 4.1.3. Participation in at least two IW: LEARN regional meetings, one GEF International Waters Conference, and other masterclasses and knowledge exchange events (real and virtual).

The project will be allocating at least 1% of the GEF grant to actively participate in IWLEARN activities, such as IWCs, regional and topical relevant meetings during project implementation, produce at least 2 experience notes, results note and a webpage which will be integrated on the CRRI website to enable widespread dissemination of projects results and lessons learned.

Activity 4.1.3.1 Utilize the knowledge generated through the project (from, for example, studies being carried out, planning processes, awareness and communication materials and firsthand narratives) to develop materials to share during the regional and international meetings and fora - ensuring that the work related to gender equality and women's empowerment is showcased.

Activity 4.1.3.2 Support representatives from National Hubs to attend and actively participate in IW: LEARN regional meetings.

Activity 4.1.3.3 Actively participate in the GEF International Waters Conference and other global fora.

Activity 4.1.3.4 Publish narratives, knowledge pieces and stories from the project in the CRRRI website and newsletters.

Implementation Mechanism: Activities and outputs will be delivered at national level. The NTF is responsible for working in collaboration with members of the National Hub, ensuring that Technical Working Groups are established, sub-contracting for technical expertise etc. as required. The PMU will be responsible for utilizing the lessons and experiences emerging from countries in communicating to global audiences. The information and knowledge generated will also be linked up through the Global CRRRI to ensure collective and concentrated efforts.

Related projects and programs: GEF IW Learn

Outcome 4.2. Informed and adaptive project management.

In line with the global initiative, CRRRI, this project utilizes an adaptive management approach, supported by monitoring and evaluation. Monitoring and evaluation tools and processes will be developed at the global level to ensure consistency in data gathering and analysis. Sense making and use of the outcomes of monitoring and evaluation for learning, communication, accountability, and adaptive management will take place at the national level through the National Hubs to ensure that all key stakeholders are involved.

The projects monitoring and evaluation (M&E) processes will support learning, communication, accountability, and adaptive management with the members of the National Hubs actively involved in contributing to and using the outcomes of M&E for learning and planning purposes.

Ultimate responsibility for M&E resides with the PMU and M&E Specialist, who will coordinate with the Technical Advisory Facility in each country. The Technical Advisory Facilities will be responsible for ensuring that data are collected in a timely manner, recording achievements against targets in the Results Framework and preparing the six monthly and annual progress reports and annual workplans. These will be consolidated by the M&E Specialist for onward submission to the Global Steering Committee.

4.2.1: M&E reports, including project progress reports, midterm evaluation and terminal evaluation.

The PMU will utilize the WWF GEF templates and guidelines for M&E processes. At the country level, responsibility for monitoring and evaluation processes lies with the NTF, who will ensure that members of the National Hub are involved and informed as necessary (through, for example, using reports from Technical Working Groups to develop the annual workplans and reports for onward submission to and approval by the National Steering Committees). The PMU will consolidate annual reports, workplans and budgets for approval by the Global Steering Committee (also described under Section 2.3).

Activities

Activity 4.2.1.1 Convene an inception workshop involving NTFs from all six countries as well as key government representatives to ensure a shared understanding of the project, review the results framework, budget and annual workplan. Ensure that the facilitation approach allows for equal participation and voice of women, men, and marginalized groups.

Activity 4.2.1.2 Circulate templates and guidelines for drafting annual workplans and reporting for all partners contributing to the delivery of the project and provide technical advisory support as necessary to ensure a shared understanding of the requirements.

Activity 4.2.1.3 Develop annual workplans with measurable targets at the end of each year for approval by the National and Global Steering Committees (informed by the outcomes of annual reflection workshops conducted under 4.2.2).

Activity 4.2.1.4 Collect data and record achievements against targets in the Results Framework (yearly, mid-term, project close) for inclusion in Project Progress Reports (PPR) in adherence with good practice on collection and use of gender-disaggregated data.

Activity 4.2.1.5 Submit timely 6-month and annual PPRs, including reporting on progress against targets, management indicators and co-financing.

Activity 4.2.1.6 Conduct internal annual evaluations of learning events under Component 1 and the effectiveness of the National Hub (Component 2) using ex-post training questionnaires and score cards and utilize findings for learning and adaptive management.

Activity 4.2.1.7 Develop ToRs, outsource and manage mid and end of term evaluations for the project

Output 4.2.2. 4 Annual reflection workshops with National Technical Facilitators and main stakeholders.

Annual reflection workshops will be held at both national and global levels and are aimed at providing stakeholders the opportunity to reflect on progress to date, make recommendations for drafting annual workplans and share experiences and lessons. At the national level, annual reflection workshops will take place through the National Hubs while at the global level, members of the Steering Committee will come together across the 6 countries.

Activities

Activity 4.2.2.1 Prepare for the annual reflection workshops, including presentations on progress, experiences, and lessons to date (including case study presentations by members of the National Hub around lessons and outcomes, narratives and stories emerging from 4.1.2 etc.).

Activity 4.2.2.2. Convene 1-day annual reflection meetings at the national level bringing together members of the National Hub to share information on progress, exchange and discuss experiences and capture the outcomes of the discussions for inclusion in the annual PPRs, to inform the annual workplans as well as for use in communication (activities under Outcome 4.1).

Activity 4.2.2.3 Convene 1-day annual reflection meetings at global level bringing together members of the Global Steering Committee to share information on progress, exchange and discuss experiences and capture the outcomes of the discussions for inclusion in the annual PPRs, to inform the annual workplans as well as for use in communication (activities under 4.1)

Implementation Mechanism: Output 4.2 falls largely under the responsibility of the PMU who will support and coordinate project management across all six countries. Annual reflection meetings at country level will be the responsibility of the NTFs

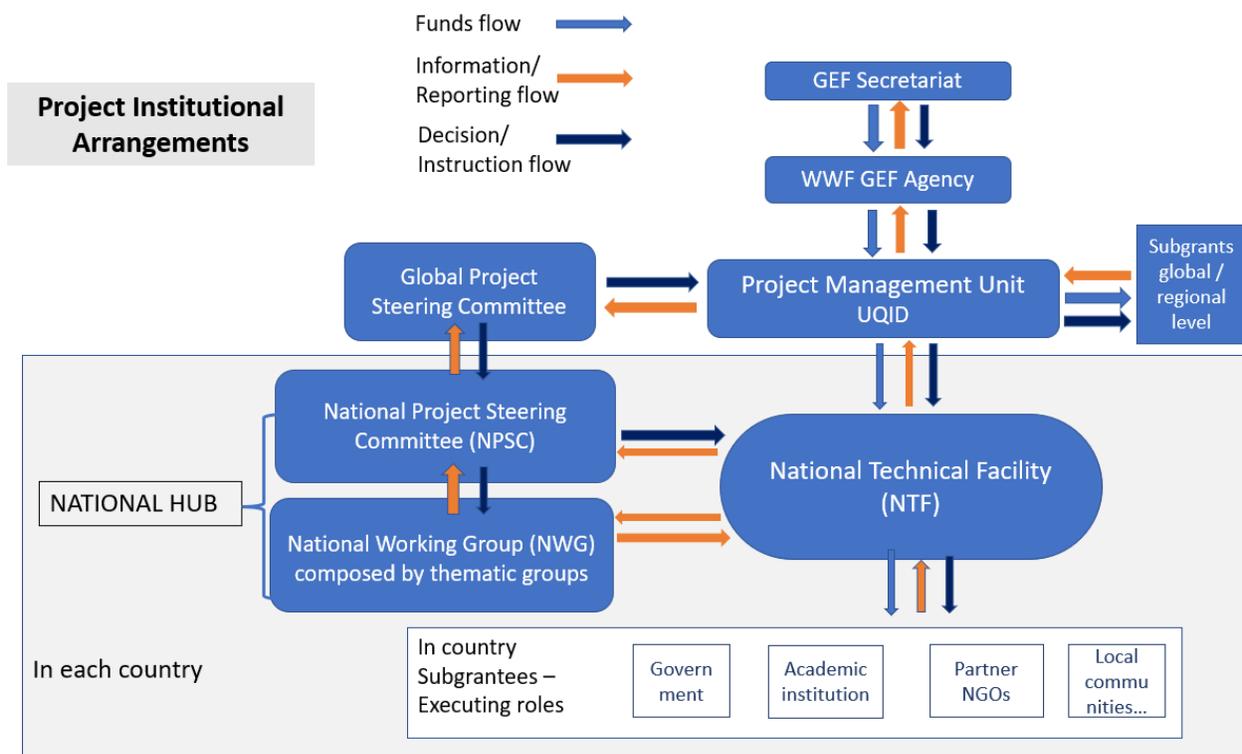
Related projects and programs: N/A

2.3 Institutional Arrangements

Institutional arrangements are designed to allow for efficient and effective delivery at national and global levels for this project while putting in place sustainable structures for continuity in management and coordination as new investments are mobilized and new initiatives come on board. These structures are aimed at enabling strong partnerships amongst national partners as well as Global CRR partners³⁷.

The GEF CRR project will be supported and guided by the CRR³⁸ Global Core Team which includes: the Global Initiative Leader, Coordinator/manager, Social Science Lead, Gender specialist, M&E Lead and a Partnerships and Outreach Lead. The Global Core Team oversees the implementation of CRR at the global level, ensuring that all sub-programs (including this GEF CRR project) contribute strategically to the realization of the initiatives overall vision and objectives. The Global CRR partners will also engage in guiding and supporting the GEF CRR project as participants of the Global Project Steering Committee as well as of the National Hubs in countries where they have presence.

Figure 12 provides an illustrative overview of the core structures, funding and reporting flows which are described in more detail below.



³⁷ Global CRR Partners are: Blue Ventures, Rare, CARE International, The University of Queensland, WCS, and WWF

³⁸ The Global Coral Reef Rescue Initiative described in Section 1, Box 1.

Figure 12 Proposed Institutional Arrangements

2.3.1 WWF GEF Agency

WWF-US, through its WWF GEF Agency, is the GEF Project Agency for this project and will: (i) provide consistent and regular project oversight to ensure the achievement of project objectives and Results Framework, and provide other assistance upon request of the Lead Executing Agency; (ii) liaise between the project and the GEF Secretariat; (iii) ensure that both GEF and WWF policy requirements and standards are applied and met (i.e. reporting obligations, technical, fiduciary, monitoring and evaluation-M&E); (iv) approve work-plans and budget revisions, certify fund availability and transfer funds and ensure proper use of GEF funds; (v) organize the final evaluation and review project audits; and (vi) certify project operational and financial completion; and (vii) arbitrate and ensure resolution of any conflicts during implementation that cannot be resolved in first instance by the EA.

2.3.2 Lead Executing Agency - University of Queensland

The project executing entities listed at PIF stage were the Global Coral Reef Rescue Partnership (University of Queensland, CARE International, RARE, WCS, Blue Ventures, WWF, and Vulcan) ; the Ministry of Livestock and Fisheries, Tanzania; Ministry of Environment, Climate Change, Disaster Management and Meteorology, Solomon Islands; Department of Environment, Fiji; Ministry of Environment and Sustainable Development, Madagascar; Department of Environment and Natural Resources, Philippines; Ministry of Marine Affairs and Fisheries (MMAF), Indonesia.

These agencies will continue to be the focal Government ministries for the Project and all engagement in the country will be directed through the focal Government ministries as chairs of the National Steering Committees.

As stated in the PIF, during project development, the University of Queensland (UQ) was selected to be the Project Lead Executing Agency as the most suitable entity to execute this project for its management capacity and mandate. The University of Queensland will host the Project Management Unit (PMU) at the University of Queensland International Department.

As described in Section 2.2., UQ will be also in charge of delivering Component 1 and providing assistance to the delivery of Component 2 and 3. Budget for this role is presented in Section 2.8.2 Executing agency costs (Component 1).

2.3.3 The Project Management Unit (PMU) - University of Queensland International Development

The Project Management Unit will reside within the University of Queensland International Development unit (UQID). UQID is one of the leading university development groups in the Asia-Pacific region, providing technical advisory services, capacity development training programs and specialised project management services for projects funded through a range of multilateral donor agencies, government aid organisations and the private sector globally. In delivering its extensive range of project management services, UQID draws on an agile team of Project Managers, Senior Development Coordinators, Development Coordinators and Development Assistants. The unit provides a range of inputs from project establishment and contracting; client and stakeholder liaison; project planning and implementation; reporting, quality assurance; monitoring and evaluation services; financial management and reporting; budget control and risk management. UQID dedicates members of its team to undertake project management responsibilities and resources each project with dedicated personnel for the various functions and inputs required subject to the project design and contractual requirements. As required, UQID will draw on resourcing from the broader UQ community, its partners, and networks to ensure projects are correctly resourced and efficiently managed. As shown in the

Organisational Structure below, UQID engages relevant experts, Team Leaders and Project Personnel as necessary per project. UQID also manages all contracting, coordinating, monitoring of deliverables and payment for all service providers; project personnel; sub-contractors and other inputs required for successful project implementation. UQID works extensively with UQ’s central Legal, Finance and Human Resource services to provide specialist services as needed.

UQID will be responsible for the administration of the GEF funds channeled through WWF-GEF, including the recruitment of consultancies and management of third-party contracts. UQID will sign a Grant Agreement with the WWF GEF Agency and, in turn, will subgrant to National Technical Facilitators (NTF) in each of the 6 project countries. UQID will be responsible for the strategic guidance, operational direction, and overall supervision of the NTFs, ensuring its performance is aligned with GEF and the GEF CRR project document. UQID will be also responsible for preparation and submission of technical and financial reports and coordinating external audits.

Responsibilities and tasks will be assigned to dedicated project personnel recruited specifically for this project or available from within the UQID team of experts. The structure of the proposed PMU (Figure 13) and its role are outlined below.

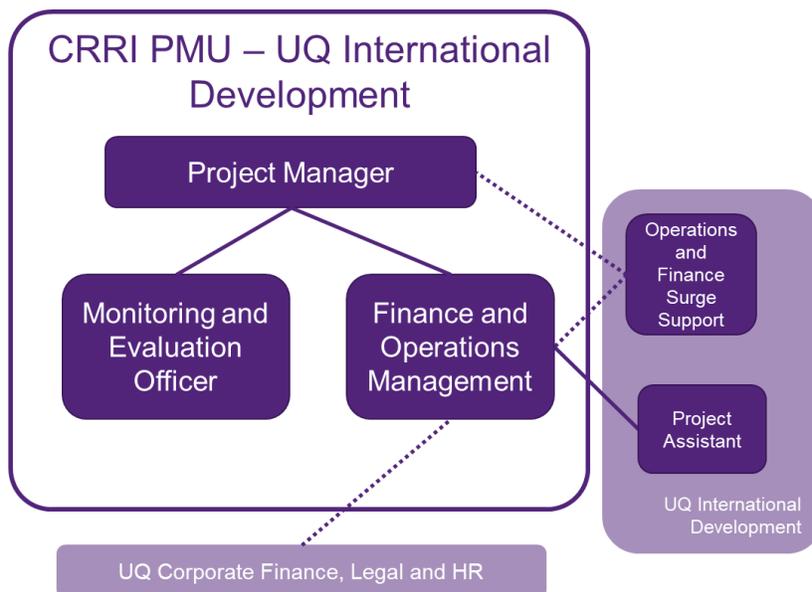


Figure 13 Illustrated overview of the CRR PMU

Identified key roles for the CRR PMU will include the following roles as outlined below together with relevant TORS/Role Descriptions:

Project Manager Role The GEF CRR Project Manager is responsible for the day-to-day coordination and oversight of the project, ensuring that the project realizes its overall goals and objectives in accordance with the approved project document, work plans and budgets. This includes supervision of Project Management Unit (PMU) staff, coordination of agreements, supervision and monitoring of National Technical Facilitators, and day-to-day management of project activities. The project manager will maintain collaborative relationships with project partners, National Technical Facilitators (NTFs), and WWF Country offices, as well as the Coral Reef Rescue Initiative (CRR) core team and CRR) global partners. The Project Manager will report

to the Lead Executing Agency (UQID) to WWF GEF Agency on behalf of the Project Management Unit, the CRR Leader and will report and serve as the secretary of the Project Steering Committee.

Finance and Operations Manager Role

Under the direction of the GEF CRR Project Manager, manage all financial and operational aspects of the Project including project budgeting, contracting, subrecipient monitoring and evaluations, financial tracking and reporting, and administrative functions. Provides financial and administrative assistance to, and oversight of, program staff and grantees to ensure that budgets and agreements are handled in accordance with WWF policies, procedures, systems, and donor requirements. The financial manager will have oversight of budgets in each of the 6 countries with close collaboration with the National Technical Facilitators. This position will be funded with co-financing.

Monitoring and Evaluation Officer Role

Under the direction of the GEF CRR Project Manager, the Monitoring and Evaluation (M&E) Officer will be responsible for all M&E activities including tracking and reporting project implementation against project work plans and reporting progress towards outcome indicator targets. The M&E Officer will coordinate M&E processes across countries and National Technical Facilitators, ensure a shared understanding of M&E requirements, timely collection of information, progress report preparation and submission and ensure that M&E supports learning and adaptive management. The M&E Officer will maintain the overall M&E system of the project and will assist the Project Manager in preparing quarterly, semi-annual, and annual reports on project progress. Through the collection and analysis of high quality and timely data inputs (and gender disaggregated as required in the results framework), the M&E Officer is responsible for ensuring that the project maintains strategic vision and that activities result in the achievement of intended outputs and outcomes in a cost effective and timely manner, as well as contributing to project team discussions of potential opportunities for adaptive management. The M&E officer is also responsible for ensuring that the implementation of the stakeholder engagement plans and gender action plan is monitored and reported on and any challenges that may arise during implementation are brought to the attention of the PMU, Global and National Steering Committees.

2.3.4 The Global Project Steering Committee

The Global Project Steering Committee (PSC) will be the highest decision-making authority for the project, responsible for supervising and monitoring the technical and financial execution of the project, including the fulfilment of project objectives, activities, and goals, approving annual work plans and budgets, project reports, and financial audit reports, among others. The PSC will be responsible for strategic guidance and approving any major changes that may be needed in the strategic plans or execution of the project, informed by the project monitoring and evaluation outcomes, and ensuring alignment with the ProDoc and national priorities and policies.

The Global PSC will meet at least twice a year (with at least one face to face meeting during the life of the project). Members of the PSC will include the chairs of the National Steering Committees and representatives of the Global CRR Partners. A representative of the WWF GEF Agency and a Scientific Advisor from UQ will also participate as observers. As the Secretary of the Global PSC, the Project Manager prepares meeting minutes and maintains Global PSC records. The Project Manager will also take responsibility for communicating outcomes and decision made by the Global Steering Committee to the National Hubs through

the National Steering Committees. Global PSC Chair and Vice-chair positions will be filled by Global PSC members on an annual rotative basis. During the first year, the Global PSC will be chaired by WWF CRRRI and vice-chaired by a government representative.

<p>Chair (rotative basis):</p> <ul style="list-style-type: none"> • CRRRI WWF (first year) <p>Vice-chair (rotative basis):</p> <ul style="list-style-type: none"> • Government representative 	<p>Members:</p> <ul style="list-style-type: none"> • Chairs of the National Steering Committees • CRRRI Global Partners • WWF GEF Agency representative (observer) • UQ Scientific Advisor (observer)
<p>Secretary:</p> <ul style="list-style-type: none"> • PMU - Project Manager 	
<p>Function, Roles and Responsibilities:</p> <ul style="list-style-type: none"> • Highest decision-making authority for the project. • Promotes and champions principles of good governance, accountability, equity and inclusion in the Project management. • Supervises technical and financial execution of the project. • Ensures that the project is aligned with the PRODOC and national priorities and policies. • Provides overall strategic guidance. • Approves the Annual Operating Plan, budget, and financial audit reports. • Makes high-level decisions regarding project structure, coordination, and implementation. • Approves major changes to the project strategy. • Evaluates project performance, including the project's mid-term review. • Project Manager acts as PSC Secretary, preparing meeting minutes, and maintains the PSC records. • Meets at least twice a year. 	

2.3.5 National Technical Facilitator

The National Technical Facilitator (NTFs) will be the project managers and administrators, subgranted by the Lead Executing Agency, the University of Queensland International Development Unit (UQID). The NTFs will be responsible for the provision of technical advice, coordination, and financial management of the project activities within each country. The NTF will serve as the Secretariat to the National Hubs, reporting to the National Steering Committee. They will report technically and financially to the PMU at UQID.

NTFs will be identified through an open expression of interest and application process at the onset of implementation. Organizations eligible for applying for the role of NTF include CRRRI partners that have a presence in the country for which they are applying (Blue Ventures, Care, Rare, WCS, Vulcan), Government Ministries, or other organizations which meet the selection criteria outlined in the NTF TORs (See Annex 5). If an organization can demonstrate sufficient capacity and experience in more than one country, they may apply in multiple countries. Preference will be given to a CRRRI partner that has a presence in the country. Annex 5 includes detailed criteria for selection of the NTFs.

Responsibilities of the NTFs are as follows (refer to Annex 5 for further detail):

1. *Executing project funds at the national level:* The NTF will be responsible for sub-granting project partners in country and procurement of third-party related costs for execution of project activities at national level, as indicated in the project work plan and budget and in accordance with the guidelines and activities identified in the SEP and the GAP as well as the Prodoc. On a case-by-case basis, the NTF may implement some project activities pending approval of workplans by UQID.

Execution responsibilities will include:

- Provide high level oversight, technical advice and monitoring of technical work conducted by subgrantees as well as procurement and expenditure of all grants, at national level, in line with the AWPB.
- Review progress of work plan and monitoring plan.
- Coordinate the establishment of the National Hub (see Project Institutional Arrangements Diagram in Annex 2), ensuring relevant stakeholders are invited and actively engaging with equal voice and influence, managing relationships between members of the Hub (as described in components above).
- Support the establishment and act as secretariat to the National Project Steering committee:
 - Ensure that progress reports are submitted by project partners in a timely manner for consolidation and submission to the Project Steering committee.
 - Coordinate with and manage document sharing with the Project Steering Committee (PSC).
 - Support the establishment of Technical Working Groups, facilitating their work, providing technical support and guidance to them as necessary.
- In coordination with WWF CRRRI focal point in country, represent the project and provide support for project supervisions and internal and external reviews/evaluations.
- Ensure that annual reflection meetings and other fora convened by the Hub are well organized and facilitated to meet their objectives.

2. *Reporting:*

- Prepares, administers, and tracks grant agreement to sub-recipients in country.
- Prepares, administers, and maintains the GEF Coral Reef Rescue project budget for the components the NTF is responsible for in their country, ensuring that data is accurate and current.
- Identifies problems and recommends corrective action, assists in the revision of budgets and communicates issues to the Project Management Unit.
- Maintains information and files pertaining to all financial and administrative aspects of the project including agreements.
- Assists independent mid-term and final evaluations by providing all requested financial and technical information.
- Works with the project M&E officer to develop the project M&E framework ensuring that all project partners have a shared understanding of the M&E requirements.
- Work with project partners to ensure they are building and using effective monitoring systems aligned with approved logic models and work plans.

3. *Quality Assurance:*

- Provide quality assurance for project activities, including in sub-grants at national level.
- Ensure implementation in line with the GEF, WWF and UQID standards and policies.
- Reviews and analyzes sub-recipient's financial reports to ensure compliance by sub-recipients with WWF-US and GEF Agency reporting requirements including project partner co-financing.

4. Partnership and constituency development
 - Ensure relevant actors and organizations that the project should be engaging with are involved and engaged appropriately (e.g. as members of the Hub, invited to events, receive information on project progress etc.)
 - Build and nurture relationships with project partners
 - Ensure that the multistakeholder processes taking place across the project, particularly within the Hub are well facilitated to allow for meaningful and effective stakeholder engagement

5. Proposal development and Public Sector Partnerships.
 - The NTF will coordinate with the CRRRI, in the context of developing new partnerships with other public sector donors (especially the Green Climate Fund), sharing information generated in the context of the GEF project and ensuring new funding opportunities are complementary and leverage GEF funded activities.

At the request of country governments, the NTF will coordinate the implementation of national project activities with a Project National Director (PND). The PND will be a public servant designated by the government, in charge of supervision and follow up of project activities at the government level. Other technical staff could be designated by the government to perform other technical duties in the context of the project.

Selection process

To ensure the selection process is transparent and consistent across countries, the Project Management Unit, hosted by The University of Queensland International Development Unit (UQID), will be responsible for conducting the NTF selection process. The NTFs will be identified through open procedure, inviting interested organizations to submit applications which will be reviewed for selection by the lead executing agency, UQID.

Governments will be informed and advised of the selection process in advance in each country and feedback taken into consideration in the finalization of the process. UQID will advise the Government and WWF focal points of the candidate organizations receiving the highest scores and feedback will be taken into consideration prior to finalization of the selection process.

2.3.6 National Hubs

National Hubs, formed under Component 2 (refer also to Section 2.3.6) will be the core mechanism for stakeholder engagement in the project. The Hubs will comprise of representatives of civil society, government, private sector, and non-governmental organizations from different sectors at both national and local levels (including a member of the CRRRI partnership). The stakeholder analysis and stakeholder engagement process carried out during PPG was used to guide the composition of the National Hubs, described in Annex 4. Members will be engaged in the delivery of the project through Technical Working Groups, through which they will contribute to the development of terms of reference for technical outputs, procurement of consultants, design of the methodology for studies (where appropriate), review and approval of outputs.

Members of the National Hubs will participate in review and reflection of project progress and performance, drawing out and sharing lessons learned during the annual reflection meetings, and using this reflection to identify priorities and recommendations for the project annual workplans as well as changes to the overall strategy that may be necessary to ensure that the overall objective and outcomes are realized.

Under the Global Steering Committee, the National Hubs Steering Committees provide strategic guidance and oversight to the project at the national level, ensuring that the project and the National Hub have high level support and standing within the country, taking responsibility for signing off on annual workplans and budgets before they are submitted to the PMU as well as supporting the NTF and members of the National Hub in problem solving and addressing challenges that may arise. They will be chaired by the host Ministry and co-chaired by the relevant WWF Country Office.³⁹

The structures of the National Hubs (i.e., National Steering Committee and Technical Working Groups) as well as governing and operational processes will be developed and established at the onset of project execution (under Activity 2.1.1.4).

2.4 Stakeholder Engagement

The project will comply with WWF's Standard on Stakeholder Engagement and with the project-specific Stakeholder Engagement Plan (SEP – see Annex 6). To be successful, the project will need to consider the views and perspectives of and to effectively engage with a variety of stakeholders ranging from local communities, grassroots organizations NGOs, research and academic institutions, private sector and the different levels of government (local and national) related to the themes of this project, as described in the project strategy section and the SEP included in the Annex 6.

2.4.1 Stakeholder engagement during project development

Since the PIF was approved on November 9th, 2020, stakeholders involved in the Coral Reef Rescue GEF project have been identified and meetings and workshops have been held to solicit feedback and input. These are summarized in this section, with detailed information on stakeholder engagement in each country provided as Annex 6.

PIF Stage Stakeholder Consultation:

Many stakeholders in the Coral Reef Rescue Initiative were identified early on and meetings and workshops were held to solicit feedback and input into the PIF, starting as far back as November 2018 when the first workshop was convened. This regional workshop was held in coastal east Africa to bring Tanzania and Madagascar's stakeholders into the development of the CRR project through participatory planning approaches and tools to align the project with local and regional realities and priorities. Several more workshops and meetings were convened in 2019 and 2020 in both Madagascar and Tanzania to garner support for, and feedback on, the PIF to be submitted to the GEF. In May of 2019 in Fiji, approximately 70 stakeholders participated in a workshop where they shared suggestions for the project around community innovation, and methods to address the identified threats and barriers. The next consultative workshop to take place was in the Philippines in August of 2019, involving 40 stakeholder representatives in which feedback on the critical threats were identified as well as provincial-wide and reef MPA network cluster specific actions were provided. In the Solomon Islands, consultations involving over 120 stakeholders took place from the 23rd of August to the 6th of September in 2019. Through this process, information on stakeholder views on coral reefs, trends, threats, and priorities were identified and then factored into the drafting of the PIF. Finally, in November of 2019, a regional workshop was held in Indonesia with a diverse group of stakeholders representing more than a dozen different communities. Stakeholders in Indonesia

³⁹ It is proposed the SC will be co-chaired by WWF country office in Fiji

highlighted the need to develop a strong MPA network as well as incorporate traditional knowledge in the project, both requests were integrated into the PIF document.

PPG Stage Stakeholder Consultations:

The Philippines:

WWF Philippines, with the PPG Team, hosted the GEF Coral Reef Rescue Inception Workshop in the Philippines virtually on August 4th, 2021. The inception workshop was participated by different stakeholders from DENR offices, NGAs, NGOs, academic institutions, regional bodies, development partners and research institutions. Significant inputs from the participants were taken into consideration in the design of the project such as site selection, value-added of the project to current government initiatives, clear definition of capacity needs assessment, livelihood at the community enterprise level, important baseline initiatives, and the likelihood of the Department of Environment and Natural Resources - Biodiversity Management Bureau (DENR-BMB) to handle the project implementation and fund transfers from GEF.

An Ad-Hoc Technical Working Group (TWG) was also formed to help validate the information gathered, review and comment on the Draft ProDoc, as well as contribute to the development of project strategy. In October and November of 2021, three Ad-Hoc TWG meetings were convened. The first meeting focused on the specific roles and responsibilities of the TWG on the project development, clarification on the co-financing aspect of the project, and the general ProDoc and project component overviews. Institutional arrangement and the project workplan were discussed during the second TWG meeting, led by the DENR-BMB (TWG Chair) and Rare (TWG Co-chair), and with the project development team and WWF Philippines as the secretariat. Lastly, a third TWG meeting was conducted to validate and finalize the ProDoc package, specifically on the important institutional arrangement (i.e. NTF arrangement and TOR) and the workplan and budget, as well as run through the results framework. These meetings had been very helpful in decision making, familiarizing with the institutional arrangements and processes, prioritization of activities, and ultimately completing the project document.

Solomon Islands:

During project preparation, WWF Solomon Islands worked closely with the Ministry of Environment, Climate Change, Disaster Management and Meteorology through several meetings, workshops and presentations starting in April of 2021. Three meetings held at the MECDM headquarters in April, May and June all covered the Coral Reef Rescue Initiative and the WWF GEF Project development process. Attendees included members of the Ministry including the GEF National Focal Point as well as the Coral Triangle Initiative Coordinator. Attendees agreed on the composition of the National Working Group. Members include the Ministry of Foreign Affairs (Ocean and Climate Desk), Live and Learn, WCS, the Ministry's Climate Change Division, WWF, WorldFish, and the Ministry of Fisheries. Following the establishment of the National Working Group, four meetings of the NWG were convened in August 2021 at the MECDM Headquarters to work on consolidating the National Inputs used to inform the project document. Inputs gathered and consolidated by the National Working Group have been incorporated into the project document.

Fiji:

In August of 2021, The WWF-Fiji office staff organized and hosted several stakeholder consultations and workshops to prepare for the GEF CRR Project Document. Five meetings were held throughout the course of one week, all virtual due to the pandemic. The first meeting was held to solicit feedback from local NGOs such as FLMMA, WCS, Resource Support and Conservation International with suggestions arising such as ensuring all project documents are translated into the Itaukei language and the importance of using

community coral reef monitoring tools. The second meeting held was to discuss the work program over the next two years with the Macuata Provincial Office. The provincial office representatives in attendance expressed support for the need to bring committees in communities together around Natural Resource management and suggested that WWF work closely with NGOs and CSOs already working in the area. The third and fourth meetings were held to discuss the project with the Ministry of Itaukei Affairs and the Ministry of Economy and the Ministry of Commerce Trade and Transport. During both of these meetings the ministries expressed no major concerns and provided suggestions on stakeholder engagement. The most recent meeting, held at the end of August, engaged private sector partners from Matanataki as well as the Ministry of Fisheries. WWF-Fiji continued to host validation workshops for the project document final draft and validate the document with stakeholders.

Tanzania:

During the project preparation phase, WWF-Tanzania and the CRR team hosted and participated in stakeholder consultation meetings to provide inputs to the Project design and implementation. In Mid-August, 2021, the team met with the GEF focal point in Tanzania to introduce the project and plan an inception workshop. Shortly after this meeting another two meetings were held with the Ministry of Tourism and then the Ministry of Livestock and Fisheries. Both ministries raised issues surrounding monitoring and law enforcement limitations and the lack of funding to provide training to communities. The project document has included these concerns as barriers/threats to coral reefs in Tanzania. In late August, the National Coral Technical group convened to discuss and explore the components of the CRR GEF project. Issues raised during this meeting included the challenges of transferring knowledge to coastal communities, the lack of fundraising to support these communities, and how to improve livelihoods within these communities to create financial stability. The project document places significant emphasis on community engagement and support, including ensuring that community visions and priorities inform the national action plan on climate refuge reefs, a focus on identifying community businesses and SMEs in Component 3 and providing support to share community narratives around climate refuge reefs in Component 4.

Indonesia:

In August of 2021, a virtual workshop was held by the WWF GEF Agency and CRR that included all six countries involved in the project. Members from Indonesia that participated included representatives from Indonesian Institute of Sciences (LIPI), and The Ministry of National Development Planning (Bappenas). See the Global Section below for details on the technical workshop held in August.

In September, October, and November of 2021, three more meetings were convened by WWF Indonesia to discuss the GEF CRR project. The first meeting was convened within WWF-Indonesia to finalize inputs into the gender profile for the country. The key input the office noted was to add the gender issues in the marine and fisheries sectors in Indonesia into the gender analysis. The meeting held in October of 2021 was a consultation with the government (MMAF). WWF-Indonesia presented the GEF CRR project strategy, budget, activities, and institutional arrangements to the Ministry. The ministry noted that they would prefer for WWF-Indonesia to be the NTF selected to execute the project because of legal issues surrounding other NGOs working in Indonesia and because of the capacity and capability WWF-Indonesia has demonstrated. This recommendation from the Ministry could not be incorporated into project design due to GEF policy that restricts the WWF Country Offices for playing an execution role. The meeting in November 2021 was a consultation with several divisions in the MMAF and GEF Focal Point in Indonesia. The meeting sought final input on the project strategy and discussed how the project target could contribute significantly to national target in the coral reef management.

Madagascar:

In June and July of 2021, after the inception workshop, the MEDD and WWF Madagascar office held two virtual Technical Working Group meetings. The first meeting helped clarify methods of stakeholder engagement as participants wanted to understand how to fill in the Stakeholder Engagement Plan section within the National Inputs Document. The second meeting was used to consolidate all inputs gathered in both French and English from stakeholders into the National Inputs Document that would inform the Project Document. Consultations at local level were also carried out in July. Between July and the mid-August, iterative exchanges on the document were carried out between the members of the working group to continue to provide inputs and to adjust the content. The working group emphasized that this project is an enabling project that lays the groundwork for future coral reef conservation projects and programs in Madagascar. The project document has been drafted to accentuate the relationship between the CRR GEF project and other programs and projects that will follow as per this feedback. At the end of August, a workshop to present the document to the national validation working group took place. The recommendations that were issued were considered.

In September, the GEF National Focal Point and other department representatives within MEDD (Climate Change, Biodiversity, Blue Economy), and WWF-Madagascar participated to the Global Partners and Governments virtual meeting organized by CCRI and WWF GEF Agency mainly to know the update on the process for the development of the project in the 6 countries and agree on next steps towards submission of the Project Document to the GEF Secretariat. Other internal meetings in September and October, were held with the MEDD team and WWF for the formulation of activities and the determination of the budget.

Global:

A Global technical design workshop was organized in August 2021, with focal points from ministries from the 6 countries, as well as WWF-Country Office staff, members from CRR partners, gathered virtually to work on the strategy and design of the project. The topics that were covered included brainstorming on the root causes of threats to coral reefs and what the countries see as challenges to managing Marine Protected Areas. A shared concern country representatives had was the lack of coordination and synergy among different sectors and stakeholders (for example – coordination between local government and local communities in some cases or between private sector and local communities etc). It was noted that the project needed to make the data gathered throughout the project available to all stakeholders and to ensure there is a data management system as research is conducted by multiple stakeholders. The design of Component 1 in the project strategy addresses this concern as it aims to make global and local monitoring data available to members of the Government, NGOs, communities, and all other stakeholders, as well as linking these stakeholders into a network of knowledge and best practices.

WWF Country offices received draft copies of the Project Document in October of 2021 and convened independent virtual and in-person reviews of the document. The WWF-Country offices led these reviews and provided feedback to the WWF GEF Agency team to validate the project strategy and plan for implementation. The feedback was considered in the final drafting of the project strategy, as demonstrated in the final Project Document. It is critical to this project's success that the design and plan for implementation is feasible and will create impact within each of the 6 countries.

2.4.2 Stakeholder engagement during project execution

The strategy for stakeholder engagement during execution is detailed in the project's Stakeholder Engagement Plan in Annex 6. This plan may be reviewed at the onset of implementation and will periodically take into consideration the lessons and experiences emerging from the project as well as to enable the project to respond to changes in the external context (such as the COVID situation in the country).

Stakeholder engagement is a fundamental strategy of the project, enabled primarily by the National Hubs which provide the space and mechanisms for meaningful engagement by local communities, private sector, development partners, non-governmental organizations, and governmental agencies across all four components of the project. The composition of National Hubs in each country is described in Annex 4. Responsibility for ensuring inclusive and meaningful engagement of stakeholders in each country lies with the NTFs, and will be implemented in accordance with official guidance with regards to social distancing due to COVID-19 safety protocols

Through the National Hubs, stakeholders will be involved in annual reflection meetings which will allow for shared learning with the outcomes of these meetings to inform progress reports and the development of annual workplans. Stakeholders will also contribute to design of specific activities (for example, developing and/or reviewing ToRs), review, comment and sign off on outputs as well as participate in the delivery of selected activities and outputs through the Technical Working Groups.

Project design places emphasis on the involvement of local communities that have an impact on or are impacted by climate refuge coral reefs. Under Component 2, resources are allocated to support communities in defining their visions and aspirations for climate refuge reefs, which will influence the national vision and action plans for climate refuge reefs as well as the investment portfolios which will be developed under Component 3. In Component 4, communities are supported to share their narratives, histories, and realities around climate refuge reefs through the communication and awareness raising activities.

2.5 Gender

2.5.1 Gender assessment (summary)

In accordance with the GEFs Policy on Gender Equality and the Gender Equality Action Plan, which recognized that a more systematic inclusion of gender aspects in projects could create positive synergies between improved environmental impact and greater gender equality, a high-level gender desk review was conducted to inform and guide the development of the Coral Reef Rescue: Resilient Coral Reefs, Resilient Communities project. The countries' gender profiles are based on a desk review of literature, including reports and research conducted at national level and interviews/conversations with gender experts at the national and regional level. This involved an assessment for each country on the mandates and frameworks on gender, the national context in relation to gender equality and women's empowerment, and gender considerations in the use, conservation, and management of coastal and marine resources.

There are significant and important differences between the roles, rights realized and opportunities available for women and men in the six countries where the project is proposing to work. These include, among others: differences concerning land and resource rights, access to goods, services and financial resources, gender-based violence and spaces to participate in and influence decision-making processes. The gender analysis also showed that inequality between men and women in the six countries is ingrained in socio-cultural norms. Gender can often strongly predict how an individual can be meaningfully engaged in

resource-management programs and decision-making, and how those programs might positively or negatively impact that individual. Existing gendered power imbalances in coastal and marine decision-making and resource ownership specifically affect women's capacity to influence change and expand their roles in managing and safeguarding coastal and marine resources. It is also crucial to recognize that women and men may have divergent understandings of the use and management of natural resources or traditional knowledge about biodiversity and ecosystems.

2.5.2 Gender action plan for project execution (summary)

A gender responsive Gender Action Plan has been developed for the Climate Refuge Reefs: Resilient Coral Reefs, Resilient Communities project. The detailed plan in Annex 1 includes gender-specific actions for outputs delivered by the project from year 1 through year 4 of project implementation. It is a useful tool for project implementation as it provides gender-specific indicators and targets for each year, as well as information on who is responsible for ensuring these targets are achieved. The plan demonstrates that the project recognizes and acknowledges gender norms and inequalities and will respond to them through actions and initiatives to address women and men's different needs, constraints, and opportunities. A gender-responsive approach ensures that women and men's individual needs and contributions are addressed; that participation of women and men is equitable; and that distribution of benefits, resources, status, and rights are equitably addressed. The Gender Action Plan was developed guided by the principle that successful use, management, and conservation of coastal and marine resources requires that both women and men have equal access to opportunities and the ability to participate in, and benefit from, the project initiatives.

A detailed Gender Action Plan can be found in Annex 1 that links outputs with tangible activities to promote gender inclusion, equality, and equity. The Gender Action Plan was developed with the following objectives.

1. Structure inclusive and gender-sensitive project teams with capacities and technical expertise to support gender-responsive action. This might require providing staff with basic training on gender dimensions specific to the project to increase understanding and capacity on gender mainstreaming for implementation.
2. Ensure equality of voice and influence by women and men in all aspects of the project⁴⁰, using culturally sensitive and appropriate approaches
3. Ensure that women and women's organizations are represented in any stakeholder consultation.
4. Ensures that the roles, needs, skills, and vulnerabilities of women and men are equally recognized.
5. Promote equal rights to access and derive benefits from the use, management, and conservation of coastal and marine resources.
6. Support the full, equal, and effective engagement of women and men in decision-making and all action related to developing, implementing, monitoring, and evaluating the project.
7. Ensure project activities, both in-person and virtual, are accessible to women, considering location, timing, transportation constraints, household responsibilities, permission from a male family member(s), access to computers, phones, and internet, etc. which may affect their ability to attend/participate in project activities.

⁴⁰ Including external communication – for example, by ensuring that panels involve both women and men

8. Provide adequate resources- both expertise and financial- to support the development and implementation of gender-responsive interventions.
9. Ensure that the results framework is gender-sensitive along with a comprehensive sex-disaggregated data collection
10. Furthermore, due to the nature of this project, it will depend to a great extent on the establishment of working groups, panels, workshops, and meetings. Therefore, the project will embrace the principle of no male-only panels

For further information on the project's inclusion of gender please view Annex 1 which includes the Gender Assessment conducted as well as the Gender Action Plan for project implementation.

2.6 Safeguards

In compliance with WWF Environmental and Social Safeguards Framework (ESSF), as detailed in WWF's Environmental and Social Safeguard Integrated Policies and Procedures (SIPP), the GEF CRR Project was screened according to the Standard on Environmental and Social Risk Management. The Project was categorized as a Low Risk/Category "C" project, given that it is a global technical assistance project, working on policy and processes in seven countries and with no on the ground impacts.

A gender analysis and action plan has been prepared (Section 2.5) as well as the Stakeholder Engagement Plan, including the Grievance Redress Mechanism in (Section 2.4).

2.7 Monitoring & Evaluation

The Project will be monitored through the Results Framework (see Annex 8), which includes targets and indicators for strategic outputs as well as intended outcomes and provides the baseline for the majority of indicators. For indicators in which baselines were not available (such as existing levels of investment in reef friendly businesses), these will be carried out within the first six months of project start up. The results framework provides a method and source for measuring indicators, which Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) and disaggregated by sex where applicable. Component 4 of the Results Framework is dedicated to M&E, knowledge sharing and coordination.

Relevant Core indicators have been included to provide a portfolio-level understanding of progress towards the GEF Global Environmental Benefits (GEBs).

Responsibilities for M&E are shared between the NTF and UQ. All national level indicators fall under the responsibility of the NTF with UQ responsible for quality control and consolidation of data and information across the six countries and global level interventions. NTFs are responsible for engaging members of the National Hub in reflection, sense making and identifying recommendations to adapt strategies and approaches, informed by M&E data and information. These are shared with the PMU and the Global Steering Committee for endorsement.

Table 5 Summary of reporting requirements

M&E/ Reporting Document	How the document will be used	Timeframe	Responsible for generating report	Recipient of the report
Inception Report	<ul style="list-style-type: none"> Summarize decisions made during inception workshop, including changes to project design, budget, Results Framework, etc. 	Within three months of inception workshop	PMU	Global Steering Committee >> WWF GEF Agency
Quarterly technical reports	<ul style="list-style-type: none"> Inform PMU PM on progress, challenges and needs of activities in the field 	Every 3 months	NTF	PMU
Quarterly financial reports	<ul style="list-style-type: none"> Assess financial progress and management 	Every 3 months	NTF	PMU
Quarterly financial reports	<ul style="list-style-type: none"> Assess financial progress and management 	Every 3 months	PMU	WWF GEF Agency
WWF Project Progress Report (PPR) with RF and workplan tracking (for the 12month reports).	<ul style="list-style-type: none"> Inform management decisions and drafting of annual workplan and budget. Share lessons internally and externally. Report to the PSC and GEF Agency on the project progress. 	Every six months	PMU Project Manager and M&E Officer	Global Steering Committee >> WWF GEF Agency
Mid-term Project Evaluation Report	<ul style="list-style-type: none"> External formative evaluation of the project. Recommendations for adaptive management for the second half of the project period. Inform PSC, GEF and other stakeholders of project performance to date. 	Midterm	External expert or organization to be contracted and managed by WWF-US evaluation unit	Global Steering Committee >> WWF GEF Agency
Terminal Project Evaluation Report	<ul style="list-style-type: none"> External summative evaluation of the overall project. Recommendations for GEF and those designing related projects. 	Before project completion	External expert or organization to be contracted and managed by PMU	Global Steering Committee >> WWF GEF Agency
Project Closeout Report	<ul style="list-style-type: none"> Based on the format of the PPR Summarize project results and overall outcomes to the PSC and GEF Agency. 	One month after technical close	PMU	Global Steering Committee >> WWF GEF Agency

Independent formal evaluations have been budgeted by the project and will adhere to WWF and GEF guidelines and policies. The Midterm Evaluation will be conducted within six months of the midpoint of the project and the Terminal Evaluation will be completed before the official close of the project. The evaluations provide an opportunity for adaptive management as well as sharing of lessons and best practices for this and future projects. The GEF Agency, Lead Executing Agency, Steering Committees of the National Hubs and the Global Steering Committee will be briefed and debriefed before and after the evaluation(s) and will have an opportunity to comment on the draft and final report.

An annual reflection workshop has been budgeted for members of the National Hub as well as the Global Steering Committee to review project progress and challenges to date, taking into account results framework tracking, work plan tracking and stakeholder feedback to review project strategies, risks and the theory of change (ToC). The results of this workshop will inform project decision making (i.e., refining the ToC, informing PPRs and AWP&Bs).

2.8 Budget

2.8.1 Overview

The 4-year GEF project funding is USD\$7,000,000 with an additional US\$71,338,533.82 as co-financing. Table 6 shows the breakdown of co-financing secured for the project.

Table 6 Co-financing secured for the GEF CRR project

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Type	Amount (\$)
Academic/CSO	Arizona State University, The Alan Coral Atlas	Grant	Investment Mobilized	20,500,000
NGO	Rare	Grant	Investment Mobilized	808,165.63
NGO	Rare	In-Kind	Recurrent Expenditures	193,612.02
NGO	Blue Ventures Conservation	Grant	Investment Mobilized	22,893,355
NGO	WWF-Australia	Grant	Investment Mobilized	2,198,251
NGO	WCS	Grant	Investment Mobilized	5,451,637
NGO	CARE	Grant	Investment Mobilized	479,266
NGO	CARE	In-Kind	Investment Mobilized	472,288
NGO	WWF-US	In-Kind	Recurrent Expenditures	840,000
Academic/CSO	University of Queensland	In-Kind	Recurrent	1,019,842.12

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Type	Amount (\$)
			Expenditures	
Academic/CSO	University of Queensland International Development	In-Kind	Recurrent Expenditures	682,117.05
NGO	WWF-US: Margaret A Cargill Philanthropies	Grant	Recurrent Expenditures	800,000
NGO	WWF-US (GCF Funding to WWF-Fiji and WWF-Solomon Islands)	Grant	Investment Mobilized	15,000,000
Total Co-financing				71,338,533.82

A summary of the budget distribution by outcome and output is provided in Table 7. Distribution by Component is shown in Figure 14 below: budget is highest for Component 2 (49%) & Component 3 (27%), both of which involve significant in-country stakeholder engagement.

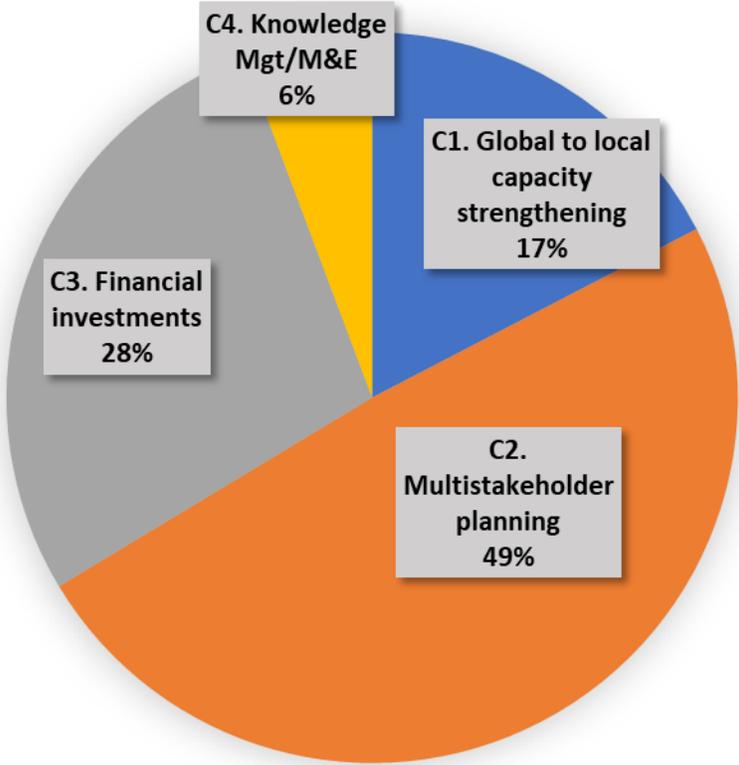


Figure 14 Budget distribution by component

Table 7 Budget summary by Outcome and Output

CATEGORY	PROJECT TOTAL
Component 1 Global to local capacity strengthening for resilient coral reefs monitoring and conservation	1,073,855
Outcome 1.1 Government and non-government practitioners, academia and local communities are connected into a global network of knowledge and best practices to identify solutions for the conservation of climate refuge coral reefs and connected ecosystems.	732,251
Output 1.1.1 At least six learning events at regional / global level for at least 500 practitioners (e.g., staff, policy makers, scientists, students, community members).	396,632
Output 1.1.2 Online learning tools such as massive, open, on-line learning (plus alternative offline options) developed and benefiting at least 2,500 relevant stakeholders (including communities, universities, and schools) across diverse expertise levels and languages (where possible).	335,619
Outcome 1.2. Near-real-time monitoring data and information is obtained at global to national scales to inform action by national and regional hubs	341,604
Output 1.2.1. Global climate refuge coral reef monitoring system prototype and Climate Data Platform developed and implemented in the 6 countries for management response by the national and regional hubs.	296,481
Output 1.2.2. Technical assistance, training, and operational support for on the ground monitoring activities (management, decision making, platform calibration and ground truthing), with participation of local communities, in the 6 countries.	45,123
Component 2: Planning for resilient Coral Reef Rescue at the national level	2,977,814
Outcome 2.1. Increased coordination and collaboration amongst stakeholders across sectors for the inclusive conservation and management of climate refuge reefs over the long term.	1,715,805
Output 2.1.1 Six National Climate Refuge Coral Reef Hubs (stakeholder coordination platforms) created, connected, and strengthened, including key sectors such as marine, planning, environment, health, to lead the planning process under 2.2.	907,696
Output 2.1.2 Training, and operational support for strengthening community representation in national hubs, to effectively participate in the planning process under Outcome 2.2 and activities under Component 3.	415,840
Output 2.1.3 Consultative and collaborative process to integrate traditional knowledge and vision from local communities in national strategies for climate refuge reef conservation.	392,270
Outcome 2.2. A shared vision and agenda for climate refuge reefs developed through an evidence informed and inclusive planning processes	1,262,009
Output 2.2.1 Threat/opportunity analysis (drawing on science and traditional knowledge) for each of the priority climate refuge reefs conducted to understand drivers of reef health in the 6 countries.	426,354
Output 2.2.2 Cost-benefit analysis (losses due to the impacts vs gains from the unsustainable fishing and other practices) in the 6 countries	289,547
Output 2.2.3 6 National/sub-national action plans for climate refuge reef conservation (responding to threats identified in 2.1 and including solutions identified in Component 1) developed in the 6 countries, including sustainable finance strategies	546,108

Component 3: Financial solutions for resilient Coral Reef Rescue	1,643,689
Outcome 3.1. Investment opportunities identified to promote increased sustainable financial flows to relevant seascapes and landscapes to reduce threats to climate refuge coral reefs.	1,643,689
Output 3.1.1 Technical assistance in countries to mobilize private and public investment opportunities for their national priorities identified under 2.2.4.	612,322
Output 3.1.2 Scoping of at least 100 existing and potential sustainable businesses, including community based small and medium enterprises (in the 6 countries), including options for business expansion and start up.	255,590
Output 3.1.3 Technical assistance to national teams to prepare business filtering and support frameworks.	248,692
Output 3.1.4 Investments portfolio developed, including demonstrative sustainable livelihood projects in priority reefs in the 6 countries.	527,084
Component 4 Knowledge Management & Monitoring and Evaluation	971,309
Outcome 4.1 Increased awareness of governments, donors and climate refuge local communities, and knowledge (from local to global level) on the value of climate refuge coral reefs, their main threats, and good practices/actions for their conservation.	445,439
Output 4.1.1 Communication campaign (reaching the highest level of influence possible, including heads of state and ministers from the 6 countries, as well as local communities in the climate refuge reefs) designed and implemented at local and global level including firsthand narratives on how coral decline is affecting livelihoods.	166,205
Output 4.1.2 Knowledge management and communication products, such as firsthand narratives and lessons on community driven solutions for coral reef conservation.	115,114
Output 4.1.3 Participation in at least two IW: LEARN regional meetings, one GEF International Waters Conference, and other masterclasses and knowledge exchange events (real and virtual).	164,120
Outcome 4.2 Informed and adaptive project management	525,870
Output 4.2.1 M&E reports, including project progress reports, midterm evaluation and terminal evaluation	292,878
Output 4.2.2 (4) Annual reflection workshops with project executing partners and main stakeholders	232,992
COMPONENT 4 Project Management Costs	333,333
TOTAL PROJECT COSTS	7,000,000

2.8.2 Budget distribution – Subgrants for delivery at national and global levels

A total of \$5,419,216 will be distributed through sub-grants to the NTFs in each of the six countries as well as a sub-grant to UQ which is responsible for the learning events as well as the monitoring system and climate data platform that will be established under Component 1. Table 8 provides budget notes for each of these subgrants.

Table 8 Detailed budget notes on budget distribution by sub-grants allocated to NTFs

Sub-Grant	Budget allocated	Budget Notes
Fiji	Component 1: USD 35,751	Budget has been allocated to enable the National Hub stakeholders participate in the stakeholder analysis and needs assessment which will inform the Knowledge proposal as well as the in-country inventory (1.2.1.1) and other activities necessary to design the monitoring system and ensure its use. These costs are distributed as follows:
	PERSONNEL	USD 6,000
	THIRD PARTY FEES & EXPENSES	USD 10,751
	TRAVEL, MEETINGS & WORKSHOPS	USD 17,000
	OTHER DIRECT COSTS	USD 2,000
	Component 2: USD 454,586	Fiji will carry out assessments and studies with regards to institutional processes (including understanding existing platforms, how best to ensure community engagement, updating the cultural mapping and traditional knowledge data as well as carrying out threats analysis and biological reef surveys and the cost-benefit analysis). Fiji will also ensure strong community involvement in reef health assessments. The studies together with stakeholder consultations will be used to develop and finalize the National Plan of Action for Climate Refuge Reefs. To operationalize this, the budget distribution is as follows:
	PERSONNEL	USD 109,200
	THIRD PARTY FEES & EXPENSES	USD 133,751
	TRAVEL, MEETINGS & WORKSHOPS	USD 156,000
	OTHER DIRECT COSTS	USD 55,635
Component 3: USD 319,791	Under Component 3, Fiji will engage a private sector consultancy to carry out the scoping studies. Through the studies, at least 2 potential community-based sustainable businesses that will support the reduction of threats (identified under Component 2) will be identified with a view to support the establishment of at least one focal demonstrative sustainable livelihood project in the priority areas. The private sector lead will also provide screening and project/business readiness project design for a community facility investment vehicle. The budget distribution is as follows:	
PERSONNEL	USD 46,400	
THIRD PARTY FEES & EXPENSES	USD 207,891	

Sub-Grant	Budget allocated	Budget Notes
	TRAVEL, MEETINGS & WORKSHOPS	USD 50,000
	OTHER DIRECT COSTS	USD 15,500
	Component 4: USD 92,947	
	A national consultation will be carried out to identify priority target groups for the communication strategy and to inform the design of a communications plan for the project. The project will also support community and national members of the national hubs to share lessons learnt and best practices during the regional meetings; and convene the annual lessons learning workshops. The budget distribution under this component is as follows:	
	PERSONNEL	USD 39,700
	THIRD PARTY FEES & EXPENSES	USD 10,751
	TRAVEL, MEETINGS & WORKSHOPS	USD 34,496
	OTHER DIRECT COSTS	USD 8,000
Solomon Islands	Component 1: USD 94,753	
	Under Component 1, the Solomon Islands places emphasis on indigenous knowledge. An indigenous knowledge task force will be established (under the National Hub) to ensure that indigenous knowledge on resource management, customary marine tenure and local communities' perspectives are understood and used to inform the design of the learning events as well as inform the outcomes of the other 3 Components. The budget distribution is as follows:	
	THIRD PARTY FEES & EXPENSES	USD 40,753
	TRAVEL, MEETINGS & WORKSHOPS	USD 54,000
	Component 2: USD 533,974	
	Studies and assessments will be carried out to inform the establishment of the National Hub and development of the National Action Plan for Climate Refuge Reefs. Particular emphasis is placed on ensuring that this is informed by the realities of local context, particularly with regards to aspects such as customary tenure, traditional norms and values. The project will build on existing tools and experiences to ensure that the national hub is effective in strengthening community engagement processes in natural resources management in the country. The National Hub will comprise of 4 taskforces to enable stakeholder engagement and ensure relevance and ownership: i) Indigenous Knowledge (which will also support Component 1); ii) Financial Solutions (Component 3); iii) Ecological; and iv) the M&E task force (which will provide overall project management support to the project). The project will also establish an internship program to build young capacities to be prepared for when other pipeline projects are ready. The national vision and action plan for climate resilient corals will be launched as a cultural event, showcasing local communities and their connection to coral reefs. Budget distribution is as follows:	
PERSONNEL	USD 105,000	
THIRD PARTY FEES & EXPENSES	USD 107,753	
GRANTS & AGREEMENTS	USD 30,000	

Sub-Grant	Budget allocated	Budget Notes
	TRAVEL, MEETINGS & WORKSHOPS	USD 224,000
	OTHER DIRECT COSTS	USD 67,221
	Component 3: USD 190,753	
	<p>The project will build on the GFCR/GCF scoping work to carry out feasibility studies to identify appropriate investments taking into consideration ecological, social, and economic factors (with emphasis on identifying businesses and investments that are best aligned with customary marine tenure). Communication and engagement of private sector actors and government to build support for climate refuge reef friendly investments will be co-financed through existing initiatives such as DFAT. Technical expertise will be contracted to support shortlisted businesses to improve their business plans and ensure that they are investment ready. Budget distribution is as follows:</p>	
	THIRD PARTY FEES & EXPENSES	USD 93,753
	GRANTS & AGREEMENTS	USD 80,000
	TRAVEL, MEETINGS & WORKSHOPS	USD 17,000
	Component 4: USD 83,753	
	<p>An assessment will be carried out to understand how best to build support of high-level decision makers for climate refuge reefs and used to inform the design of the communications strategy targeting both high level decision makers as well as the wider public. To capture community narratives, the project will seek to engage youth and use mobile technology, social media, short films, and performance. Annual reflection workshops will be convened, with their design being informed by the awareness assessment to ensure that they are able to fully capture the attention of individuals participating. Budget distribution is as follows:</p>	
	THIRD PARTY FEES & EXPENSES	USD 15,753
	TRAVEL, MEETINGS & WORKSHOPS	USD 33,000
	OTHER DIRECT COSTS	USD 35,000
	Component 1: USD 65,752	
	<p>Budget allocations under Component 1 are aimed at ensuring that learning events and monitoring is informed by local and national realities and needs. This includes conducting the stakeholder analysis and needs assessment, in-country inventory as well as supporting the identification of indicators and establishment of data-sharing agreements. The budget distribution is as follows:</p>	
	PERSONNEL	USD 18,000
	THIRD PARTY FEES & EXPENSES	USD 18,752
	TRAVEL, MEETINGS & WORKSHOPS	USD 24,500
	OTHER DIRECT COSTS	USD 4,500
	Component 2: USD 446,452	
Indonesia	<p>Under Component 2, activities are designed to adapt the Indonesia coral reef network as the national hub for climate refuge reefs. This will include convening stakeholders to develop a shared vision, governance, and operational modalities; conducting training for both MPA authorities as well as community representatives to strengthen local level</p>	

Sub-Grant	Budget allocated	Budget Notes								
		<p>structures and mechanisms to ensure inclusion and equitable voices in natural resource governance; conducting workshops to support communities in defining and articulating their vision. The project will recruit consultants to carry out the threats and cost-benefit analysis. The Hub will update the existing national plan of action of coral reefs, to include the vision and identified priorities to strengthen the conservation and management of climate refuge reefs. Budget allocations are as follows:</p> <table data-bbox="391 468 1057 611"> <tr> <td>PERSONNEL</td> <td>USD 172,500</td> </tr> <tr> <td>THIRD PARTY FEES & EXPENSES</td> <td>USD 90,752</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 153,500</td> </tr> <tr> <td>OTHER DIRECT COSTS</td> <td>USD 29,700</td> </tr> </table>	PERSONNEL	USD 172,500	THIRD PARTY FEES & EXPENSES	USD 90,752	TRAVEL, MEETINGS & WORKSHOPS	USD 153,500	OTHER DIRECT COSTS	USD 29,700
PERSONNEL	USD 172,500									
THIRD PARTY FEES & EXPENSES	USD 90,752									
TRAVEL, MEETINGS & WORKSHOPS	USD 153,500									
OTHER DIRECT COSTS	USD 29,700									
		Component 3: USD 299,253								
		<p>Activities under Component 3 in Indonesia will include a consultancy to carry out a study on the use of public finance and retribution to local government on the use of marine conservation areas; scoping studies to identify existing and potential reef friend enterprises and identify recommendations for business expansion and start up. The project will build on and update the existing WWF protocol for implementing sustainable livelihoods projects near or around MPAs and coastal settlements and provide technical assistance to support SMEs to improve their business models as well as existing businesses to improve their practices. Budget allocations are as follows:</p> <table data-bbox="391 1058 1011 1201"> <tr> <td>PERSONNEL</td> <td>USD 108,000</td> </tr> <tr> <td>THIRD PARTY FEES & EXPENSES</td> <td>USD 31,753</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 128,000</td> </tr> <tr> <td>OTHER DIRECT COSTS</td> <td>USD 31,500</td> </tr> </table>	PERSONNEL	USD 108,000	THIRD PARTY FEES & EXPENSES	USD 31,753	TRAVEL, MEETINGS & WORKSHOPS	USD 128,000	OTHER DIRECT COSTS	USD 31,500
PERSONNEL	USD 108,000									
THIRD PARTY FEES & EXPENSES	USD 31,753									
TRAVEL, MEETINGS & WORKSHOPS	USD 128,000									
OTHER DIRECT COSTS	USD 31,500									
		Component 4: USD 91,752								
		<p>The project will carry out the awareness assessment, drawing upon experiences of existing and previous projects and use the outcomes to develop the communications strategy. Budget is also allocated to training and supporting local communities in capturing and sharing their values, histories and experiences related to climate refuge reefs. Under 4.2, budget allocations will enable members of the National Hub to participate in M&E, annual reflection meetings as well as regional IW:LEARN and associated meetings. Allocations are broken down as follows:</p> <table data-bbox="391 1593 995 1770"> <tr> <td>PERSONNEL</td> <td>USD 13,500</td> </tr> <tr> <td>THIRD PARTY FEES & EXPENSES</td> <td>USD 20,752</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 40,000</td> </tr> <tr> <td>OTHER DIRECT COSTS</td> <td>USD 17,500</td> </tr> </table>	PERSONNEL	USD 13,500	THIRD PARTY FEES & EXPENSES	USD 20,752	TRAVEL, MEETINGS & WORKSHOPS	USD 40,000	OTHER DIRECT COSTS	USD 17,500
PERSONNEL	USD 13,500									
THIRD PARTY FEES & EXPENSES	USD 20,752									
TRAVEL, MEETINGS & WORKSHOPS	USD 40,000									
OTHER DIRECT COSTS	USD 17,500									
Philippines		Component 1: USD 86,953								

Sub-Grant	Budget allocated	Budget Notes												
		<p>Under Component 1, budget allocations are focused on the stakeholder analysis, country-specific needs assessment, in-country inventory, and development of data-sharing agreements. Allocations include:</p> <table data-bbox="397 367 966 598"> <tr> <td>PERSONNEL</td> <td>USD 67,200</td> </tr> <tr> <td>THIRD PARTY FEES & EXPENSES</td> <td>USD 10,953</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 5,180</td> </tr> <tr> <td>OTHER DIRECT COSTS</td> <td>USD 720</td> </tr> <tr> <td>EQUIPMENT</td> <td>USD 2,900</td> </tr> </table>	PERSONNEL	USD 67,200	THIRD PARTY FEES & EXPENSES	USD 10,953	TRAVEL, MEETINGS & WORKSHOPS	USD 5,180	OTHER DIRECT COSTS	USD 720	EQUIPMENT	USD 2,900		
PERSONNEL	USD 67,200													
THIRD PARTY FEES & EXPENSES	USD 10,953													
TRAVEL, MEETINGS & WORKSHOPS	USD 5,180													
OTHER DIRECT COSTS	USD 720													
EQUIPMENT	USD 2,900													
		<p>Component 2: USD 509,985</p>												
		<p>Budget allocations under Component 2 are focused on stakeholder consultation meetings and conducting a best practice/lesson learned study to inform the governance and operational modalities of the National Hub. A capacity needs assessment will be carried out, engaging local community members in Palawan and communities supported to conduct visioning meetings. The threats and cost-benefit analysis will draw on CCRES tools and involve the inclusion of resource accounting and valuation in target activities, taking into consideration the outcomes of existing valuation exercises. The project will also identify alignment and opportunities for integration of the national action plan for climate refuge reefs in high level national plans (such as the PBSAP, PDP). Budget allocations are as follows:</p> <table data-bbox="397 1081 966 1344"> <tr> <td>PERSONNEL</td> <td>USD 288,800</td> </tr> <tr> <td>THIRD PARTY FEES & EXPENSES</td> <td>USD 33,753</td> </tr> <tr> <td>GRANTS & AGREEMENTS</td> <td>USD 2,000</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 163,332</td> </tr> <tr> <td>OTHER DIRECT COSTS</td> <td>USD 10,800</td> </tr> <tr> <td>EQUIPMENT</td> <td>USD 11,300</td> </tr> </table>	PERSONNEL	USD 288,800	THIRD PARTY FEES & EXPENSES	USD 33,753	GRANTS & AGREEMENTS	USD 2,000	TRAVEL, MEETINGS & WORKSHOPS	USD 163,332	OTHER DIRECT COSTS	USD 10,800	EQUIPMENT	USD 11,300
PERSONNEL	USD 288,800													
THIRD PARTY FEES & EXPENSES	USD 33,753													
GRANTS & AGREEMENTS	USD 2,000													
TRAVEL, MEETINGS & WORKSHOPS	USD 163,332													
OTHER DIRECT COSTS	USD 10,800													
EQUIPMENT	USD 11,300													
		<p>Component 3: USD 159,613</p>												
		<p>Under component 4, the project will build on the existing national government dissemination plans for environmental campaigns/DENR Agos to build awareness and support for investments in climate refuge reefs. Criteria and a protocol to guide the identification of and support climate refuge reef friendly businesses will benefit from inputs from Rare, CARE and UNDP BIOFIN. Reef friendly businesses will be identified, and technical assistance provided to shortlisted reef-friendly businesses</p> <table data-bbox="397 1627 966 1858"> <tr> <td>PERSONNEL</td> <td>USD 113,600</td> </tr> <tr> <td>THIRD PARTY FEES AND EXPENSES</td> <td>USD 10,753</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 30,800</td> </tr> <tr> <td>OTHER DIRECT COSTS</td> <td>USD 960</td> </tr> <tr> <td>EQUIPMENT</td> <td>USD 3,500</td> </tr> </table>	PERSONNEL	USD 113,600	THIRD PARTY FEES AND EXPENSES	USD 10,753	TRAVEL, MEETINGS & WORKSHOPS	USD 30,800	OTHER DIRECT COSTS	USD 960	EQUIPMENT	USD 3,500		
PERSONNEL	USD 113,600													
THIRD PARTY FEES AND EXPENSES	USD 10,753													
TRAVEL, MEETINGS & WORKSHOPS	USD 30,800													
OTHER DIRECT COSTS	USD 960													
EQUIPMENT	USD 3,500													
		<p>Component 4: USD 146,682</p>												

Sub-Grant	Budget allocated	Budget Notes										
		<p>Under component 4, the project will recruit a consultant to carry out the awareness levels assessment, identify and priorities target groups for the communications strategy and develop and roll out the strategy. Support will be provided through training workshops to local communities to capture and share their narratives. Budget allocations are also provided for stakeholders to participate in regional and international meetings; annual workplanning and reflection meetings. Allocations are broken down as follows:</p> <table data-bbox="397 499 966 730"> <tr> <td>PERSONNEL</td> <td>USD 47,600</td> </tr> <tr> <td>THIRD PARTY FEES & EXPENSES</td> <td>USD 11,353</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 85,269</td> </tr> <tr> <td>OTHER DIRECT COSTS</td> <td>USD 960</td> </tr> <tr> <td>EQUIPMENT</td> <td>USD 1,500</td> </tr> </table>	PERSONNEL	USD 47,600	THIRD PARTY FEES & EXPENSES	USD 11,353	TRAVEL, MEETINGS & WORKSHOPS	USD 85,269	OTHER DIRECT COSTS	USD 960	EQUIPMENT	USD 1,500
PERSONNEL	USD 47,600											
THIRD PARTY FEES & EXPENSES	USD 11,353											
TRAVEL, MEETINGS & WORKSHOPS	USD 85,269											
OTHER DIRECT COSTS	USD 960											
EQUIPMENT	USD 1,500											
Madagascar	<p>Component 1: USD 91,963</p> <p>Under Component 1, the project will recruit a consultant and convene stakeholders through meetings and workshops to carry out the stakeholder analysis, needs assessment, and the in-country inventory. Budget distribution is as follows:</p> <table data-bbox="397 953 950 1052"> <tr> <td>THIRD PARTY FEES & EXPENSES</td> <td>USD 24,753</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 67,210</td> </tr> </table> <p>Component 2: USD 501,959</p>	THIRD PARTY FEES & EXPENSES	USD 24,753	TRAVEL, MEETINGS & WORKSHOPS	USD 67,210							
	THIRD PARTY FEES & EXPENSES	USD 24,753										
	TRAVEL, MEETINGS & WORKSHOPS	USD 67,210										
	<p>For Component 2, consultants will be recruited, and meetings and workshops convened to conduct the stakeholder, policy, and institutional analysis to inform the establishment of the hub; established modalities and build capacities for meaningful and effective community engagement and to support communities in developing their vision for climate refuge coral reefs. With the support of consultants, the project will carry out the threat/opportunity and cost benefit analysis and stakeholders will be convened and supported to develop the national vision and action plan for climate refuge reefs. Budget distribution is as follows:</p> <table data-bbox="397 1371 1063 1524"> <tr> <td>PERSONNEL</td> <td>USD 28,500</td> </tr> <tr> <td>THIRD PARTY FEES & EXPENSES</td> <td>USD 217,753</td> </tr> <tr> <td>GRANTS & AGREEMENTS</td> <td>USD 50,000</td> </tr> <tr> <td>TRAVEL, MEETINGS & WORKSHOPS</td> <td>USD 205,706</td> </tr> </table>	PERSONNEL	USD 28,500	THIRD PARTY FEES & EXPENSES	USD 217,753	GRANTS & AGREEMENTS	USD 50,000	TRAVEL, MEETINGS & WORKSHOPS	USD 205,706			
PERSONNEL	USD 28,500											
THIRD PARTY FEES & EXPENSES	USD 217,753											
GRANTS & AGREEMENTS	USD 50,000											
TRAVEL, MEETINGS & WORKSHOPS	USD 205,706											
<p>Component 3: USD 214,850</p> <p>Component three activities will also be carried out with the support of consultants and travel to sites and convening of meetings and workshops. National studies will be carried out to identify and understand potential investors; exhibitions/fairs and an information-education-communication strategy carried out on corporate social and environmental responsibility with a view to mobilizing the private sector to develop and sign off on a cooperate responsibility charter. The project will also work with technical expertise to explore the potential for payment for environmental service mechanisms. Short listed businesses will be identified in collaboration with local communities and supported to improve their operations and strengthen business plans to prepare them for investor engagement. Budget distribution is as follows:</p>												

Sub-Grant	Budget allocated	Budget Notes
	PERSONNEL THIRD PARTY FEES & EXPENSES GRANTS & AGREEMENTS TRAVEL, MEETINGS & WORKSHOPS	USD 35,528 USD 118,753 USD 24,614 USD 35,955
	Component 4: USD 94,522	
	<p>Under Component four, a national consultant will be recruited to carry out the awareness assessment and develop the communications strategy, with the support from the global team. A communications firm will be contracted to carry out the communications strategy. Organizations with relevant experience and expertise will be contracted to support local communities in capturing and sharing their narratives and realities in relation to the conservation and management of climate refuge reefs. Travel and consultancy costs are also allocated to support the design and delivery of the annual reflection meetings, participate in the evaluations and regional and international meetings</p>	
	PERSONNEL THIRD PARTY FEES & EXPENSES GRANTS & AGREEMENTS TRAVEL, MEETINGS & WORKSHOPS	USD 3,600 USD 30,353 USD 24,614 USD 35,955
Tanzania	Component 1: USD 71,231	
	<p>Under Component 1, the project will recruit a consultant and convene stakeholders through meetings and workshops to carry out the stakeholder analysis, needs assessment, and the in-country inventory. Budget distribution is as follows:</p>	
	THIRD PARTY FEES & EXPENSES TRAVEL, MEETINGS & WORKSHOPS	USD 61,231 USD 10,000
	Component 2: USD 30,858	
	<p>Under Component 2, Tanzania will recruit national consultants to support the establishment of the National Hub as well as develop the shared vision for climate refuge coral reefs (with budget allocated for travel, meetings and workshops for stakeholder consultations and engagement). Consultants will also be recruited to support the threats and cost-benefit analysis which will inform the national plan of action for climate refuge reefs; and an organization with experience and expertise in working with local communities contracted to support communities in strengthening their abilities to engage in the hub and develop their visions for climate refuge reefs. Budget distribution is as follows:</p>	
THIRD PARTY FEES & EXPENSES TRAVEL, MEETINGS & WORKSHOPS OTHER DIRECT COSTS	USD 220,362 USD 189,774 USD 120,722	
Component 3: USD 159,429	Under Component 3, consultants will be recruited to conduct the analysis, including site	

Sub-Grant	Budget allocated	Budget Notes
		based assessments to identify investment opportunities, identify and short list small and medium scale businesses as well as larger businesses for further technical support. Budget distribution is as follows
	THIRD PARTY FEES & EXPENSES	USD 81,755
	TRAVEL, MEETINGS & WORKSHOPS	USD 77,674
	Component 4: USD 141,652	
		Under Component four, a national consultant will be recruited to carry out the awareness assessment and develop the communications strategy, with the support from the global team. A communications firm will be contracted to carry out the communications strategy. Organizations with relevant experience and expertise will be contracted to support local communities in capturing and sharing their narratives and realities in relation to the conservation and management of climate refuge reefs. Travel and consultancy costs are also allocated to support the design and delivery of the annual reflection meetings, participate in the evaluations and regional and international meetings
	THIRD PARTY FEES & EXPENSES	USD 39,079
	TRAVEL, MEETINGS & WORKSHOPS	USD 102,573

2.8.3 Executing agency costs

UQ is responsible for the delivery of Component 1 as well as the provision of technical support and oversight for Component 3 and 4. Associated costs are outlined below.

Table 9 Executing agency costs

Line item	Total	Description
Salaries and Benefits	USD 832,454	- Component 1: 2 technical specialists to lead 1.1 & 1.2 respectively @ US\$426,621 - Component 4: M&E specialist @US\$75,000 - PMC: Project Manager \$33,833
Consultants	USD 612,879	- Component 1: Consultancies to support the establishment of climate data platforms and linkages to NOAA and Coral Reef Atlas @US\$177,879 - Component 3: Technical advisory support to countries, involving : i) Conducting the global benchmarking study; ii) Working with countries to develop a common set of criteria and a shared protocol to guide the business models to be used across all 6 countries; iii) Developing the framework for identification and analysis of both small and medium businesses as well as larger businesses; and iv) Provide technical support and backstopping to the in-country consultants and technical working groups. Budget @ US\$300,000 - Component 4: Communications Specialist \$60,000; Mid and End of Term evaluations @75,000 (inclusive of associated travel costs)
Travel & Trainings, Workshops,	USD 132,951	- Component 1: Travel, meetings & workshops to engage with countries in the design of the knowledge proposal, establishment of monitoring framework @\$22,951

Meetings		- Component 4: Attendance of global and regional IW:LEARN and other relevant fora as well as convening of global annual reflection workshops @\$110,000
Other Operating Costs	USD 2,500	- Audit
TOTAL	USD 1,580,784	

2.8.4 Monitoring and Evaluation (COMPONENT 4.2.1)

M&E component has been budgeted with **USD 525,870** for five years (Table 10), which includes staff time, office running costs, and project planning, review, monitoring & evaluations. The total budgeted cost for Monitoring & Evaluation component is **7.66%** of the total project cost.

Table 10 M&E summary budget

Line item	Total
Salaries and Benefits	USD 75,000
Consultants	USD 75,000
Grants and Agreements (to countries)	USD 295,870
Travel & Workshops	USD 90,000
TOTAL M&E	US\$525,870
TOTAL PROJECT BUDGET	US\$6,999,549
% M&E OF TOTAL PROJECT BUDGET	7.66%

Section 3 GEF ALIGNMENT AND JUSTIFICATION

3.1 Incremental Cost Reasoning and Global Environmental Benefits

A global analysis by University of Queensland and partners showed that some reefs have a substantially lower exposure to climate change stress due to local oceanographic conditions such as currents and upwelling. The work of UQ and partners has identified these climate refuge reef areas. These climate refuge and connected reefs embody the regeneration potential for the world's reefs, in the face of climate change, and 65% of this 'climate refuge reef' area is found in the jurisdictions of Indonesia, Philippines, Fiji, Tanzania, Solomon Islands and Madagascar.

The proposed Coral Reef Rescue GEF project will build off a *global baseline*, which includes identification of reef areas that are climate refuge to climate changes, knowledge and management tools developed through CCRES, MPA conservation financing, mapping and monitoring, and regional intergovernmental coordination, and a series of *national baselines*, which include policy, national action plans, monitoring, and actions to protect reefs through MPAs, LMMAs, and other management initiatives. Through the GEF financing and catalytic influence, this proposed project brings together the national governments, Blue Ventures, Rare, CARE International, The University of Queensland, WCS, WWF (as GEF Agency) and civil society partners to create a dedicated focus on *climate change climate refuge reefs*. GEF financing in this project will support global knowledge and capacity strengthening networks to share, identify, and target solutions for climate refuge reef conservation, a global platform for near to real time monitoring of coral reefs, identification of key threats to climate refuge coral reefs and participatory national strategies for reef protection, and technical assistance to mobilize public and private investments towards identified priorities, including the development of an investment portfolio of sustainable businesses that support local communities and the climate refuge reefs on which they depend.

The global and national baseline and the additional investment from the GEF will result in a dedicated focus on climate change climate refuge reefs in 6 countries, supporting the health of these climate refuge and connected reefs for global reef regeneration in the future.

Baseline	Alternative Scenario	Environmental Benefits
Component 1 - Global knowledge and capacity strengthening networks for climate refuge coral reef rescue		The 6 countries (plus Cuba through co-finance) will improve their capacities to monitor, identify and better implement best available solutions to protect the most climate refuge coral reefs that can secure the regeneration of these coral reefs globally.
There are limited knowledge sharing networks at the global level on coral reef conservation, despite the rich knowledge and existing examples of good practices globally. Currently, there are limitations (both capacity and resourcing) in standardizing reef health monitoring and impacts of threats on reefs at the global level.	Building on a rich baseline of knowledge and tools developed by past GEF and non GEF interventions, the project will create a global network of governmental and non-governmental practitioners, academia, and communities for sharing knowledge and good practices	

	<p>on coral reef conservation. The project will support a near real time coral reef monitoring platform (using a range of scales and with linkages to approaches from citizen science to advanced sampling and analysis and evaluate climate refuge coral reefs in priority sites, in near real time, providing early warnings on coral reef impacts, such as changes to water quality, coastal deforestation, mass coral bleaching and mortality and related events (seagrass and mangrove die-offs).</p>	<p>Key stakeholders at the national level will have strengthened capacities to use available data and information to identify and prioritize coral reef threats and make better decisions on priority solutions for coral reef conservation, including the use of traditional knowledge in coral reef conservation.</p> <p>Countries will have secured funding for implementing priority solutions to reduce key coral reef threats and will have secured private investments towards sustainable business that will bring rapid solutions for regeneration and conservation of climate refuge coral reefs.</p> <p>Co-financing partners and investment opportunities generated through the project will provide on-the-ground support to these coral reefs, resulting in a variety of global benefits including better management of the coral reefs, better carbon capture from healthy corals, restoration of degraded coral reefs, and improved biodiversity from those flora and fauna that depend on healthy corals to survive.</p>
<p>Component 2 - Planning for climate refuge coral reef rescue at the national level</p>		
<p>Countries hosting climate refuge reefs lack specific strategies for their conservation and specific institutional platforms to coordinate these efforts. Very frequently, specific strategies or projects are designed without a strong science base and without considering the traditional knowledge of local communities.</p>	<p>The project will create and strengthen the capacity for multi-sectoral hubs to engage in strategic coral reef conservation in the 6 countries. Those hubs will lead and facilitate the development of science based knowledge platforms that will assist in the mapping of threat/opportunity, cost benefit analysis and spatial analysis that will feed into national strategies for the conservation of coral reefs. In parallel, the project will facilitate consultative processes with local communities related to the coral reefs, to capture traditional knowledge and be able to include it in the analysis and national strategies.</p>	<p>Co-financing partners and investment opportunities generated through the project will provide on-the-ground support to these coral reefs, resulting in a variety of global benefits including better management of the coral reefs, better carbon capture from healthy corals, restoration of degraded coral reefs, and improved biodiversity from those flora and fauna that depend on healthy corals to survive.</p>

Component 3 - Financial solutions for climate refuge coral reef rescue		
There are multiple ongoing and planned initiatives and funding opportunities for coral reefs, both in the context of the Coral Reef Rescue Initiative and outside of it. However, countries often have difficulties accessing these funds and directing those to activities aimed at preserving coral reefs and specifically to the identified climate refuge reefs. There is insufficient involvement of the private sector in identifying and implementing solutions for coral reef conservation.	The project will assist countries to access public and private funding opportunities to ensure an increased financial flow towards financing priorities identified in the National Action Plans, including sustainable livelihood initiatives in communities related to climate refuge coral reefs.	

Overall, the proposed project will support knowledge exchange and planning to facilitate a harmonized and informed approach for safeguarding globally significant reefs in Indonesia, Philippines, Cuba⁴¹, Fiji, Tanzania, Solomon Islands and Madagascar. Co-financing partners and investment opportunities generated through the project will provide on-the-ground support to these coral reefs, resulting in a variety of benefits including: conservation of key coral reef ecosystems, preserving the potential for regeneration of coral reefs at global level, better carbon capture from healthy coral reefs and associated ecosystems, and improved biodiversity from those flora and fauna that depend on healthy corals to survive, including reef fish, that are important for local livelihoods.

The proposed project will generate global environmental benefits that will be measured through the following GEF Core Indicators, aligned with the GEF International Waters:

[GEF Core Indicator 4.1] Area of landscapes under improved management to benefit biodiversity (qualitative assessment, non-certified)

Through the National Action Plans for Climate Refuge Reefs, the project will support stakeholders across a diversity of sectors and levels to come together to identify, negotiate and commit to priority actions to improve land use practices in a manner that will significantly mitigate threats to climate refuge reefs for at least 400ha across the 6 countries (**Note – target may be revised following the threats analysis)

[GEF Core Indicator 7.4] Level of engagement in IW: Learn through participation and delivery of key products

⁴¹ Activities in Cuba will be financed through project co-financing sources, and not by the GEF project budget.

By year 2, a project website will be established in line with IW:LEARN guidance and by year 4, project staff and country representatives will have actively participated at International Waters Conferences as well as provided spatial data and other data points via the Knowledge Hub and Climate Data Platforms (Component 1)

Core Indicator 11: Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment (target, 9,850).

Through the creation of global knowledge networks, the project will increase knowledge and technical capacities of government and non-governmental actors and stakeholders (including communities, private sector, and academia) on addressing critical threats to climate refuge reefs as well as the use of data to better engage in evidence informed planning and decision making. In addition, communities and other stakeholders will be involved in training to strengthen capacities for the meaningful and inclusive engagement of local communities as well as strengthen skills and knowledge through engagement in Hub activities such as analysis and planning. Under Component 4, individuals with small and medium enterprises as well as larger businesses will be supported to strengthen their business plans and operations and better attract and engage with investors.

3.2 Alignment with GEF Focal Area and/or Impact Program Strategies

The proposed project aligns with the GEF's International Waters Focal Area Objective 1.1. *Strengthening blue economy opportunities through sustainable healthy coastal and marine ecosystems.* Recognizing that healthy coral reefs (and associated ecosystems, mangroves, and seagrass) are essential to economic development in the context of blue economy opportunities, the Coral Reef Initiative aligns to this IW Objective by fostering collaboration amongst the 6 countries (plus Cuba through co-financing) for improving their capacity to monitor and protect the most climate refuge coral reefs, that can secure the regeneration of coral reef globally. This will be done through a global network of knowledge and good practices. At the national level, the project will engage and create capacities of key stakeholders (governments, non-governmental organizations, private sector, and local communities), creating national Coral Reef Hubs, to increase collaboration and cross support for developing national plans for coral reef conservation. Those plans will directly support Blue Economy strategies in each country. Through the global networks and the national Hubs, the project will engage with national, regional, and global stakeholders to increase collaboration and cross support to investments and processes, including through IW-LEARN.

The project also indirectly aligns with IW's *Objective 1.3. Addressing pollution reduction in marine environments.* The Coral Reef Hubs in the 6 countries will facilitate, amongst others, the analysis of the main threats affecting climate refuge reefs in each country. Those analyses will inform the design of the National Action Plans. The project will provide support for the countries to secure funding from private and public donors to implement the national action plans, helping countries reduce environmental threats to priority climate refuge coral reefs.

To complement existing GEF interventions within the International Waters Focal Area Strategy, the Coral Reef Rescue Project will give special consideration to multi-country Large Marine Ecosystems (LMEs) supported by the Global Environment Facility (GEF), as well as opportunities in Small Island Developing States (SIDS) (Solomon Islands is part of this project). The project will incorporate any relevant TDAs/SAPs guidance into the national action plans (Outcome 2.1). Whenever feasible, the project will identify opportunities to align and support integration of climate refuge coral reef protection considerations into regional cooperation and transboundary governance frameworks. Aligned to SAPs strategic actions, the project will give special consideration to creating capacities, knowledge management platforms, coral reef monitoring tools, awareness/education, national action plans and investment portfolios, therefore supporting the referred SAPs objectives, and facilitating on the ground implementation. The project will strengthen capacities of LME

managers and practitioners, supporting and participating in existing learning communities, such as IW:LEARN, LME:LEARN, including the dissemination of best practices and lessons learned generated from the project.

3.3 Socioeconomic Benefits

As mentioned earlier, the design of the project is based on the premise that successful use, management, and conservation of coastal and marine resources requires that both women and men have equal access to opportunities and the ability to participate in, and benefit from, the project initiatives.

The project seeks to strengthen social equity in the conservation and management of climate refuge coral reefs – ensuring that women and men from local communities have a strong voice in the planning and decision-making processes that will take place through the Hub (under Component 2). This includes activities dedicated to supporting local communities to define and articulate their aspirations and priorities and ensure that these are integrated into the national vision and action plan for climate refuge reefs (developed under Outcome 2.2). This will involve strengthening skills, knowledge, and motivation of both local communities as well as other stakeholders involved in the Hub to ensure inclusive and equitable involvement of local communities (Output 2.1.2). Under Outcome 4.1.1, local communities will be supported to share their realities and narratives around climate refuge reefs nationally as well as globally, ensuring that they have a strong voice in the communications and awareness raising activities.

Component 3 is primarily focused around identifying investment opportunities for reef-friendly businesses with a particular focus on SMEs that will generate new sustainable livelihood opportunities for local communities (with a particular focus on women). Under Component 3, the project will analyze needs and opportunities for SMEs to manage risks and needs to maximize their potential to strengthen livelihood security in a manner that is inclusive and equitable (with a particular focus on women and vulnerable groups). This may include strengthening women-led enterprises and economic empowerment through enabling access to financial services and strengthening financial literacy.

3.4 Risks and proposed mitigation measures

#	Identified risk	Potential consequence	Counter measure
2	High turnover of staff members in executing agencies.	This could lead to a loss of institutional knowledge regarding project interventions, and less effective implementation.	The University of Queensland International Development Team will be executing the project as a unit, if one member of the team were to transition off the project, the UQID Team would have capacity and knowledge to compensate for this. A knowledge management platform will be developed to facilitate the transfer of knowledge regarding project interventions.
3	Insufficient financial resources limit the implementation of investments on the	National Action Plans for Coral Reef Rescue not implemented because of lack of funds.	The project will include a specific output for providing technical assistance to countries to secure private and public funding for their

#	Identified risk	Potential consequence	Counter measure
	ground needed to ensure coral reef conservation measures and sustainable livelihood activities.		national coral reef strategies and reef friendly businesses specifically aimed at supporting the livelihoods of local communities. The national strategies will include a sustainable finance strategy.
4	Low participation and support from key stakeholders due to competing personal priorities, inappropriate project activities, or a limited understanding of the value and importance for coral reef conservation.	If there is limited uptake by stakeholders or if they cease to implement project interventions after the project lifetime, it will result in continued unsustainable land use and management practices in the landscape.	Stakeholders will be actively involved in the design, development, and implementation processes of the project, through a bottom-up approach. Awareness will be raised on the negative impacts for local communities and national economies from the loss of coral reef. Demonstrative projects on sustainable livelihoods for coral reef communities will demonstrate sustainable models compatible with coral reef conservation and economic development.
5	Capacity constraints of local and national institutions to undertake the required project interventions.	Project interventions could be delayed and there may be insufficient capacity to overcome potential implementation challenges.	The project has a strong approach on knowledge management, learning and, in general, strengthening capacities of national institutions and will be designed considering existing institutional capacities.
6	Political instability and conflict	Project interventions may be delayed during periods of instability and conflict, should they arise	To the extent possible, the PMU will support NTFs. However, mitigation will depend on the level of severity of the conflict.

Climate Change Risk Analysis

Country	Climate Change Risk	Impacts on Coasts and Reef	How Is the Project Addressing This?
Solomon Islands	<p>Germanwatch's Long-Term Climate Risk Index (1998-2017) rated Solomon Island as the 27th most at-risk country in the world.⁴²</p> <p>Climate change risks in the Solomon Islands include increasing annual average temperatures, escalating storm intensity, rising sea levels, and ocean acidification. Category 4 and 5 storms have more than doubled since 1990, contributing to the Solomon Islands' vulnerability to climate change. Flooding as a result of storms and increased rainfall has also worsened on the islands. Average temperatures across the South Pacific, (encompassing the Solomon Islands) have increased by approximately 1°C since 1970, making the average rate of increase 0.3°C per decade. Flooding and increased temperatures cause sea-levels to rise. Between 1994 and 2008, sea levels in SI rose by 7.6mm, almost double the global average, with projections that sea level rise will be three times the global average.⁴³</p>	<p>Climate change risks such as floods, storm damage, ocean acidification and sea level rise all cause a loss of productivity and threaten reef-dependent livelihoods. In the Solomon Islands, average asset losses due natural disasters are estimated to be more than \$44 million.</p>	<p>This project will support the creation of national strategies for climate-refuge reef conservation and in turn, protect reef systems that are part of Large Marine Ecosystems. Reef systems protect Coastal communities from storm surge and wave damage which have become more present in the face of rising sea levels and more frequent storms.</p>
Indonesia ⁴⁴	<p>The World Bank conducted a global analysis and ranked Indonesia 12th out of 35 countries that face high mortality risk from multiple climate hazards.⁴⁵</p> <p>Indonesia faces climate risks in the form of increased temperatures, flooding because of precipitation changes, and sea-level rise.</p> <p>Since 1990, the mean annual temperature in Indonesia has increased by</p>	<p>Regions within Indonesia's islands that are most vulnerable to climate change risks are Java, Sulawesi and the southeastern Papua islands. These regions all face increased incidences of drought, floods, landslides, and</p>	<p>This project will support communities that depend on the coastal reef systems by using appropriate measures to increase understanding and awareness of reef protection, as well as planning for coral reef protection at the national level.</p>

⁴² Kreft, Sönke, David Eckstein, and Inga Melchior Global Climate Risk Index 2017. (2016). Bonn: Germanwatch e.V. <https://germanwatch.org/en/cr>.

⁴³ GFDRR, 2011. Solomon Islands Climate Change and Disaster Risk Profile.

⁴⁴ Hulme, M and N. Sheard. 1999. Climate Change Scenarios for Indonesia. Climatic Research Unit, Norwich, UK, 6 pp

⁴⁵ World Bank, 2005. Natural Disaster Hotspots, A Global Risk Analysis. Washington, DC: Disaster Risk Management Series.

Country	Climate Change Risk	Impacts on Coasts and Reef	How Is the Project Addressing This?
	<p>about 0.3°C. Temperatures are projected to increase by approximately 0.2-0.3°C per decade. Varying precipitation patterns have demonstrated an increase in rainfall during the wet season, which will lead to an increase in flooding. Sumatra and Borneo are projected to become 10-30% wetter by the 2080s, but with this increased rainfall projected to occur later in the crop season.⁴⁶ Flooding will continue to increase during La Nina climate events which are also becoming more severe due to climate change.</p>	<p>sea-level rise.</p> <p>70% of the reefs located in Indonesia are already suffering damage from climate change risks. Wildlife within the reef systems account for 60% of the population's protein intake. This demonstrates how critically vulnerable the livelihoods and health of communities are as the coastal zones continue to degrade.</p> <p>⁴⁷</p>	
Fiji	<p>Germanwatch's Long-Term Climate Risk Index (1998-2017) rated Fiji as the 20th most at-risk country in the world.⁴⁸ This ranking demonstrates that Fiji is highly susceptible to climate risks such as floods, sea level rise, ocean acidification, warming sea temperatures and cyclones.</p> <p>Flooding of the river systems in Fiji has become more frequent and is usually triggered by extreme weather events, including La Nina and El Nino events.⁴⁹ Sea level rise has affected Fiji more than most of the globe. The average global sea level rise is 2.8-3.6mm annually, whereas</p>	<p>Fiji's 2017 Climate Vulnerability Assessment estimated that average losses due to extreme flooding events and damaging storms were around \$500 million annually.</p> <p>Within the provinces around the Great Sea Reef in Fiji, 40% of the</p>	<p>This project, through increased monitoring and the creation of national strategies for conservation will facilitate improvement of the health of local reef systems. Healthier reefs help protect Fijians against climate risk events physically (as reefs protect coastal communities by weakening storm surges and wave damage) and economically</p>

⁴⁶ USAID Indonesia, 2008. Conservation of Tropical Forests and Biological Diversity In Indonesia. Report submitted in accordance with Foreign Assistance Act Sections 118/119.

⁴⁷ WRI, 2001. World Resources 2000-2001: People and Ecosystems: The Fraying Web of Life.

⁴⁸ 1

⁴⁹ Harris et al., 2014: Updated high-resolution grids of monthly climatic observations – CRU TS3.10: The Climatic Research Unit (CRU) Time Series (TS) Version 3.10 Dataset, Int. J. Climatology, 34(3), 623-642, doi: 10.1002/joc3711; updated from previous version of CRU TS3.xx

Country	Climate Change Risk	Impacts on Coasts and Reef	How Is the Project Addressing This?
	<p>Fiji's Annual average increase was approximately 6mm per year since 1993. Rising temperatures in Fiji, demonstrated in daily maximum temperatures, have increased and average of .1°C per decade for the past 50 years.⁵⁰</p>	<p>population directly depend on the coastal reef system for protection against climate risk events. Sea-Level rise and other climate change events disrupt the natural processes and activities of reef systems and tidal flats. These areas provide habitats for fisheries and are critical for the Fijians that rely on them for their livelihoods.</p>	<p>(because communities depend on coastal resources for their livelihoods).</p>
The Philippines	<p>The Philippines faces similar climate change threats as other island nations such as Indonesia and Solomon Islands. The largest threats to the Philippines are increasing temperatures, storm occurrences and precipitation, leading to greater and more floods.</p> <p>Like in other island countries, La Niña events trigger a more erratic precipitation pattern and correlate closely with flooding events. With a rise in frequency of severe storms and climate events, the number of rainy days in the Philippines has increased overall since the 1990s. Between 1971 and 2000, the mean annual temperature increased by 0.14°C, with a higher rate of increase occurring after the 1970s.⁵¹</p>	<p>The Philippines faces an unprecedented number of cyclones, storm surges, floods, and sea-level rise, all exacerbated by the amount of foreign aid the country depends on. These natural disasters and the rising sea level causes damage to the reef systems and coastal mangroves, having detrimental effects on people and their economic stability. 74% of the country's population is</p>	<p>This project will help The Philippines address the impacts of climate change by making an array of tools available to communities. These tools and multi-country platforms will provide support and information to aid in managing and utilizing coral reefs and associated ecosystems for protection and sustenance.</p>

⁵⁰ Federated states of Micronesia, Second National Communication to the United Nations Framework Convention on Climate Change, 2014

⁵¹ Folland, C.K., J.A. Renwick, M.J. Salinger, N. Jiang, and N.A. Rayner, 2003: Trends and variations in South Pacific Islands and ocean surface temperatures. Journal of Climate., 16, 2859-2874 and Folland, C.K., J.A. Renwick, M.J. Salinger, and A.B. Mullan, 2002: Relative influences of the Interdecadal Pacific Oscillation and ENSO on the South Pacific Convergence. Zone. Geophysical Research Letters, 29, 21-1-21-4

Country	Climate Change Risk	Impacts on Coasts and Reef	How Is the Project Addressing This?
		exposed to multiple climate threats at any given time. ⁵²	
Tanzania and Madagascar	<p>The West Indian Ocean has been identified as a global “hot-spot” for climate change, affecting all countries bordering this ocean. Tanzania and Madagascar are experiencing climate change risks in the form of increase in cyclone events and intensity, changes in rainfall patterns resulting in floods, sea-level rise, increasing temperatures, changes in current movements, and worsening of water resource deficits in some places, leading to very intense drought.</p> <p>Precipitation patterns have become more erratic in Tanzania and Madagascar and can result in sudden heavy river flows which cause flooding. Changes in the El Niño Southern Oscillation and the Indian Ocean Dipole can also cause flooding. These events lead to sediment input, soil erosion and run-off into nearshore marine habitats ultimately causing degradation of coastal zones. Sea-level rise in the Indian Ocean around Madagascar and Tanzania has been recorded to be three times that of the global average, increasing as much as 10mm per year. Regional currents such as the Agulhas Current system have been warming because of abnormally high trade wind speeds that are linked to storm systems. The current system has warmed by 1.5°C since the 1980s.⁵³</p> <p>The Indian Ocean has seen a mean temperature increase of 1°C since 1950.</p>	Climate and weather-related changes to current systems could greatly impact the productivity of the coastal reefs and fisheries within those areas. Coupled with floods and an increase in cyclone or storm activity, the surrounding communities are highly vulnerable to climate change risks. The communities most at risk are those dependent on fisheries, aquaculture, and ecosystem services.	Coastal Reef systems will benefit from the increased community involvement that this project will support. Communities will aid in monitoring the reefs and build capacity in management and protection of coastal zones. Stakeholders will learn how to access and utilize information and data gathered from a global platform, while national strategies will be created to govern future conservation efforts.

⁵² GFDRR Country Profile for the Philippines

⁵³ Union of Comoros, France, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa, United Republic of Tanzania, A Strategic Action Programme (SAP) for Sustainable Management of the Western Indian Ocean Large Marine Ecosystems. ASCLME.org, 2014

COVID-19 Risk Analysis

Risk category	Potential Risk	Mitigations and Plans
<p>Availability of technical expertise and capacity and changes in timelines</p>	<p>Continued or renewed efforts in COVID-19 containment are likely over the course of project implementation.</p>	<p>The project will continue to draw on remote working tools to support and engage with teams (building on experiences gained over the last two years). This includes the use of virtual communication tools and platforms such as mural, miro, conceptboard etc.</p>
	<p>It is anticipated that for some countries it will be difficult to access government capacity while they are focused on COVID-19 containment or recovery. This is true for most of the project countries, especially Philippines and Indonesia, but also for Fiji and Solomon Islands where additional factors affect connectivity and availability of staff (e.g., cyclones).</p>	<p>Relevant government agencies were closely involved during PPG and expressed support for this project to move forward despite the challenges that COVID-19 has brought to these countries.</p> <p>In addition, a key criterion for the selection of NTFs is a well-established presence in the country with positive relationships with the relevant government agencies. NTFs will continue to work closely in country with governments with support from the WWF country offices. This will ensure that the project is aware of the realities of each country and enable the teams to work with the guidance of government and other stakeholders to adapt and adjust as required to realize intended outcomes.</p>
<p>Stakeholder engagement process</p>	<p>COVID-19 restrictions may limit abilities to effectively engage with stakeholders – particularly local communities (as a result of, for example, travel restrictions)</p>	<p>Local level consultation will only be undertaken in compliance with national to local government guidelines and the Lead executing agencies guidelines. This may involve, for example, ensuring that meetings involve small group sizes, the use of rapid testing, and PPEs.</p> <p>Additionally, the PMU will develop guidance on COVID protocols to be adapted for use in each country and required for National Hubs.</p> <p>In all cases, continued attention will be given to ensuring the voices of IP, women, youth, and any underrepresented community members.</p>
<p>Future risks of similar crises.</p>	<p>It is possible that COVID-19 impacts lead more people to move to rural areas, including areas around the project reef sites, and this may add more pressure to resources there.</p>	<p>This potential increased pressure to climate refuge coral reefs will be taken into consideration during the threat analysis carried out under activity 2.2.1 and will inform priority measures in the national action plans.</p>

3.5 Consistency with National Priorities or Plans

Fiji		
5-year & 20 Year National Development Plan	The 20-Year Development Plan provides the forward-looking vision for “Transforming Fiji” towards an even more progressive, vibrant and inclusive society. It outlines a framework that encompasses strategic policy maneuvers, new approaches to development and the aspirations of all Fijians. The Fiji NDP highlights the underlying theme of inclusive socio-economic development, which ties into this project as communities will be provided with increased technical capacity to mobilize investment opportunities.	Ministry of Economy, Republic of Fiji / 2017
National Adaptation Plan A pathway towards climate resilience	The NAP provides a clear vision for adaptation and identifies priorities to be addressed in partnership with academic institutions, development partners, and private sector entities over the next five years, and beyond. It addresses vulnerabilities identified by the Climate Vulnerability Assessment and adopts the values and principles of the NAP Framework. The Fiji NAP aims to improve climate change information management and increase Fijian’s ability to predict and respond to climate events. This project will help achieve these goals through creating knowledge management tools, technical assistance and better threat analysis.	Government of the Republic of Fiji/ 2018
Fiji NDC Implementation Roadmap 2017-2030	Fiji’s current Nationally Determined Contribution (NDC) is specific to the energy sector both in terms of a GHG (greenhouse gas) baseline, with 2013 as the reference year, and in terms of potential mitigation actions. The goal of the NDC Implementation Roadmap 2017-2030 is to provide a temporal pathway with concrete mitigation actions and financing needs to achieve the transformational change called for under the NDC. This project will build capacity within local communities to understand and adapt to climate threats.	Fiji’s Ministry of Economy with the Global Green Growth Institute / 2018
Climate Vulnerability Assessment	The Fiji Climate Vulnerability Assessment was implemented with the objective to carry out a climate vulnerability assessment for Fiji and develop recommendations to inform Fiji’s investment planning process. The initiative helped inform the national development priorities, and its investment and development plan for the next 5, 10 and 20 years. The project might also strengthen Fiji’s Nationally Determined Contribution (NDC). The Climate Vulnerability Assessment for Fiji highlights the likely increase in extreme weather events, which lead to a large loss in income and assets for vulnerable communities. This project will increase the ability to deal with extreme weather events and recover financially with the help of long-term sustainable financing.	Government of the Republic of Fiji, 2017. Support of World Bank Group and GFDRR.

<p>Fiji's Intended Nationally Determined Contribution for UNFCCC</p>	<p>Fiji submitted their Intended nationally determined contributions (INDC) to the UNFCCC Secretariat on the 5th of November 2015. No further revisions were undertaken, and the same document was endorsed and submitted as the First nationally determined contributions on 22nd April 2016. Within the Adaptation goals in Fiji's NDCs are several key actions that this project will support such as increasing the understanding of impacts of climate change and helping to preserve livelihoods through understanding reef protection.</p>	<p>Government of the Republic of Fiji Islands, 2015.</p>
<p>National Biodiversity Strategy and Action Plan for Fiji 2020-2025</p>	<p>The Fiji National Biodiversity Strategy and Action Plan 2020-2025(NBSAP) is a national policy document recognized under the Environment Act 2005. The NBSAP is also a requirement for all parties to the Convention on Biological Diversity. This policy document prioritizes conserving biodiversity which will be achieved through this project by increasing community capacity to analyze and plan for marine protection.</p>	<p>Government of Fiji, 2020</p>
<p>Environment and Climate Adaptation Levy (ECAL)</p>	<p>The Government of Fiji's source of tax revenue is dedicated to climate resilience, which is a consortium of taxes on prescribed services, items and income. The ECAL is mandated to fund work across Fiji to support economic, community, and infrastructure adaptation to the worsening impacts of climate change, as well as protect the natural environment and reduce Fiji's carbon footprint. This project will be supporting ECAL efforts by providing resources for communities to increase adaptation to climate risks.</p>	<p>Government of Fiji, 2019</p>
<p>Climate Change Act 2021</p>	<p>The primary purpose of the Climate Change Act is to implement Fiji's international commitments and obligations to reduce its carbon dioxide and other greenhouse gas emissions. Hence, this support to national planning and legislation will be particularly valuable for Fiji to achieve its NDC targets, especially in the context of carbon markets. The Act declares a climate emergency, creates new government bodies tasked with meeting emission targets, creates new criminal offenses, and paves the way for regular review processes for existing policies and new policies to address climate related issues or to reduce/adapt to the impacts of climate change. These new climate change policies include an Oceans Policy for Fiji and a 10-year moratorium on seabed mining. By putting in place a framework to deal with climate change and its impacts in a coherent way the Act has wide-ranging implications. For instance, it lays the foundation for carbon pricing and trading mechanisms to be introduced in the future. The Climate Change Act requires the disclosure by companies and state-owned entities of their exposure to climate risks and the measures they are taking through investment decisions to reduce them. It consolidates previous policy announcements on plastics and marine protection.</p>	<p>Government of Fiji, 2021</p>

Solomon Islands		
Solomon Islands National Development Strategy (2016-2035)	<p>National Development Strategy 2016-2035 (NDS) aims to achieve an improvement on social and economic livelihood of all Solomon Islanders.</p> <p>The NDS recognizes that Solomon Islands needs to respond effectively to climate change and the increasing frequency of storm surges and floods. It identifies the importance of effectively managing the environment and risks of natural disasters. The successful implementation of the NDS will lead to sustainable and inclusive economic growth, increased investment opportunities for all Solomon Islanders, alleviation of poverty and improved food security, sustainable environment and contributing to climate change mitigation.</p> <p>The NDS includes a standalone objective for Climate change with an emphasis on disaster risk management and mitigation.</p>	
UNFCCC Solomon Islands National Climate Change Policy (2017-2020) (outdated):	<p>This document sets the Solomon Islands' Climate Change Policy for the period 2012-2017. It aims to ensure that the people, environment, and economy are resilient and able to adapt to the predicted impacts of climate change. This policy recognized the IPCC report 2007 stating that coral reefs will be greatly impacted in small islands states such as Solomon Islands. The guiding principle to ensure adaptation measures are informed by the best international research and local traditional knowledge is well aligned to Component 1 of the GEF CRR project. Priorities in this policy include strengthening coordination of limited climate change work across the country. It outlines the existing institutions that require capacity building and strengthening, this includes the Climate Change Division within the Ministry of Environment. This aligns well with Component 2 of the GEF CRR project</p>	
UNFCCC National Determined Contribution for Solomon Islands	<p>The Solomon Islands National Determined Contribution for the UNFCCC mention that the country contains over 900 volcanic islands and coral atolls that provide shelter for 600,000 inhabitants. The reefs provide fisheries and marine resources which make up a significant portion of the country's economy. Extreme weather events linked to climate change have caused higher tides which are systemically eroding and degrading coral reefs.</p>	Solomon Islands Government, 2015
Solomon Islands National Adaptation Programs of Action (NAPA) 2008	<p>The NAPA provides an analysis of the vulnerable sectors and immediate adaptation needs for Solomon Islands. It highlights priority sectors for investment, including, agriculture and food security; water supply and sanitation; education, awareness, and information; human settlements; and human health. The NAPA, however, only mentions the marine sector in terms of the impacts of climate variability on inshore and tuna fisheries.</p> <p>The NAPA points out that climate impacts will continue to exacerbate the current challenges in the Solomon Islands and prioritizes building the strengths of existing institutions (e.g., Climate Change</p>	

	<p>Division), highlighting the following:</p> <ul style="list-style-type: none"> - Out of date or non-functional legislation and policies related to most sectors means that there is already an unclear framework within which to operate. While this is a limitation it could also be an opportunity as climate change could be integrated into the reviewed versions. - Lack of human capacity and in most cases financial capacity to undertake current work is already a major limitation to current work programs - Lack of coordination within the sectors is a theme that is reflected in most sectors, in part due to weak government frameworks and capacity constraints. - There is a lack of awareness on climate change in general, and its impacts on the specific sectors across all levels of the government and the public. - Lack of specific information and data on current and future vulnerability and risks across the country and across the sectors is hindering meaningful action on climate change <p>Key priority actions relevant for the WWF CRR are: -</p> <ul style="list-style-type: none"> - Increase the adaptive capacity and resilience of key vulnerable sectors - Promote climate change education and information dissemination 	
<p>UNCBD National Biodiversity Strategic Action Plan (NBSAP 20016-2020) (outdated):</p>	<p>This document sets the Solomon Islands' strategy and implementation actions for biodiversity conservation. It aims to ensure that the national biodiversity can cope with climate change effects. The NBSAP includes coral reef ecosystems as key contributors to Solomon Islands' biodiversity, stating that these coral reefs are one of the most marine biodiverse regions in the world (TNC REA 2004). However, it also recognized there may be a drastic decline in the extent and state of the reefs, but this is not known due to lack of regular assessments. This document recognized the impact of climate change on the coral reef systems however, there is no mention of managing climate refuge coral reefs as an adaptation measure.</p> <p>Main priorities of the policy that align with the GEF CRR project are;</p> <ul style="list-style-type: none"> - Theme 3: Protected Area systems: Establish sustainable livelihood alternatives through research into sustainable livelihood options, market research, incentives such as micro-financing and deliver small business trainings - Theme 6: Financial resources: Establish sustainable financing mechanisms so that biodiversity is managed - Theme 7: Human Resources and Capacity Building: Empower stakeholders to effectively participate in biodiversity management 	

Program of work on Protected Areas (PoWPA) for the Solomon Islands (within the NBSAP)	Program of work on Protected Areas uses Traditional and Cultural Management practices and Institutional and legislative framework to protect 40% terrestrial / inland waters and 60% marine area within the protected areas of Solomon Islands. 90% of the population of Solomon Islands inhabits coastal areas and heavily rely on fish for their main protein source. This plan focuses on Unsustainable Fishing Practices as well as Climate Change to protect reef systems.	Ministry of Environment, CC, Disaster Management & Meteorology, 2016
Indonesia		
National Mid-Term Development Plan 2020-2024	Coral reef conservation and restoration is prioritized under the National Development Agenda No. 6 Environmental Management, Increasing Disaster Resilience, and Climate Change. The development plan guides all actions on policy, program, and activities of the government. The proposed PIF activities align and support the implementation of the Mid Term Development Plan, in particular component 3 that will enable economic/livelihood activity based on coral reef health.	MMAF, 2020
SDG Goal 14 – Life Below Water	Under the Goal 14, there are two closely related with coral reef i.e. protect and restore ecosystem and conserve coastal and marine areas. Under this goal, Indonesia prioritizes coral reef protection under MPAs and restoration through the coral garden approach	
First Nationally Determined Contribution Republic of Indonesia	The Nationally Determined Contributions will be achieved by: <ul style="list-style-type: none"> - Employing a landscape approach: Recognizing that climate change adaptation and mitigation efforts are inherently multi-sectoral in nature, Indonesia takes an integrated, landscape-scale approach covering terrestrial, coastal and marine ecosystems. - Highlighting existing best practices and scale up the diversity of traditional wisdom - Mainstreaming climate agenda into development planning - Promoting climate resilience in food, water, and energy. The CRR project will also build upon traditional knowledge and wisdom, to further the landscape-scale plan for conservation.	UNFCCC, 2016
Indonesia's National Action Plan on Climate Change Adaptation (RAN-API)	The National Action Plan identifies two key areas of climate change and their impacts on livelihoods; increases in sea level and changes in weather, climate, and rainfall. The plan will address these threats through budget policy reform, development of socio-economic policies, and social-culture transformation to address climate change among other interventions. The CRR project will support the NAP by engaging local communities in climate change knowledge sharing and practices to best adapt to the increasing pressures.	State Ministry of Environment, 2007

Improvement of maritime and marine management	Improvement of maritime and marine management carried out by making Fisheries Management Area (WPP) as spatial basis in the development and utilization of marine affairs and fisheries, which includes strategies: <ol style="list-style-type: none"> 1) Improve the management quality of WPP and its institutional arrangements in accordance with sustainable principles, marine spatial planning and coastal zoning plans. 2) Manage marine ecosystem and sustainable use of marine services, and management of marine area. 3) Increase production, productivity, standardization, and quality of marine and fishery products including fish, seaweed and salt. 4) Improve business facilitation, financing, technology and markets; protection of small-scale marine and fisheries business and access to resource management. 5) Improve competence, human resource capacity, technological innovation, and research in maritime and marine, as well as strengthening the marine and fisheries database. 	Indonesia National Medium Term Development Plan, 2020-2024
The Philippines		
Philippines Intended Nationally Determined Contributions	Republic of The Philippines Communicated their Intended Nationally Determined Contributions to the UNFCCC in October 2015. As a country highly vulnerable to climate and disaster risks, mitigation measures as presented in the INDC will be pursued in line with sustainable development and a low-emission development that promotes inclusive growth. The CRR Project supports the contribution of the Philippines by increasing national capacity in handling climate threats and risks.	UNFCCC, 2015
Updated Philippine Development Plan 2017-2022	The activities of the project will support the priority thrusts identified under the Updated PDP, especially on modernizing the habitat monitoring and impact evaluation of management interventions, and increasing resilience of communities through provision of sustainable livelihood and economic opportunities, among others.	National Economic and Development Authority, 2017
National Integrated Protected Area System or NIPAS Act	The National Integrated Protected Area System includes "outstandingly remarkable areas and biologically important public lands that are habitats of rare and endangered species of plants and animals, biographic zones and related ecosystems, whether terrestrial, wetland, or marine". All such areas shall be designed as "protected areas".	Department of Environmental and Natural Resources, 1992
The Strategic Environmental Plan (SEP) for Palawan Act or Republic Act No. (RA)	The Strategic Environmental Plan (SEP) for Palawan Act or Republic Act No. (RA) 7611 of 1992 provides for the adoption of a comprehensive framework for the sustainable development of Palawan, compatible with protecting and enhancing the natural resources and endangered environment of the province. The national vision and action plan for climate refuge reefs developed under Component 2	

7611 of 1992:	of the GEF CRR project will need to refer to the SEP.	
Madagascar		
Ministry of Environment and Sustainable Development Strategic Priorities	<p>The 6 strategic priorities of the Madagascar Ministry of Environment and Sustainable Development are:</p> <ol style="list-style-type: none"> 1. Reforestation, biodiversity conservation, and ecosystem restoration 2. Sustainable and improved renewable natural resources governance, notably for the benefit of local communities 3. Green and blue economies, sustainable development with consideration for waste management 4. Information, Education and Communications: integration of Environment in school curriculum 5. Environmental diplomacy 6. Climate change and renewable energy <p>This CRR GEF project will support the ministry's priorities by providing educational tools and resources to further understand marine planning and management.</p>	Ministry of Environment and Sustainable Development, 2020
Sydney Promise Commitment Implementation Process (<i>in progress</i>)	At the World Parks Congress held in Sydney in 2014, Madagascar pledged to triple the number of its marine protected areas	Ministry of Environment and Sustainable Development, 2014
The General policy of the Government of Madagascar («Politique Générale de l'Etat » - PGE)	<p>The primary objective of the PGE is to build a strong nation, prosperous, and cohesive, for the pride and well-being of all Malagasy. The pillars are:</p> <p>Peace and security, Energy and water for everyone., Fight against corruption: with zero tolerance, all responsible/officials need to become a model of integrity and uprightness, Education for all, Health: is an inalienable right for all citizens, Decent employment for all, Industrialization, Tourism industry, Food self-sufficiency, Sustainable management and conservation of natural resources, Promotion of housing and upgrading, Autonomy and empowerment of local and regional governments, Sport, Culture: construction of museums and rehabilitation of cultural and historical heritages.</p> <p>The CRR GEF project will support the delivery of Madagascar's PGE by strengthening national capacity and sharing knowledge across all relevant stakeholders on reef conservation and better management of marine natural resources.</p>	The Government of Madagascar, 2019
National Policy to Combat	The national policy aims to strengthen the fight against climate change in the country, and in this	

Climate Change Being updated	<p>sense, serves as a reference for actions to be undertaken. It also gives the main orientations of the fight against climate change focused on implementation strategies. It thus makes it possible to encourage investors and technical and financial partners in the field of climate change.</p> <p>The implementation of Madagascar's climate change policy requires measures, based on five axes: adaptation, mitigation, mainstreaming of climate change at all levels and in all sectors, development of instruments of sustainable financing, and the promotion of research, development and transfer of technologies and adaptive management.</p> <p>The CRR GEF project will contribute to the implementation of Madagascar's national CC policy by strengthening national capacities and sharing knowledge among all relevant stakeholders on the consideration of climate change in reef conservation and better management. marine natural resources.</p>	
National Biodiversity and Action Plans 2015-2025	<p>NBSAP that calls for more extensive and effective protection of Madagascar's marine and coastal biodiversity. This will be accomplished by developing and implementing strategies to minimize the various pressures (anthropogenic or climate) on marine and coastal ecosystems, including coastal forests and their associated neighboring habitats. The plan also involves strengthening and encouraging the use of local techniques, which this CRR project would promote through consultations with stakeholders, particularly on traditional cultural knowledge.</p>	Convention on Biological Diversity, 2016
Madagascar's Nationally Determined Contributions Being updated	<p>Madagascar is among the top-ten countries in terms of coastal zones' extent. It also hosts a significant part of the Northern Mozambique Channel transnational area which represents the world's 2nd marine biodiversity hotspot (after the Coral Triangle area). The island frequently experiences extreme weather events that importantly affect its national economy and population's livelihood. In terms of NDCs, the Republic of Madagascar is then equally committed to contribute to mitigate climate change, as well as to reduce climate change vulnerability and promote adaptation measures. The CRR Project will support Madagascar in that regards by strengthening national institutions' capacity on coral reefs and associated marine ecosystems, which will be key in contributing to key priority actions defined in its NDCs (references to the reinforcement of natural protection and reduction of the vulnerability of coastal, inshore and marine areas affected by coastal erosion and receding shorelines progress, and to the formulation and implementation of the national policy of the maritime territory of Malagasy, considering climate change).</p>	The Republic of Madagascar/ME DD 2015
Climate Change Environment Research Master Plan 2015-2019	<p>While the plan is outdated, it is an important point of reference for the development of the national action plan for climate refuge reefs. In particular, the emphasis on multi-disciplinary research as well as indigenous adaption and mitigation practices.</p>	Ministry of Higher Education (Universities) and Research, 2015

Ministerial Decree n°21816-2014 regarding harvest ban on black corals (Antipatharia sp.) at national level	Through its Ministry of Fisheries, Madagascar has strictly forbidden any form of harvesting and use of black corals, notably its extraction, collection, storing, transportation, purchase and selling, on its entire territory. The CRR project will generally contribute to raise the importance of corals in the country, and thereby contributes to its conservation and sustainable use of coral areas.	Ministry of Fisheries, 2014
Tanzania		
United Republic of Tanzania National Adaptation Programme of Action	The main objectives of Tanzania's NAPA that are directly supported by the CRR project are: <ul style="list-style-type: none"> • Protect life and livelihoods of the people, infrastructure, biodiversity and environment; • Increase public awareness to climate change impacts and adaptation activities in communities, civil society and government officials; supported through toolkits provided by this project • To assist communities to improve and sustain human and technological capacity for environmentally friendly exploitation of natural resources in a more sustainable way in a changing climate; • To complement national and community development activities which are hampered by adverse effects of climate change; 	UNFCCC, 2007
Tanzania's Intended Nationally Determined Contributions	The NDCs for Tanzania will be implemented by 2030. The Reef, Coastal and Marine contributions were listed as: Strengthening management of coastal resources and beach erosion/sea level rise control systems. b) Promoting livelihood diversification for coastal communities. c) Improving monitoring and early warning systems of both sea level rise impacts and extreme weather events for building adaptive capacity. d) Enhancing program for management of saltwater inundation and intrusion. e) Mangrove & shoreline restoration program. f) Enhancing conservation & fishery resource management. g) Strengthening key fisheries management services for sound development and management of the fishery sector for resilience creation. The CRR project will help achieve these contributions by providing marine management guidance and increasing community involvement.	UNFCCC, 2015
Tanzania National Climate Change Strategy	The National Climate Change Strategy, developed the support the Tanzania Development Vision 2025, focuses on cross-cutting issues, including the establishment and implementation of awareness creation programs, establishment of adequate research capacity, building sufficient capacities of social facilities to address climate change related health risks and promoting effective documentation of indigenous knowledge on climate change adaptation and mitigation in diverse sectors. The CRR project will highlight indigenous knowledge and cultural understanding of climate change threats, in alignment with the National Climate Change Strategy.	United Republic of Tanzania VP Office, 2012

Tanzania National Environment Management Act	The National Environment Management Act is an Act to provide for a legal and institutional framework for sustainable management of the environment; to outline principles for management, impact and risk assessments, public participation, compliance and enforcement; to provide basis for implementation of international instruments on environment; to provide for implementation of the National Environment Policy. Some aspects of this act, for example, the Promotion of coastal environmental zones, will be supported by the CRR project through the provision of management plans and resources to better protect the habitats.	National Environment Management Council,2004
National Trade Policy (2003)	The goal of Tanzania's National Trade Policy is to facilitate smooth integration into the Multilateral Trading System (MTS) and roll back the gradual descent towards marginalization. It is intended to ensure that liberalization offers meaningful, identifiable, and measurable benefits. Relating to the project, the National Trade policy has a component of building capacities and skills that depends on human skills development and institutional capacity building, transformation of production systems and overall private sector development.	

3.6 Innovativeness, Sustainability & Potential for Scaling up

3.6.1 Innovation

This project operationalizes the inclusion of climate change by identifying well connected reef regions that have a low exposure to climate change. This is novel as no other investment has strategically interwoven climate change into a decision-based system that seeks to preserve coral reefs on a global scale (Beyer et al 2018, Hoegh-Guldberg et al 2018). In this regard, the Global Coral Reef Rescue Initiative partners have adopted an innovative and novel framework to identify coral reef areas that will create a foundation for giving coral reef ecosystems, and the people they support, the best chance to remain ecologically healthy and productive.

The identification of reef sites (Bioclimatic units, Beyer et al 2018) is driven by the following objectives: a) Coral reefs refugia (these are the places most likely to provide a source of regeneration once the climate has stabilized based on Beyer et al., 2018) This analysis alone was highly innovative in that it adopted an approach developed in economics and applied portfolio theory to coral reef data allowing the selection of a portfolio of sites most likely to survive a 1.5 degree increase in temperature in the future as well as highly connected, increasing their ability to repopulate other reefs in the region; b) Those places where high dependence on coral reefs for food security and livelihoods exists (because this is where there is the most to lose and therefore the greatest urgency); c) Those places where the capacity to respond is the lowest (because this is where civil society has the greatest role to play); and d) Where local stressors threaten coral reef health (and therefore where local action can build reef resilience).

3.6.2 Sustainability

The project has been designed through a series of participatory workshops that have included key stakeholders in each of the participant countries. The project strategy is to create capacities in the relevant institutions and key stakeholders for coral reef restoration in the 6 countries (plus Cuba through co-financing), to be able to monitor coral reef health and identify the best solutions for tackling coral reef threats in each country. By focusing on creating capacities in competent institutions and communities at country level the project will ensure long term sustainability. The project will address the following key parameters of sustainability:

Institutional Sustainability:

Through the participatory design process followed in the preparation of this project, the ownership and involvement of all key government agencies is secured. As the officially designated agencies for this area of work, participating agencies' mandates stretch beyond the period of the project, ensuring continuity. This will ensure that experiences, lessons learned, and best practices generated by the project are maintained within the communities, NGOs, and government structures. The project has broad support from a large group of governments and NGOs that are 'on the same page' on an issue that has vexed scientists and frustrated reef managers up until the present day. The National Hubs will provide a long-term mechanism to all for coordinated approaches to the conservation and management of coral reefs amongst this diversity of actors and stakeholders.

Financial Sustainability:

The project has a specific component on financial solutions for Coral Reef rescue, to ensure increased financial flow to the national strategies, developed in Component 2, towards reducing the main threats to

coral reefs in each country. Furthermore, this proposal focuses on developing sustainable livelihood pathways and sustainable private business portfolios (to relieve the pressure on coral reefs and offer sustainable and alternative sources of income and livelihoods, attracting impact investment). The project will support the enactment of essential enabling conditions for both public and private finance mechanisms to contribute to coral reef resilience through direct sustainable financing and through better alignment of private and public interests.

Social sustainability:

The engagement of non-governmental stakeholders, including communities and the private sector is a key factor in assuring the long-term sustainability of GEF investments. In this regard, under Component 2, the project will place special emphasis on ensuring the participation of these two stakeholder groups in national stakeholder platforms, the National Hubs, for the development of the national strategies for coral reef conservation. Special attention will be placed to ensure national strategies capture traditional knowledge for coral reef conservation from local communities. Sustainable and gender responsive livelihood pathways and private business opportunities will be identified, to ensure incentives and benefit sharing systems, that are crucial for the long-term engagement of local communities and the private sector.

3.6.3 Project strategies for Scaling up

Replication and diffusion

The project has a strong approach on knowledge management to ensure sharing of best practices for coral reef monitoring and conservation. Successful local scale innovations will be replicated in other sites where such an intervention may also be successful. Successful models can also be replicated through diffusion of ideas through facilitating cross learning between these communities and the global knowledge networks under Component 1 and through IW Learn.

Scaling up through unlocking resources –

To unlock resources to enable an on-ground response to support reefs and dependent communities' successful transition to a new climate regime.

The project will provide technical assistance to support countries to unlock public financial resources towards the implementation of national strategies to reduce coral reef threats. The project will also support local stakeholders to develop an investment portfolio of business cases that blend both public and private sector finance, aligned to the reef resilience strategies. Through the thorough analytical and future-oriented approach described above, the project will build the confidence of both public and private sector investors that they are likely to see social, environmental as well as financial returns on their investments while the use of blended finance will assist in mitigating the financial risk. The project will explore options for using existing and/or building new investment vehicles that can support return generating activities that protect coral reefs.

Scaling through shifting the mindsets of the public and key policy makers -

To highlight the implications of coral reef loss for economies and human well-being through political champions in contexts where the effects are most felt to enable scaling up through unlocking in key policy commitments to motivate on ground action.

3.7 Lessons learned during project preparation and from other relevant projects

The following lessons were identified through a review of project documents of GEF supported initiatives of relevance to the Coral Reef Rescue (CRR) Initiative.

3.7.1 Lessons with regards to Project Design and Management

Ownership and support within countries at all levels is essential and must be integrated into design of the project and reflected in resource allocations as well as the underlying principles and values of the initiative. While this has been well established and known across conservation and development initiatives, several terminal evaluations reviewed identified this as a significant obstacle to success. Good practices identified in this regard included the following:

- Decentralization of resources and decision making to the lowest level, to the extent possible
- Establishing of a strong institutional foundation (such as steering committees, advisory groups etc.) which provide a platform for stakeholders from multiple interest groups to engage meaningfully in planning, implementation, monitoring, learning, and decision making
- Identifying and engaging the *right* institutions – at regional, national, and local levels (taking into consideration mandates, interests, and influence)
- Identifying and engaging *influential* champions (e.g., from within national governments, traditional authorities, and regional entities)
- Ensuring that the alignment with national and local priorities is clearly articulated and communicated

Multi-country, partner and stakeholder initiatives can often be complex and challenging. As such, project design needs to be realistic (and avoid over-promising), based on an in-depth understanding of the context, considering lessons learned and factoring in realities such as logistics (e.g., distances), institutional environments (including government administrative and financial procedures, stakeholder relationships) and capacities (stakeholder capacities to deliver, time, budget, and other resources). Lessons around managing complex projects include:

- Ensuring that there is clarity amongst all actors and stakeholders of the aspirations and expectations from the initiative. It is important to take the time at the onset of the initiative to bring everyone onboard
- Rights, responsibilities, and expectations of partners need to be collectively discussed and negotiation, and then codified
- Mechanisms and modalities for identifying and prioritizing activities in line with the existing realities as well as project aspirations should be integrated into the project management cycle
- Governance mechanisms should be as adaptive and agile as possible, to allow for quick decision making
- Risks as well as counter measures need to be well thought through during design and carefully monitored and updated during implementation.
- While projects are often required to identify risks and mitigation measures, they do not always form an integral part of project management processes.

3.7.2 Lessons on Knowledge Management & Capacity Strengthening

Bottom-up approaches are valuable and important. These include ensuring that there are meaningful spaces for local communities to engage in planning, decision making, learning and implementation as well as dedicated capacity strengthening efforts to enable them to effectively use these spaces. In addition, it is important to invest in changing mind-sets and building awareness and understanding of the value of natural resources, marine protected areas, and sustainable use. **However, bottom-up approaches in themselves are unlikely to be sufficient. It is equally important to ensure that provincial, national, and regional governance structures are engaged, institutionalized, and support upscaling of models and approaches used.** In several projects, success as well as sustainability was hindered by inadequate efforts in ‘anchoring and lobbying at regional and national levels’.

Awareness raising is better realized by active efforts, such as campaigns, workshops and seminars and can strengthen long-term support and promote effectiveness as well as sustainability. However, **uptake of knowledge and shifting behaviors requires time, reinforcement, and repetition.** This can be supported by applying knowledge, demonstrating tangible benefits – informed by an in-depth understanding of context and underpinned by trusted relationships with stakeholders.

Initiatives that combine both research as well as development objectives need to **ensure that the development (and conservation) objectives are kept in focus during design as well as implementation.** In a few of the projects reviewed, this focus was lost for reasons such as *“capture by researchers who measure success by research world outputs (publications, promotions...) ...rather than the community-level outcomes...”*.

3.7.3 Lessons with regards to Planning

Successes were realized in projects that approached the conservation and management of coral reefs as “an integral part of community development rather than a compartmentalized problem” as well as those that adopted a comprehensive and holistic approach. The latter included integrating aspects such as awareness raising, training, education, economic and social welfare, research, monitoring and proactive management.

The use of targeted research, focused around the *‘right questions’* for particular management or policy challenges can add significant value. Evidence informed decision making can also “lend credibility and accountability to decision-making and has the potential to generate the political will needed to make tough trade-offs between conservation and intensive use”.

Plans should be informed by a comprehensive analysis of existing instruments in the country and the region (legal and institutional). Ideally, this analysis should be carried out through a participatory process, involving stakeholders including representatives of local, national and regional governmental institutions. This will ensure that plans can integrate and be aligned with existing priorities and plans as well as ensure ownership and support.

3.7.4 Lessons with regards to financial solutions

Ownership and engagement by the local community is central to success and income generating opportunities is one way of ensuring that there are meaningful incentives for them to take ownership of the project as well as providing a basis for financing options. However, these do need to be accompanied with adequate technical and financial support. In addition, close monitoring and adaptive management is essential

to ensure that income generating opportunities generate sufficient income and result in reduced pressure on the natural resource base (and do not, for example, simply form a supplementary source of livelihoods for local communities).

In one of the terminal review reports, **concerns were raised around the use of revolving funds as a mechanism to improve livelihoods**. It will be important to further understand experiences around the use of revolving funds in different contexts prior to their integration in project design:

“Revolving funds may not be the best mechanism to channel needed financing for livelihood transformation. Although intensive efforts to train and socialize community members in the concept of revolving loan funds, there was misunderstanding and misuse of the funds in some cases, and poor overall rate of repayment (60%). Globally, revolving funds have had limited success, and their sustainability is being revisited. Future efforts toward poverty alleviation through grant funds and credit must be designed in a way in which there is greater ownership and accountability by community members and adequate technical assistance to optimize use of these funds”.

3.7.5 Lessons with regards to multistakeholder processes

Organizations and actors are likely to actively engage in multi-stakeholder processes if there is clear added value for them to do so. Therefore, the design of multi-stakeholder processes should be based on an understanding of the interests, needs and realities of the different stakeholders. Lessons from similar projects show that incentives for effective engagement may include:

- The opportunity to participate in processes that have influence on policy, planning and resource allocations.
- Processes that are facilitated to ensure equal voice amongst participants.
- Trust and positive relationships between participants which can be strengthened by facilitating processes in a manner that ensures equal voice amongst participants and ensuring that information is easy to access.
- Clarity and transparency in operational and governance modalities.
- Building awareness of the wider public on the purpose and outcomes of the processes.

Ensuring that women and men from local communities and marginalized groups are aware of and have the confidence to engage is important in multistakeholder processes, particularly those related to the governance of natural resources.

Multistakeholder processes can be complicated, and it is important to ensure that sufficient time is invested into their design, nurturing relationships, and facilitating processes. It is equally important to involve participants in reflecting on experiences, lessons, and adaptive management so there is collective ownership. Processes are less likely to succeed if it is felt that ownership and responsibility for the success of the processes is not shared amongst all participants

Section 4 TECHNICAL APPENDICES

- 4.1 Appendix 1: Gender Action Plan
- 4.2 Appendix 2: Baseline initiatives
- 4.3 Appendix 3: Coordination with other initiatives
- 4.4 Appendix 4: National Hubs – Institutional arrangements at country level
- 4.5 Appendix 5: Technical Advisory Facilities
- 4.6 Appendix 6: Stakeholder Engagement Plan
- 4.7 Appendix 7: Project workplan
- 4.8 Appendix 8: Results Framework