



**United Nations Development Programme
Country: Tuvalu
PROJECT DOCUMENT¹**

Project Title: Implementing a ‘Ridge to Reef’ approach to protect biodiversity and ecosystem functions in Tuvalu (R2R Tuvalu)

UNDAF Outcome(s):

Environmental management, climate and disaster risk management, in support of an integrated approach to environmental sustainability and efforts by PICT governments and communities to adapt to climate change and reduce and manage disaster risk

UNDP Strategic Plan Primary Outcome:

Outcome 2: Output 2.5: Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use and access and benefit sharing of natural resources, biodiversity and ecosystems in line with international conventions and national legislation;

Expected CPAP/UNDAF Output (s):

Tuvalu UNDAF Outcome 1.1: National and local authorities and partners enhance resilience of vulnerable communities and natural ecosystems to threats, shocks, disasters, and climate change.

Output 1.1: Strengthened capacity of national and Falekaupule to develop and mainstream integrated policies on natural resources, environment, climate change, disaster risk reduction and management into national, sectoral, planning and budgetary processes,

Executing Entity/Implementing Partner: Ministry of Foreign Affairs, Trade, Tourism, Environment and Labour (MFATTEL)

Implementing Entity/Responsible Partners: DOE-MFATTEL, Ministry of Home Affairs and Rural Development (MHARD), Ministry of Natural Resources and UNDP

Programme Period:	5 years
Atlas Award ID:	00086015
Project ID:	00093437
PIMS #	5220
Start date:	June 2015
End Date	Dec 2020
Management Arrangements:	NIM
PAC Meeting Date :	January 13, 2015
LPAC Meeting Date:	January 23, 2015

Total resources required	19,443,435
Total allocated resources:	19,443,435
o GEF	3,762,844
o Dept of Rural Development	369,382
o Dept of Agriculture	500,000
o Dept of Environment	270,000
o Dept of Fisheries	13,400,000
o Solid Waste Agency of Tuvalu (SWAT)	1,091,209
o UNDP	50,000
o Total Co-financing	15,680,591

— NB: DRD and SWAT providing co-financing as AUD (1 AUD = USD 0.78)

¹ For UNDP supported GEF funded projects as this includes GEF-specific requirements

Brief Description

The objective of project, **“Implementing ‘Ridge to Reef’ approach to protect biodiversity and ecosystem functions in Tuvalu (Tuvalu R2R Project)”** is *“to preserve ecosystem services, sustain livelihoods and improve resilience in Tuvalu using a ‘ridge-to-reef’ approach”*. To achieve this objective, the project focuses on: enhancing and strengthening conservation and protected areas (Component 1); rehabilitating degraded coastal and inland forests and landscapes and supporting the delivery of integrated water resource management (IWRM) and integrated coastal management (ICM) at a national scale whilst piloting hands-on approaches at the island scale (on three selected pilot islands) (Component 2); enhancing governance and institutional capacities at the national, island, and community levels for enhanced inland and coastal natural resource management (Component 3); and improving data and information systems that would enable improve evidence-based planning, decision-making, and management of natural resources in Tuvalu (Component 4).

The project is part of the Pacific R2R program on *“Pacific Islands Ridge-to-Reef National Priorities - Integrated Water, Land, Forest & Coastal Management to Preserve Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods”*. It is consistent with three of the GEF-5 focal areas including Biodiversity, International Waters, and Land Degradation, and is designed to advance Tuvalu’s work towards achieving national and international priorities in these key focal areas through a comprehensive Ridge to Reef approach. As such, the project will deliver directly on: the Convention on Biological Diversity (CBD)’s Programme of Work of Protected Areas (PoWPA) of the Aichi Targets and the National Biodiversity Strategy and Action Plan (NBSAP 2012 – 2016); the UN Convention to Combat Desertification (CCD)’s National Action Programme (NAP); the Sustainable and Integrated Water and Sanitation Policy (2012 – 2021); and the Climate Change Policy and Action Plan².

Building on ongoing initiatives³, the project will work across the 9 islands of Tuvalu on assessing natural resources status (baseline analysis and data collection), rehabilitating damaged island and coastal ecosystems including forests, and improving or developing Locally Managed Marine Areas (LMMAs), including Marine Protected Areas (MPAs) governed by the 8 Kaupules and Falekaupules (Island Councils). These activities assist in the recovery of degraded corals and breeding of fish populations. By the end of the five year implementation, the project aims to: increase and enhance Tuvalu’s LMMAs, including MPAs, by 15% with 9 formalized community management systems of marine conservation areas across 9 islands equipped with functional management plans; enhance and/or develop a centralized GIS database system on biodiversity, natural resources, and governance systems; implement sustainable land management interventions and agroforestry interventions; carry out remedial measures for algal bloom in Funafuti Lagoon; mainstream Ridge to Reef⁴ into national policies and Kaupule budgets; develop and implement national standard operational procedure on knowledge management; and enhance awareness and build capacities on Ridge to Reef.

The whole of Tuvalu is considered within this R2R project. Only Component 2 focusing on integrated land and water management (LD and IW) are limited to one of, or all 3 islands of Funafuti, Nukufetau and Nanumea, whilst other Components include all 9 islands of Tuvalu. The project will directly benefit the 6,194 people living in the urban capital Funafuti (55% of the population) as well as two outer islands of Nanumea (556 inhabitants) and Nukufetau (540 inhabitants) with improved integrated water and land management measures. In addition, the project will indirectly benefit the livelihoods of the entire population of Tuvalu through the long-term impacts of the R2R approach and the enhanced management of inland and coastal resources through the additional/improved LMMA/MPA networks formalized in all 9 islands.

² Te Kaniava, National Adaptation Programme of Action (NAPA), and Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management 2012-2016 (NSAP)

³ Refer to Baseline Section for ongoing initiatives that the project will build upon.

⁴ Embodying integrated coastal management (ICM), integrated water resource management (IWRM) and sustainable land management (SLM)

Agreed by (Government): _____
Date/Month/Year

Agreed by (Executing Entity/Implementing Partner): _____
Date/Month/Year

Agreed by (UNDP): Date/Month/Year _____
Date/Month/Year

List of Acronyms

AWP	....Annual Work Plan
BAU	.....Business as Usual
CBOs	....Community-Based Organizations
CFW	....Cash for Work
CO	....Country Office
CSOs	....Civil Society Organizations
DFAT	....Department of Foreign Affairs and Trade
DoA	....Department of Agriculture
DoE	....Department of Environment (MFATTEL)
DoF	....Department of Fisheries
DMO	....Disaster Management Office
DRD	....Department of Rural Development
EA	....Executing Agency
EU	....European Union
FA	....Falekaupule Act (1997)
FAD	....Fish Aggregating Device
FAS	....Focal Area Set Aside
FTF	....Falekaupule Trust Fund
GEF	....Global Environment Facility
GoT	....Government of Tuvalu
GPS	....Global Positioning System
IA	....Implementing Agency
IAS	....Invasive and Alien Species
ICM	....Integrated Coastal Management
IDC	....Island Disaster Committee
IIB	....Integrated Island Biodiversity Project (SPREP 2014)
IPCC	....Inter-governmental Panel on Climate Change
ISP	....Island Strategic Plan
IWRM	....Integrated Water Resources Management
JICA	....Japan International Cooperation Agency
KPI	....Key Performance Indicators
LDCs	....Least Developed Countries
LDCF	....Least Developed Country Fund
LMMA	....Local Marine Managed Area
M&E	....Monitoring & Evaluation
MDG	....Millennium Development Goal
MoHARD	....Ministry of Home Affairs and Rural Development
MFATTEL	..Ministry of Ministry of Foreign Affairs, Environment, Trade, Labour and Tourism
MMA	....Marine Managed Area
MPA	....Marine Protected Area
MWCT	....Ministry of Works Communications and Transport
NACC	....National Advisory Committee on Climate Change
NAPA	....National Adaptation Programme of Action
NBSAP	....National Report on National Biodiversity Strategy and Action Plan
NGOs	....Non-Governmental Organizations
NSAP	....Tuvalu National Strategic Action Plan
PIC	....Pacific Island Country
PIR	....Project Implementation Review
PIU	....Project Implementation Unit
PCCSP	....Pacific Climate Change Science Programme (of the Australian Government)
PPG	....Project Preparation Grant
SDE	....Special Development Expenditures
SGP	....Small Grants Program
SLM	....Sustainable Land Management
SNAP	.....Tuvalu's National Strategic Action Plan for Climate Change and Disaster Risk Management
SNC	....Second National Communication
SOP	....Standard Operating Procedure
SPC	....Secretariat of the Pacific Communities

TATechnical Assistance
TANGOTuvalu Association of Non-Government Organisations
TKIITe Kakeega II
TMDTuvalu Media Department
TNCWTuvalu National Council of Women
TuCANTuvalu Climate Action Network
UNDPUnited National Development Program
UNFCCCUnited Nations Framework Convention on Climate Change
USPUniversity of the South Pacific
WBWorld Bank

List of Annexes

Annex 1:	Baseline Reports
Annex 1a:	Tuvalu Marine Life Synthesis Report 2012
Annex 1b:	Tuvalu Island Profiles 2013
Annex 1c:	Tuvalu Coastal Options and Feasibility Report 2014
Annex 1d:	LMMA Guide for Communities 2008
Annex 2:	Inception Workshop Report
Annex 3:	Stakeholder Consultation Report
Annex 4:	Island Profiles
Annex 5:	Stakeholder and Community Engagement Plan
Annex 6:	Capacity Assessment of Implementing Partners
Annex 6a:	HACT Assessment of Tuvalu Department of Environment 2014
Annex 6b:	HACT Assessment of Tuvalu Department of Fisheries 2014
Annex 7:	UNDP Risk Log
Annex 8:	Staff Terms of Reference
Annex 9:	Project Implementation Schedule
Annex 10:	Various Component Technical Details.
Annex 11:	UNDP Social and Environmental Screening Template
Annex 12:	Co-Financing Letters
Annex 13:	References

TABLE OF CONTENTS

LIST OF ACRONYMS.....	IV
LIST OF ANNEXES.....	VI
1. SITUATION ANALYSIS	1
1.1 INTRODUCTION	1
1.2 ENVIRONMENTAL AND DEVELOPMENT CONTEXT	2
1.3 SECTORAL, INSTITUTIONAL, AND POLICY CONTEXT	10
1.4 THREATS, ROOT CAUSES, AND IMPACTS.....	15
1.5 BASELINE ANALYSIS AND GAPS.....	20
1.6 LINKAGES WITH OTHER GEF AND NON-GEF INTERVENTIONS	25
2. STRATEGY	29
2.1 PROJECT RATIONALE AND POLICY CONFORMITY	29
2.2 COUNTRY OWNERSHIP: COUNTRY ELIGIBILITY AND COUNTRY DRIVENNESS	30
2.3 DESIGN PRINCIPLES AND STRATEGIC CONSIDERATIONS.....	32
2.4 PROJECT OBJECTIVE, OUTCOMES AND OUTPUTS/ACTIVITIES.....	36
2.5 PROJECT INDICATORS.....	57
2.6 RISKS AND ASSUMPTIONS.....	59
2.7 COST-EFFECTIVENESS.....	62
2.8 SUSTAINABILITY	64
2.9 REPLICABILITY	66
2.10 STAKEHOLDERS	67
2.11 SOCIAL AND ENVIRONMENTAL SCREENING.....	72
3. PROJECT RESULTS FRAMEWORK.....	74
4. TOTAL BUDGET AND WORK PLAN.....	ERROR! BOOKMARK NOT DEFINED.
4.1 BUDGET NOTES.....	89
5. MANAGEMENT ARRANGEMENTS	94
5.1 PROJECT ORGANISATION STRUCTURE.....	94
5.2 THE R2R PROJECT BOARD	97
5.3 PROJECT DELIVERY STRUCTURE	99
6. MONITORING FRAMEWORK AND EVALUATION	104
6.1 PROJECT MONITORING	104
6.2 LEARNING AND KNOWLEDGE SHARING	106
6.3 M&E WORKPLAN AND BUDGET	107
7. LEGAL CONTEXT.....	109

1. SITUATION ANALYSIS

1.1 Introduction

Tuvalu, formerly the Ellice Islands, is a group of atolls lying south of the equator in the western Pacific Ocean, south of Kiribati and north of Fiji. Tuvalu is the fourth smallest nation in the world by area with a landmass of only 25.9km² (although the atolls extend in a chain 595 km long) spread across the central Pacific from 6° to 10° south, and represents the southern-most islands of the Gilbert-Ellice chain.

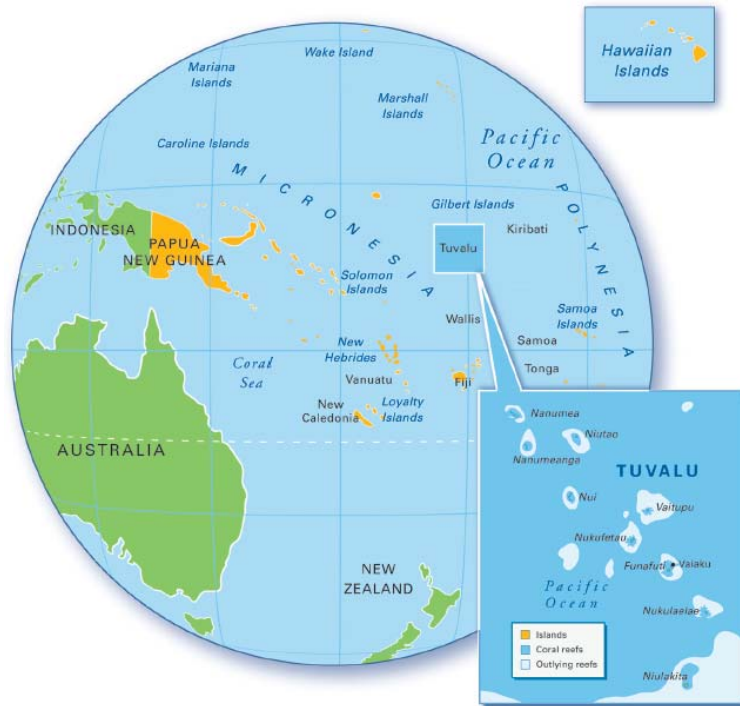


Figure 1: Geographic location of Tuvalu
(Source: Mother Jones Magazine 2013).

The country's Exclusive Economic Zone (EEZ) covers 900,000 km² and is rich in fish stocks. The islands consist of 5 coralline atolls (Nanumea, Nui, Nukufetau, Funafuti, Nukulaelae), and 3 table reef islands (Nanumaga, Niutao, Niulakita) which are more single islets composed of sand and coral materials thrown up by wind and wave action. There is 1 composite (coralline atoll/table reef) island (Vaitupu) which has the characters of both an atoll and a reef island. Topographically, all Tuvalu's islands seldom rise any more than four metres above sea level.

The climate of Tuvalu is tropical. The mean annual temperature is 30°C, with little seasonal variation, though the months from March to October tend to be cooler. Humidity in Tuvalu is high with trade winds blowing from the east for much of the year. Although the islands are north of the recognised cyclone belt, severe cyclones have struck in 1894, 1972 and 1990 with the most recent cyclone (Amy) occurring in 2003. Rainfall is high, averaging 3,535 mm p.a. The wettest season occurs between the months of November to February whilst, the dry season can experience droughts of up to three months in duration, especially in the northernmost islands⁵.

⁵ Commonwealth Yearbook 2014

In terms of population, Tuvalu is among the smallest countries in the world. It had (in 2013) a population of 9,876⁶ people scattered across nine inhabited islands. Funafuti atoll, where the national capital is located is home to over half of the population. During World War II, 40 per cent of the island of Funafuti was severely damaged when it was made virtually uninhabitable (Commonwealth Yearbook 2014). A passenger and cargo vessel, based at Funafuti, which occasionally calls at Suva, Fiji, serves the islands. Ships from Fiji, Australia and New Zealand call at Funafuti. The only airfield is on Funafuti, at the eastern tip of the island. In 1992, a new runway was completed with Commonwealth Secretariat Technical Assistance (TA) and international funding, replacing the old grass airstrip.

In addition to poor geographic access, distance from international markets, the remoteness of nine islands that make up the country, small geographic area, vulnerable economy (which is extremely susceptible to external shocks), and limited natural resource base all contribute to the development challenges in the country. Remoteness from markets internationally and domestically, in particular can lead to an over-exploitation of land based and marine resources. All these factors contribute to, amongst other things, a persistent level of poverty. This is demonstrated in the most recent Millennium Development Goal (MDG) assessment report from 2010 declares an increase in poverty level and that Tuvalu is currently unlikely to achieve the MDG 1 target⁷.

1.2 Environmental and Development Context

1.2.1 Environmental Context

As stated by the European Commission⁸ (EC), the key human related and natural risks confronting Tuvalu's environment are as follows:

- a) Rising population density in Funafuti and water resource implications (IW⁹);
- b) Decline in traditional resource management (LD¹⁰, BD¹¹);
- c) Unsustainable use of natural resources (LD, BD);
- d) Poor waste management and pollution control (LD, IW); and
- e) Sea level rise as a result of climate change (CC¹²);

Water

Supply and Sources: Rainfall, in terms of its quantity and quality, is a critical issue for the people of Tuvalu. This is because there is no reliable above ground water storage supplies. There are no streams or rivers in the country and ground water is not safe to drink. Therefore the only sources of water are relatively regular rainfall and the thin freshwater lens that 'floats' above seawater under each island. Daily water needs are met through harvesting of rainwater and, increasingly, by desalination. This is an expensive and energy intensive option for Tuvalu and beyond the economic capacity of the nation. Despite this, the Japanese Government has built one desalination plant in Funafuti and there are plans to build a second in due course.

Rainfall is therefore extremely important with respect to groundwater recharge and the salinity conditions of the associated groundwater lens¹³. Accurate daily rainfall data can only be obtained for Funafuti (Tuvalu Meteorological Service) and from this, it is assumed that Funafuti weather conditions are representative for the rest of the group. Apart from severe weather events, climate scientists

⁶ <http://countryeconomy.com/demography/population/tuvalu>

⁷ MDG 1 is to Eradicate extreme poverty and hunger

⁸ EDF 10 Country Strategy Paper 2008-2013

⁹ Aligns with International Waters focal area concerns

¹⁰ Aligns with Land Degradation focal area concerns

¹¹ Aligns with Biodiversity focal area concerns

¹² Aligns with Climate Change focal area concerns

¹³ White *et al.* 2006

suggest that Tuvalu may be vulnerable to more severe droughts, particularly in the northern islands as they are more susceptible to variations in rainfall as experienced during the recent droughts in the northern atolls in 2011-2012 which resulted in a serious lack of drinking and washing water with significant losses of vegetable and fruit crops. A drop in rainfall due to drought could severely affect Tuvalu's access to freshwater impacting seriously on drinking water capacity and Tuvalu's agricultural and livestock production.

Pollution (lagoons and open sea): There is no centralized sewage treatment system on any of the islands and the communities rely on domestic septic tanks; these however are often too small or are poorly maintained, such that sewage leaks into the groundwater manifests itself into reducing lagoonal water quality. There is also ongoing direct disposal of human and animal faeces into the coastal waters. The resulting high nutrient loading has resulted in algal blooms which have been recorded in Funafuti Lagoon. Several donor projects have provided rainwater tanks to almost all households on the islands, but there is sometimes inadequate management of these tanks with roof guttering often being reported as being blocked or not properly connected. Similarly, projects have trialed better septic tanks; these however rely on regular clearing and maintenance programmes.

Water quality measurements in Tuvalu in 2005 showed that groundwater is heavily polluted with bacterial counts of over 130 coupled with phosphates of <10. The lagoon water is also polluted but at a lesser degree with bacterial count of over 62 and phosphates at the same level. These recorded levels are much higher than the levels measured in controlled sources, such as rainwater tanks. A more recent study (2010) conducted by a team of Japanese scientists focused on Funafuti lagoon water quality. The study showed that coastal sediments in the lagoon measured exhibited 2.7-10.4 times more microbial biomass than in open waters outside of the lagoon. This thereby indicates a chronic pollution problem within Funafuti Lagoon. It was concluded that the source of contamination was from domestic water pollution transported during ebb tides coupled with domestic wastewater leaking from bottomless septic tanks and pit toilets run off into the lagoon during ebb tides. To address water quality issues, the Pacific IWRM Project¹⁴ has demonstrated the use of dry composting toilets with considerable success. These toilets that do not use freshwater for flushing, have achieved significant reduction of groundwater pollution.

Waste management is also one of the most pressing problems for the nation and has direct implications for human and ecosystem health, especially in Funafuti. Proper waste collection and disposal would lead to less potential pollution of lagoon waters and less accumulation of waste that is a latent source of disease and other public health issues.

In addition, the water quality of lagoons in Nanumea, Nukufetau, and Funafuti seem to be also impacted due to the World War II (WWII) "relics" that were historically dumped into the lagoons. According to locals, these "relics" are contributing to fish poisoning ciguatera events. Other more contemporary human impacts relate to the environmental damage caused by the community ownership and housing of pigs (pollution impacts) on fishes and seashells, sea slugs and even pulaka *Cytosperma spp.* Nukufetau also faces these problems though the impact is felt most on the polluting impact human actions having on marine resources (e.g.: more modern fishing techniques and less sustainable gears used as opposed to the traditional knowledge and techniques for fishing which are becoming less popular with the younger generation) thus having a negative bearing on the islands marine biodiversity.

Saline Intrusion: Storm surges are known to affect the septic sewage treatment systems that predominate in Tuvalu. Not only does the seawater contaminate the septic systems, making the microbial processes inactive, but they can cause sewage contamination of the groundwater lens, making the freshwater unsuitable for human consumption. This further limits the supply of freshwater for the nation.

¹⁴ Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries. Implemented by SPC-SOPAC in partnership with UNDP and UNEP, funded by GEF and EU.

Within the context of Tuvaluan atolls, the islands of Nui, Nanumea and Nukufetau have a history of comparatively reliable groundwater and the use of wells is better established on these islands than elsewhere in the country. On occasions in Nanumea, the main issue with saline intrusion occurs during westerly gales when sea level is naturally increased on the eastern shores of the island due to wave set-up. At such times wave overtopping (and presumably increased hydrostatic pressure) delivers marine waters into pits near the islands shorelines.

Funafuti, being the most populated of all Tuvaluan islands, has ongoing chronic problems with saline intrusion within its Fongafale pulaka pits. This situation appears to be aggravated during natural high water events but continues as a background problem all year-round. As such, serious cultivation of swamp taro on Fongafale has noticeably decreased through the years. A previous study which investigated groundwater conductivity and hydrology on Funafuti (Falkland 1999) found consistently saline groundwater conditions on Fongafale and indicated that generally Fongafale's groundwater is too saline for potable use (or presumably, reliable swamp taro cultivation). Some more salt tolerant species of taro (*Colocasia esculenta*) have more recently been grown in Fongafale. In essence, Falkland (1999) indicated that the coarse rubble from which much of the island of Fongafale is comprised, allows comparatively free movement of marine waters into and out of the island, preventing the sustained formation of a reliable freshwater lens.

Land

Sustainable Land Management (SLM): Land degradation represents a significant challenge towards implementing sustainable development in Tuvalu. With increasing population pressures and an increasing influx of islanders from outer islands to the capital, many external pressures are being experienced. Given the importance of Sustainable Land Management (SLM) and the urgent need to control land degradation, Tuvalu is a signatory to the United Nations Convention to Combat Desertification (UNCCD). Under the UNCCD, Tuvalu had developed a darft to produce a National Action Programme (NAP) and a guiding document to inform all future SLM efforts in Tuvalu.

The causes of land degradation in Tuvalu have been well documented in the Tuvalu NAP (2005). These include: 1) Lack of land use planning; 2) Sea level rise; 3) Drought and Bushfires; 4) Unsustainable agriculture practices; 5) Unsustainable development activities; 6) Unsustainable use of watershed; and 7) Uncontrolled waste disposal. A Tuvalu specific report prepared for the Barbados Programme of Action (BPOA) +10, has also elaborated on causes of land degradation, particularly in the island of Fongafale due to migration from outer islands to the capital Funafuti. Key causes of land degradation noted include: land clearing for additional housing; coral gravel mining to provide buildings materials; excessive demand for limited freshwater supplies; human and animal waste contamination of groundwater; increase in solid waste and limited areas for safe disposal; problems with safe storage and disposal of hazardous chemicals, and increased pressure on marine resources.

Agriculture and Crops: Atoll soils are extremely poor and crop cultivation of any sort, within atoll environments, poses great challenges. Since soils in Tuvalu are predominantly derived from carbonate reef-borne material and are relatively young, they are often poorly developed, lacking structure and texture and are often very porous with poor water holding capacity (Barr 1992). Additionally, atoll soils are naturally deficient in suitable nutrients that are required for successful crop growth. Consequently, due to their high pH, important micro-nutrients such as, iron and zinc (already present in very low concentrations) are made less available for plant uptake (Barr 1992; Webb 1994).

The creation of natural depressions and excavated pits used to grow swamp taro presents one of the best opportunities to circumvent these agricultural limitations. Swamp taro pits tend to have comparatively deep, dark, organic rich soils in comparison to surrounding soils. This occurs both due to the natural propensity for organic materials (leaves, husks, etc.) to collect in such depressions but also through the efforts of the farmers who over the years have laboured intensively and applied systematic traditional cultivation practices. These methods include the importation (from surrounding

vegetation) of large volumes of organic material to improve and stimulate crop production. Not only does this maintain the supply of nutrients to the crop but soil quality and chemistry in such humus rich environments is subtly changed to improve plant nutrient availability and uptake (Barr 1992; Webb 1994). Additionally, the proximity of the pit floor to the upper layer of the groundwater lens also ensures a constant level of moisture.

Livelihoods, traditional foods and water sources that have sustained communities for generations are likely to be further threatened by current and future impacts of the changing climate. Staple crops the large taro-like tuber plant (pulaka) are being destroyed. Pulaka cultivation used to play an essential part in Tuvalu's subsistence economy and its culture. Swamp taro or pulaka cultivation, today, has been at least partially replaced by imported food products not only in Funafuti but on all the islands. An increase in cyclones and storm surges severe (long) droughts, sea sprays, and saltwater intrusions as a result of climate change is likely to severely limit the growing capability of the nation's principle crop.

Biodiversity

Terrestrial Resource: The indigenous vegetation and flora of Tuvalu are highly disturbed and the flora is dominated by introduced species. The total number of terrestrial vascular plants in Tuvalu is approximately 356 species, or distinct varieties, of which only 64 (18%) are possibly indigenous. Remaining 292 species (82% of the plant flora) are non-indigenous exotic species that have been introduced by humans¹⁵.

Tuvalu Global Forest Resources Assessment Report (FAO, 2010) indicated that approximately 1,000 ha of land are covered by forest. Data from Secretariat of the Pacific Community (SPC), however, indicated that the proportion of land area covered by forest fell from 43.0% in 2000 to 33.3% in 2005. This is mainly due to clearing of terrestrial habitat for the construction of houses and other related infrastructure. In addition, Tuvalu's infertile soil has contributed to the low level of area covered by forest habitat in Tuvalu. According to Tuvalu NBSAP (2009), approximately 20 acres of coconut have been lost on 4 Outer Islands due to the intrusion of sea water during high tides, although accurate information on forest/land cover change is not available.

A preliminary assessment of Tuvaluan plants, fishes, birds and insects was carried out in 1997¹⁶ and an update of Tuvaluan plants have been conducted in 2012. No detailed survey of avifauna has subsequently been carried out. Therefore, current knowledge of the abundance, state, and condition of these species is based only on observation and anecdotal evidence, and not a systematic study.

Invasive and alien species (IAS) are a major threat to biodiversity in the Pacific Islands.¹⁷ The most persistent and widespread invasive species are *Wedelia trilobata*, *Lantana camara*, and three species of *Rattus*. *Rattus*, are common in all Tuvalu islands which is a major threat to avifauna species, poultry livestock and other important terrestrial species. Another emerging alien/invasive marine species is the crown-of-thorns (*Acanthaster planci*) which is believed to have been introduced into Tuvaluan waters through discharge of ballast water and other carrying water cargos. Three of the major IAS in Tuvalu are the coconut scale insect (*Aspidiotus destructor*) which damages food crops (e.g., breadfruit [*Artocarpus altilis*], sweet potatoes [*Ipomoea batatas*]), and impacts both social and economic systems; the termite (*Neotermes rainbowi*), which topples coconut palms; and the pink mealy bug (*Macinelliococcus hirsutus*), a pest of the food staple breadfruit.

A biological control programme exists for the coconut scale insects in Tuvalu. SPC provide control agents and these are released at the site of infestation. The agricultural department also provides

¹⁵ Thaman, Fihaki and Fong. 2012. The University of South Pacific Press. Plants of Tuvalu.

¹⁶ Seluka, et al, 1998. Traditional and current potential uses of forests, trees, and other plants of Tuvalu.

¹⁷ UN ESCAP 2005. State of the Environment in Asia and the Pacific.

advice on how to treat pests and planting of resistant trees. The Secretariat of the Pacific Regional Environmental Programme (SPREP) also works closely with the Environment Department and the Funafuti Kaupule on these issues. Furthermore, various reforestation efforts have been carried out to replant and establish nurseries in Funafuti and in the outer islands¹⁸.

Table 1 below shows vegetation by class in Tuvalu and other land uses.

Land-use Cover		
Type of cover/vegetation	Area (ha)	Percentage
Coconut woodland	1, 619	53.9
Broadleaf woodland	122	4.1
Coconut & broadleaf woodland	51	1.7
Scrub	419	13.9
Pandanus	10	0.3
Mangroves	515	17.1
Pulaka pits & pulaka basin	65	2.2
Village, buildings	172	5.7
Other (i.e. low ground cover)	33	1.1
Total	3, 006	100

Table 1 Land-use Covers

(Source: Seluka et al, 1998)

Coastal Resources: Coastal resources play an important role in the social and physical well-being of Tuvaluan society and contribute significantly to the nation's economy. The major use of coastal and marine resources in Tuvalu is for subsistence and artisanal fisheries; consequently, these resources are dependent on the condition and productivity of critical ecosystems and shoreline features such as coral reefs, beaches and sea grass beds. The diet of Tuvaluans is also primarily based around the marine environment and associated coastal resources along with a limited number of agricultural crops.

The Tuvaluan lagoons are important coastal habitat features. Not only do they function effectively as fish nurseries, but they also possess distinctive fish faunas. While outer reef habitats of the three main atolls have similar fish assemblages, the lagoons of each atoll contain unique fish communities. The lagoons of Nanumea, Nui, Vaitupu and Nukulaelae remain virtually closed to the surrounding ocean, whilst Funafuti lagoon contains numerous channels and passes to the outer ocean thus increasing natural flushing. Overall, damselfish, followed by wrasses, surgeonfish and parrotfish, numerically dominates fish communities. All other fish families are observed in relatively low abundances.

Tuvalu's highly diverse marine biodiversity is found to be strongly associated with its coral reef systems. Coral reefs not only provide a food source for Tuvaluans, but they also serve as a significant biological resource for medicines and other important traditional uses. The outer slopes of the reefs surrounding the lagoons in Tuvalu are reported to be rich in both cover and biodiversity, although important faunal inventories at a national scale have not been prepared. More specific information is available at an island (or atoll) scale, for example, there is approximately 400 fish species recorded at Funafuti (ADAB 1985; Kaly 2001).

The most recent survey work on coastal and ocean resources was the work completed by Alofa Tuvalu (2012), as part of the *"Tuvalu Marine Life Scientifica Report"* (Annex 1a). Within this report, the highest fish density recordings were found on Nanumea atoll and the lowest on Funafuti atoll, with individual lagoonal sites tending to host the highest densities at each atoll. In contrast, fish biomass was recorded to be highest in Funafuti and lowest in Nukulaelae. Despite the low fishing pressure on Nanumea compared with the more populated atolls, larger fish were scarce, and the combination of high densities and low biomass indicates large numbers of small fish. This pattern seems common of

highly isolated, exposed oceanic reefs with small reef areas and small or closed lagoons. Funafuti, for example, recorded a relatively high biomass though a low density of fish, indicating smaller numbers of larger fish than in Nanumea. The larger size of Funafuti atoll and the higher diversity of habitat types are likely to have driven this pattern, despite the higher fishing pressure on Funafuti. Concerns do exist, however, on increasing observed indicators of overfishing in Funafuti, such as lower fish abundances and smaller individuals than in the past, especially in the more accessible fishing areas.

The marine ecological survey work (Alofa Tuvalu 2012) on the three surveyed atolls (Funafuti, Nukulaelae and Nanumea) showed similar overall levels of hard coral cover, but other benthic community characteristics varied. For instance, Funafuti had the highest cover of coralline algae. Macro-algal cover also varied among the three atolls, with the lowest cover of around 7% recorded on Nanumea, intermediate cover on Funafuti (~15%) and the highest cover, of around 20%, was found on Nukulaelae. As with the fish communities, lagoonal sites were not only different from sheltered outer reef sites, but each atoll possesses its own distinct lagoonal benthic characteristics. The presence of coralline algae, sand and hard coral appeared to be the best predictors of fish community composition. The cover of sand could well serve as a proxy for lagoonal area, as the outer reef slopes had virtually no soft sediment, while the lagoons of all three atolls consisted of a sand bottom with coral patches. Therefore, sand as a predictor of fish community structure, fits well with the overall distinctiveness found in lagoonal fish faunas. Coralline algae tended to occur highest in areas more exposed to wave action. Other studies have also found that certain fish species, such as small wrasses and triggerfish, are better adapted to high wave energy environments than others. The Alofa Tuvalu (2012) work also declares that of special concern is the low number of sharks observed. These top predators are crucial to the health of the ecosystem and are highly vulnerable on a global scale. Removing sharks from the food web could result in changes throughout the food chain. The establishment of well-enforced, no-take Conservation Areas are proposed as the best solution to safeguarding Tuvaluan fish biodiversity and stocks of valuable food fish.

Protected Area Coverage and Status: The marine area of Tuvalu extends to approximately 900,000 km² within the country's EEZ and it represents the most important area for biodiversity conservation in Tuvalu. Although it is currently still rich in biodiversity, there are growing concerns about the health of the marine environment, and in particular coral reefs. Human-induced threats including land based sediment and nutrient pollution, destructive fishing methods, dredging activities, coastal development and overfishing due to the population increase are some of major concerns towards the health of coral reefs and marine resources. In addition according to studies carried out by the Department of Fisheries, eutrophication has occurred due to high nutrient levels in the lagoon waters.¹⁹ The "die-off" of coral reefs due to coral bleaching and acidification, both potential outcomes of climate change, are also likely to contribute towards creating a significant loss of the nation's marine biodiversity.

To address these issues, Tuvalu has established 11 marine and terrestrial Conservation Areas (CAs) on the 9 islands²⁰. For marine conservation the term Local Managed Marine Areas (LMMAs) has been used in Tuvalu, signifying both formal Marine Protected Areas (MPAs) and more informal community-managed systems. Only Funafuti's CA is covered by formal Marine Protected Area (MPA) which has been legally gazetted through national legislation establishing legally binding no-take-zones. In the other islands, more informal, community-managed LMMA systems have been adopted, using traditional management practices with limited enforcement capacities. For terrestrial conservation, since 1996, every island in Tuvalu has established terrestrial protected areas, with the aim to regenerate island forests. The current CAs, primarily marine, is estimated at 75,392 km² distributed between 9 islands.

The Conservation Areas Act of 1999 provides the legal framework that enables the *Kaupules* to establish conservation areas. Currently, however, there is no established framework to evaluate the

¹⁹ JICA (2011) "Assessment of Ecosystem, Coastal Erosion and Protection/Rehabilitation of Damaged Area in Tuvalu" January 2011

²⁰ Nukulaelae and Vaitupu have two separate CAs.

effectiveness of current conservation area CA management regimes. All CA's face pressures due to the increasing demands being placed on marine resources by an increasing national population and island migration to Funafuti. To address these issues, the Act was established to enable Falekaupules to establish bespoke island specific conservation areas under the power of the Minister of MFATTEL. Kaupule are then responsible for the management of their CA's.

The Alofa Tuvalu (2012) marine survey work highlighted interesting findings with regards to the role and impact of CAs on marine biodiversity²¹. The report showed that although CAs were found to be similar to adjacent unprotected habitats in the Nanumea and Nukulaelae that they surveyed, as Tuvalu faces a changing climate and declining resources, no-take CAs provide the best solution to safeguarding Tuvaluan fish biodiversity and stocks of valuable food fish: lagoons may play a major role as nurseries, host a number of juveniles of locally targeted fish species and a unique fauna that should be preserved. Based on these findings, the report recommends that improved enforcement and monitoring of CAs utilizing customary management methods and engagement of committees representing elders, women, youth, and local and commercial fishermen would greatly improve the marine biodiversity in Tuvalu.

More information on each CAs in Tuvalu is presented in Annex 10.

A Locally Managed Marine Area (IMMA)

Is an area of nearshore waters and its associated coastal and marine resources that is largely or wholly managed at a local level by the coastal communities, land-owning groups, partner organizations, and/or collaborative government representatives whose side or are based in the immediate area.

An LMMA differs from what is commonly known as a Marine Protected Area (MPA) in that LMMA's are characterized by local ownership, use and/or control, and in some areas follows the traditional tenure and management practices of the region, whereas MPAs in the formal sense are typically designated via a top-down approach with little if any local input.

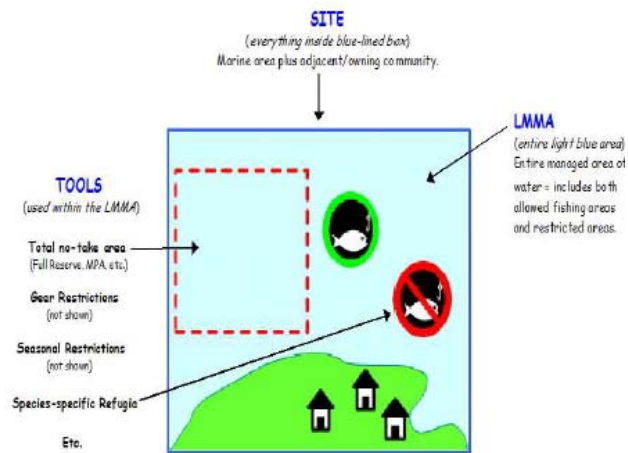


Figure 2: LMMA Concept

(Source: <http://www.lmmanetwork.org/whatwedo/whatisanlmma>)

²¹ In Funafuti, stations outside the Funafuti Conservation Area (FCA) showed the highest coral cover (Tepuka reef slope), the highest edible macro-invertebrate density (Teafualiku reef flat) and the highest total targeted fish density (Fualefeke reef slope); on the other hand, giant clams and trochus were found to be more abundant inside the FCA than outside (especially on the Fualopa reef slope), the Fuafatu reef slope hosted the highest edible fish densities and a healthy coral community; and the Tefala reef flat and slope had a high cover of crustose coralline algae and an abundant sea urchin population. In Nanumea, one station was distinguished by high coral cover, high total and edible fish densities and high edible macro-invertebrate density, which is located outside the CA close to the American Channel. Stations within Nanumea CA showed moderate coral cover, high edible fish abundances and high densities of Hopu nifo and Hopu papa (both edible bivalves).

1.2.2 Development Context

Economy

Tuvalu has a limited economic base, due to its remoteness of markets nationally and internationally, resulting in high cost of transportation for trade and commerce. As a result, Tuvalu relies on foreign aid and overseas remittances, and causing its economy to be extremely vulnerable to external factors (mainly the exchange rate between the local currency which is the Australian Dollar against the US Dollar). Much of the government revenues are derived from fishing license fees from foreign fishing vessels, rights to the 'dotTV' internet domain, and income from the Tuvalu Trust Fund. Other sources of revenue include: small-scale copra exports, sale of postage stamps and coins, sale of passports and resale of rights to international telephone codes.

Figure 3 shows the 2012 breakdown of Gross Domestic Product (GDP) by broad sector grouping, showing the services sector being the main source of employment for locals.

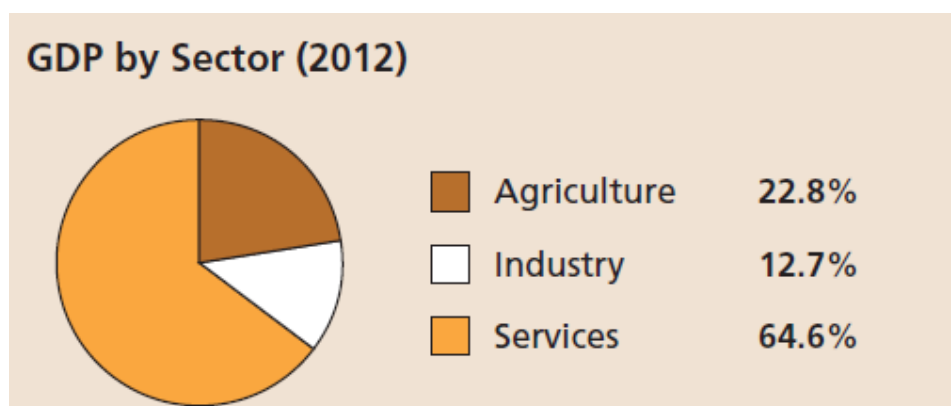


Figure 3: Tuvalu GDP breakdown (2012) by sector

(Source: Commonwealth Yearbook 2014)

According to the 2012 Population Census, the total number of people with formal employment (employed full time for cash) was 1,978, representing 35.6% of the adult working population (15-65 years of age) or 33.2% of the total population above 15 years of age. Data from the Household Income and Expenditure Survey in 2004/05 recorded a total number of people with formal employment of 1,673 representing 33.5% of the total population (15 years and above). Therefore this represents an increase of 0.3% from 2002 to 2004/05. The 2012 Population Census also recorded that the public sector, which include both the public service and public enterprises, provides 37% of all employees in the country, followed by construction industries (22%) and businesses (20%). Residents of Funafuti have a higher income than those living mainly at subsistence level on the outer islands.

Employment opportunities in Tuvalu are dominated by the public sector (approximately two thirds of all those employed) with limited opportunities being offered within Tuvalu's private sector. The main source of private sector employment is through Tuvaluan seafarers working on foreign vessels overseas (between 10-15% of employed Tuvaluans), particularly in Europe. Income earning from the Tuvalu Trust Fund and the demand from Europe for Tuvalu's seafarers has dwindled (IMF, 2011). As a result, it is estimated that the GDP growth in 2009 and 2010 was no more than 1.0%. Youth unemployment is also a significant development challenge, where particularly high levels of

unemployment among youth²² has forced young people to leave the outer islands in search of work on Funafuti or overseas.

Gender Equity

In 2010, comprehensive household surveys were conducted by the Dept. of Rural Development, under the Ministry of Home Affairs, collected a wealth of sex-disaggregated data to assist the Island *Kaupules* in their planning and decisions. Based on the most recent available data, a summary of the total sex-disaggregated population per island is presented below (Table 2):

island	# men	# women	Total pop	% men	% women
Funafuti	2281	2211	4492 ³	51%	49%
Nanumaga	244	220	464	53%	47%
Nanumea	272	255	527	52%	48%
Niu	336	336	672	50%	50%
Niutao	317	325	642	49%	51%
Nukufetau	262	272	534	49%	51%
Nukulaelae	156	178	334	47%	53%
Vaitupu	567	504	1071	53%	47%

Table 2: Island-Level Gender Disaggregated Population in Tuvalu
(Source: K. Bernard 2013)

With regards to employment and livelihoods, Tuvaluan men predominate in the professions of: seaman, technical worker, and management, all of which imply relatively high incomes, especially for seamen, who engage primarily in the lucrative enterprise of tuna fishing. Women predominate most visibly in the teaching and clerk type professions, which provide a steady but modest income and though are certainly lower pay scale professions in comparison to the management jobs occupied by men.

A gender assessment conducted as part of *NAPA 1* midterm evaluation (Bernard, 2013) found that women in Tuvalu (especially the outer islands) appear very interested in becoming more involved in “home gardens”, and women’s access to basic resources such as chicken wire for fencing, tools (forks, spades, wheelbarrows, watering cans, taps for the water tanks, shovels) and seeds, seedlings and fertilizers would all prove beneficial to the entire community if made available.

1.3 Sectoral, Institutional, and Policy Context

1.3.1 Institutional Context

At the national level, the Department of Environment, MFATTEL is the lead agency in planning and administration of efforts related to environment, sustainable land management and climate change, while oftentimes coordinating donor-funded efforts related to food security (including agriculture and fisheries), water, energy, and outer island resilience-building initiatives. Ministry of Home Affairs and Rural Development leads and coordinates all development efforts in the outer islands across all sectors. There is no single institution that looks after land or sea management planning in Tuvalu. Land management planning and related issues are carried out by a number of key agencies all working under their own legal and institutional framework and processes. Ministry of Works and Natural Resources oversees the agriculture (Department of Agriculture), fisheries (Department of Fisheries), and lands (Department of Lands and Survey²³). The National Advisory Council on Climate

²² UNFPA: countryoffice.unfpa.org/filemanager/files/pacific/cp11.pdf

²³ The Lands & Survey Department is responsible for preparing land leases but agreements have to be discussed in Lands Court for

Change (NACCC) under the Office of the Prime Minister provides strategic and technical advice to all environment and climate change-related initiatives in Tuvalu. Ministry of Economic Planning and Finance is responsible for the financial management of development efforts at the national level and in the outer islands.

At the island level, the “*Falekaupule*” is the supreme decision maker. It is defined as the “traditional assembly that is composed according to the *aganu* (local customs) of each island.” (Government of Tuvalu, 2007). The local government structures consist of 3 main bodies: the main head which is the Falekaupule, the Kaupule which is the executive arm of the Falekaupule, and the Falekaupule Assembly which is the consultative forum where issues are tabled for discussion and includes anyone 18 years and above.

As in most Pacific Island Countries (PICs), ownership of land (and sea) is primarily customary. The management regimes in Tuvaluan marine conservation areas are all under Kaupule (local governments) responsibility, except for two sites where national agencies have a joint role. The Conservation Areas Act (1999) requires the Kaupule to appoint a special committee to include all main parties involved or with interest in the conservation area including government departments and community representatives. On isolated outer islands, the responsibility commonly rests with the communities. Further details of island level governance structure are provided in Annex 1b.

1.3.2 Legislative Context

A substantial body of environmental laws already exists in Tuvalu. Tuvalu also has comprehensive Acts that regulate the major activities in the ocean (EEZ) and in coastal areas. These include the National Fishing Corporation of Tuvalu Act, Environment Protection Act, Marine Resources Act, Marine Zone (Declaration) Act, Prohibited Area Act, Marine Pollution Act, and Conservation Areas Act. These Acts are supplemented with major policies and plans, including: Te Kakeega II, National Adaptation Program of Action and Tuvalu National Biodiversity Strategies Action Plan (see Section 1.3.4).

A thorough review was conducted by Powell, 2007 in the *Review of Environmental Laws in Tuvalu*. Powell successfully made an inventory of Tuvalu Laws that relate to the following:

1. Constitutional authority and jurisdiction - relevant laws were Constitution of Tuvalu 1986, Marine Zones Act 1983, Interpretation and General Provisions Act, Laws of Tuvalu, Superior Courts Act, Magistrate Courts Act, and Islands Court Act.
2. Administrative arrangements affecting the management of the Environment - relevant laws were Falekaupule Act 1997, Emergencies and Threaten Emergencies (Special Powers) Act.
3. Environmental Protection and Management - relevant laws are Falekaupule Act 1997, Penal Code, Marine Pollution Act 1991, Harbours Act, Harbours Regulations, Shipping Acts, Merchant Shipping Acts, Wreck and Salvage Act, Wildlife Conservation Act, Prohibited Areas Act, Closed District Act, Conservation Areas Act 1999, Animals Act, Dogs Act, Quarantine Act, Bio-security Bill, Plants Act, Importation of Animals Act, Importation of Animals Regulation 1965, Livestock Disease Act, Pesticides Act, Petroleum Act, Merchant Shipping Act, Shipping Regulations 1958, Public Health Act, Public Health Regulations 1926, Food Safety Act 2006, Pharmacy and Poison Act, Methylated Spirits Act, Native Lands Act, Foreshore and Reclamation Act, Crown Acquisition of Lands Act, Neglected Lands Act, Marine Resources Act 2006, Fisheries (*Trochus*) Regulation 1990, Mineral Development Licensing Act, Water Supply Act, Customs Act, Carriage of Goods by Sea Act, Tuvalu Cultural Council Act,

Key environmental management and protection laws of Tuvalu of relevance to this R2R project are identified and summarised as follows:

approval. The Lands & Survey Department is also responsible for cadastral survey maps of island's land plots. This Department is benefitting from the introduction of new technology from SOPAC for geospatial land analysis in Tuvalu. Consequently, through the use of donor support, the GIS capability within the Departments of Lands and Survey has improved since 2009.

Land and Marine Management Legislation

- Closed District Act-declaration of closed areas.
- Marine Zone (Declaration) Act-regulation of marine waters including EEZ.
- Mineral Development Licensing Act- regulation of mineral exploitation.
- Native Lands Act-relates to native lands and registration of titles.
- Neglected Lands Act- provide for the purchase of neglected land and its sale to others
- Prohibited Areas Act- declaration of certain islands and water as prohibited areas.

Coastal management and protection

- Foreshore and Land Reclamation Act- declaration of ownership of foreshores and regulates reclamation projects.

Conservation of flora and fauna

- Fisheries Act- regulation of fishing and fishing industries and protection for specified fish species.
- Plant Act- protection of endangered or culturally important plants.
- Wildlife Conservation Act- protection of birds and animals and establishment of conservation reserves.
- Conservation Area Act (1999) – this Act indicates that no person will hunt, kill or capture any turtle, birds, or fish in designated CA's. The objectives of the Act include:
 1. Protecting the environment, including coastal, marine and terrestrial;
 2. Conserving natural resources of island communities and in providing for their sustainable utilization for the present and future generations;
 3. Preserving the biological diversity of conservation areas, especially species which are endemic, threatened, or of special concern and the coastal and marine habitats upon which the survival of these species depend.

Water, sanitation and environmental health

- Importation of Animals Act- regulation of the importation of animals.
- Public Health Act- maintenance of adequate standards of health.
- Quarantine Act- regulation on importation of products of potential danger to health or industry.
- Water Supply Act- provides for the protection of water suppliers.

Control of environmental disruptive substances and materials

- Merchant Shipping (Oil Pollution) Tuvalu Order 1975- control of oil pollution incidents.
- Nuclear Installations Ordinance (Gilbert and Ellice Islands) Order 1972- control of nuclear installation.
- Wreck and Salvage Act- provides for the rights of wrecks and salvage.

Island Governance

- The Falekaupule Act (FA) provides the legal underpinnings for the current decentralization process and ushered in the current two-tiered governance system. The FA outlines the composition, meetings and proceedings, functions of, by-laws, financial provisions and audit, community development tax, officers and staff of and legal provisions of the Kaupule. This, in principle, provides legislative underpinnings for Kaupule/ Falekaupules to produce and annually review a multi-year Island Strategic Plan (ISP) and the production of an annual budget derived from the ISP. The FA stipulates Kaupules to carry out the following functions:
 - to prepare and implement development plans and programmes in consultation with the community, government agencies, non-government organizations and other development partners;
 - to coordinate and monitor all programs and projects implemented within its area of authority;

- o to seek technical advice on policy and project development in accordance with its plans and programs; and
- o to ensure the proper management and use of the physical and natural resources in the Kaupule/Falekaupule area.

1.3.2 Policy and Planning Context (Regional and international policy)

Tuvalu is a signatory member to a number of international conventions, treaties, and agreements that relate to terrestrial, coastal, and marine biodiversity conservation, sustainable land management, and integrated water resource management. Three of the most significant environmental conventions directly related to Tuvalu R2R project include Tuvalu's signatory/ ratification of the: 1) the United Nations Convention on Biological Diversity (UNCBD) in 1992, United Nations Framework Convention to Combat Desertification (UNCCD) in 1998, and United Nations Framework Convention on Climate Change (UNFCCC) in 1998.

As an independent country, Tuvalu has become a party to a number of international conventions and regional agreements, including many environmental conventions. Pulea and Farrier 1994 in the Environmental Legislation Review of Tuvalu confirmed that Tuvalu is a party to Convention for the Protection of the Ozone Layer 1985; Convention on Climate Change 1992; Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Dumping Convention); Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific 1989; South Pacific Forum Fisheries Agency Convention 1979; International Convention for the Prevention of Pollution from Ships 1973 and the 1978 Protocol (MARPOL); United Nations Law of the Sea Convention 1982; South Pacific Nuclear Free Zone Treaty 1985; Convention on Biological Diversity 1992; Convention for the Protection of Natural Resources and Environment of the South Pacific Region 1986 (SPREP Convention); and International Convention on Civil Liability for Oil Pollution Damage 1969.

Below Table provides an overview of international conventions, treaties, and agreements the Tuvalu is a signatory to, relevant to biodiversity, sustainable land management and water.

Convention/Agreement	Ratified
Convention for the Protection of the Ozone Layer	1985
Convention on Climate Change	1992
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Dumping Convention)	1972
Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific;	1989
South Pacific Forum Fisheries Agency Convention 1979;	1979
International Convention for the Prevention of Pollution from Ships	1973
MARPOL Convention Protocol;	1978
The International Plant Protection Convention (IPPC)	2005
United Nations Law of the Sea Convention;	2002
South Pacific Nuclear Free Zone Treaty 1985	1985
Convention for the Protection of Natural Resources and Environment of the South Pacific Region (SPREP Convention)	1986
International Convention on Civil Liability for Oil Pollution Damage 1969.	1969
United Nations Framework Convention on Climate Change (FCCC)	1992
United Nations Convention on Biological Diversity (CBD)	2002
Ratification by Tuvalu of the International Convention against Doping in Sport (Paris)	2005
Kyoto Protocol to the United Nations Framework Convention on Climate Change	2001

Convention/Agreement	Ratified
United Nations Convention to Combat Desertification (UNCCD)	1998
United Nations Convention on the Law of the Sea (UNCLOS)	1996
Agreement on Straddling Fish Stocks and Highly Migratory Species	1997
Maritime Labour Convention	2006
Convention for the Prohibition of fishing with long driftnets in the South Pacific (Wellington Convention).	1989
UNESCO member	Tuvalu joined in 1991
United Nations Charter	1999
Cartagena Protocol on Biosafety to the Convention on Biological Diversity	2001
CEDAW - Convention on the Elimination of All Forms of Discrimination against Women Convention on the Elimination of All Forms of Discrimination against Women CEDAW	1999
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	Not signed
Conservation on Migratory Species (CMS) of Wild Animals	Not signed
The Basel Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal	2001 accession
Stockholm Convention for the Persistent Organic Pollutants (POPs)	2002
Vienna Convention for the protection of the Ozone Layer, Vienna, 22 March 1985	2001
Montreal Protocol on Substance that Deplete the Ozone Layer, Montreal, 16 September 1987.	2001
London Amendment to the Montreal Protocol, London, 29 June 1990.	2004
Copenhagen Amendment to the Montreal Protocol, Copenhagen, 25 November, 1992	2004
CRC - Convention on the Rights of the Child	1995
United Nations Conference on Environment and Development (UNCED)	1989

Table 3: Summary of international conventions, treaties, agreements and MoUs related to BD, LD, and IW that Tuvalu is a signatory to

1.3.3 Policy and Planning Context (National policy)

Development: Tuvalu's National Development is governed by the Te Kakeega II: National Strategies for Sustainable Development 2005-2015 (TK-II). It is envisioned that in the year 2015, Tuvaluans will have more employment opportunities, higher economic growth, better health and education, improved basic infrastructure and with continued social stability. The vision is articulated in the Malefatuga Declaration, which is the foundation of TK-II and from which arises the National Summit on Sustainable Development. TK-II regards environmental considerations as an integral crosscutting link to national development and identifies the need to sustainably use and manage the environment and natural resources for present and future generation.

Environment: In 1997, Tuvalu National Environment Management Strategy (NEMS) was developed with assistance from SPREP and endorsed by the Government of Tuvalu (GoT). The NEMS indicates management approaches, strategies and programs in many different areas of the environment, which can serve as initiatives and guidelines in the development of appropriate and sound environmental policy. The primary aim of NEMS is to assist Tuvalu in its efforts to achieve sustainable development.

Biodiversity: Tuvalu produced its National Biodiversity Action Plan (NBSAP) in 2010 in accordance with its commitment under the CBD. The NBSAP vision is that *“by the year 2020, Tuvalu would have a clean and healthy environment, full of biological resources where the present and future generations of Tuvalu will continue to enjoy the equitable sharing of benefits of Tuvalu abundant biological*

diversity". Tuvalu has submitted its Fourth National Report in 2009. The fifth National Report (5NR) is ongoing through support of UNEP financed by GEF²⁴. Furthermore, the Action Plan for Implementing the convention on Biological Diversity's Programme of Work on Protected Areas (PoWPA, 2011), in line with the Aichi Targets, has identified key areas of actions and targets to enhance biodiversity protection in Tuvalu.

Water and Sanitation: Tuvalu has established the 'Fakanofonofoga moVai mo te Tumaa' – Sustainable and Integrated Water and Sanitation Policy 2012 – 2021 and associated implementation plan that seeks to address widespread community concerns about the availability and quality of freshwater on the island, during periods of ENSO-related droughts and from pollution of groundwater due to household sanitation systems.

Land: Tuvalu's National Action Plan to Combat Land Degradation and Drought was drafted in 2006 (NAP) in accordance with its commitments under the UNCCD. It aims to bring together the various stakeholders working on actions, projects, and activities to find integrated solutions to combat land degradation in Tuvalu.

Climate Change: *Te Kaniva*: The National Climate Change Policy (2011), Cross-Cutting Policy and Disaster Risk Management (2012-2021), and Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management 2012-2016 (NSAP, 2012) recognizes the need to strengthen Tuvalu's systems, institutions and individual capacities to better address land degradation in Tuvalu. These integrated policy and action plan development was coordinated through the MFATTEL, and proposes a framework that will build human capacity through addressing issues (such as food security, land and water) that affect Tuvalu's natural resources and strengthen community resilience.

Furthermore, Tuvalu highlighted urgent and immediate climate change adaptation priorities in its National Adaptation Programme of Action (NAPA) in 2007. 7 key priorities highlighted in NAPA include:

- 1) Coastal protection through increasing resilience of coastal areas and settlements;
- 2) Agricultural protection, through the use of salt tolerant species;
- 3) Water access, in particular during frequent water shortages;
- 4) Health improvement, through the control of vector borne/climate sensitive diseases and access to quality potable water;
- 5) Fisheries conservation of highly vulnerable near-shore marine ecosystems;
- 6) Promoting alternative Fisheries resources and coral reef ecosystem productivity; and
- 7) Disaster preparedness and response through strengthened community capacities.

1.4 Threats, Root Causes, and Impacts

Marine resources in Tuvalu, both near-shore and in lagoons are declining due to a combination of anthropogenic factors and climate change. Overfishing and marine /exploitation is considered to be one of the key contributing factors to the declining viability of the marine resource-based economy. Economic growth and modernization over the past decades has provided access to powered boats for some fishers which represent a contributing factor towards overfishing and the destruction of marine habitats. In recent years where fuel prices are increasing, those fishers with motored boats are becoming forced to catch larger volumes of fish in order to cover their fuel costs. Future and current climate change is likely to compound with these types of anthropogenic factors.

Threats

²⁴ "Support to Tuvalu for the revision of the NBSAP and development of the 5th National Report to the CBD" http://www.thegef.org/gef/project_detail?projID=5480

Tuvalu's Fourth report to the UN Convention on Biological Diversity in 2009 indicates that perceived threats to island biodiversity can be summarized as arising from deleterious human actions and negative attitudes to the environment leading to inappropriate behaviour such as littering, overfishing, over-hunting and ignorance to climate change impacts. The report revealed that flora on the islands is limited to 300 existing species, with only 65 being native species while the rest are introduced. Fish species remain abundant with 350 species being recorded²⁵. There are no official figures on threatened species in the report, however according to the 2008 IUCN Red List, the main threatened species are turtles (hawksbill and leatherback).

Community consultations took place on four islands during 2009 to collect relevant information on island biodiversity, to incorporate this into the National Biodiversity Strategy and Action Plan (2009). The perceived threats for 4 islands are shown below in Table 4

	Nukufetau	Funafuti	Nanumea	Nuitao
High consumption		x		
Little replanting		x	x	
Increased population density		x		
Overuse and overharvesting	X	x	x	x
Availability of guns for hunting birds and fish/use of guns		x		x
Uncontrolled use/uncontrolled pigs		x	x	
Commercialisation		x		
Ovecrowding by people		x		
Increased construction/village expansion	X	x		x
Hurricane Bebe		x		
Not using as often as before		x		
Loss of knowledge and skills		x		
Lack of legal protection		x		
Climate change	X	x	x	x
Loss of habitat/vegetation		x		
Increasing preference for imported food resources rather than local ones. Ignoring local species		x		
Human actions	X	x	x	x
Invasive (pests, animals, plants)	X	x	x	x
Salt water intrusion	X		x	x
Prolonged drought	X	x	x	
Pests			x	
Waste water/solids/toxic waste	X	x	x	x
War debris			x	
Natural Disaster	X			x
Waves	X			x
Littering		x		x
Customary laws				x
Land clearing		x		x
Coastal erosion	X	x	x	x

Table 4: Perceived major threats to island biodiversity

(Source: Adapted from Paeniu, 2009a; Paeniu, 2009b and Saini, 2009)

Root Causes

Human Activities: There are a number of contemporary practices that are having impacts on resource (land and marine) resilience and sustainability over the long term. These include the use of inappropriate fishing nets and modern fishing methods, the use of spear guns and the introduction of pests, the use of inappropriate technologies such as solid and liquid waste water disposal systems, the uncontrolled use of resources and control of livestock and changing human consumption patterns. These have all contributed towards decreasing marine and terrestrial biodiversity. These behaviors arise from increases in human populations, demands and changing lifestyles; institutional

²⁵ An updated survey by Alofa Tuvalu indicates that they found a total of 607 species from 73 families, only through observations from the 3 islands of Tuvalu (Nanumea, Nukulaelae and Funafuti). Total species in Tuvalu are expected to be more if surveys are done throughout the country.

weaknesses; ignorance and lack of knowledge; natural factors and climate change. Local perceptions have also been confirmed by research findings. For instance, in 1998 the principal threats to seabirds in the Funafuti Marine Conservation Area were attributed to hunting and disturbance from shotguns and speedboats and the loss of habitat through the conversion of woodlands to coconuts.²⁶

Climate Change: Tuvalu is ranked amongst the world's most vulnerable countries in regard to coastal damage, environmental hazards such as storm and tidal surges (specifically impacts of salt water intrusion into pulaka pits (pulaka or swamp taro is a staple food source in Tuvalu), sea level variability, coastal erosion and cyclones. These projected impacts of climate change in Tuvalu are likely to cause additional stress and risks to Tuvalu's water, livelihoods, and marine and terrestrial resource availability and biodiversity.

For example salt-water intrusion into pulaka pits also threatens local agricultural practices. Based on these threats, it is becoming evident that the viability of subsistence-based livelihoods in Tuvalu is likely to be undermined significantly due to climate change. Current climate projections and predictions²⁷ indicate a major shift in the extent and health of marine ecosystems, on which Tuvaluans' livelihoods heavily depend. Coupled with this, a predicted increase in the intensity of tropical cyclones (which historically have caused significant damage to infrastructure, livelihood assets and setbacks) is most likely to increase the vulnerability of many outer island atoll communities to climate change.

Given the low elevation (less than 4m on all islands) and limited land area of all Tuvaluan islands, the most direct and severe effect of climate change and sea level change will be an increasing risks of coastal erosion, flooding and inundation. The magnitude of such effects will be influenced, in a mutually reinforcing feedback amplified, by climate change impacts on coral reef ecosystems, which is the islands' first natural defense against waves. Key climate change impacts to date have included coastal erosion and loss of land; salt water intrusion into water resources, soil and cultivation areas; inundation; drought and storm surge inundation.

Impacts

Decline in marine biodiversity and natural resources: Coral reefs that shelter near-shore fish and shellfish resources are already in critical danger as the present sea surface temperature of Tuvalu is around 29°C (+/-0.5°C with seasonal variation) which is already the upper limit tolerance threshold for most coral species (25-29°C). Tuvalu is already experiencing a small amount of coral bleaching and this is expected to rise according to leading reef scientists at a global level. Many coral species are highly vulnerable to heat stress. Scientists suggest that just a 1 degree Celsius increase in average water temperature will cause coral reefs to die. The Intergovernmental Panel on Climate Change (IPCC) predicts that in the next 30 to 50 years coral bleaching events will occur every year. With corals dying, this may impact significantly on fish stocks, a principle source of protein for island communities. Increased levels of carbon dioxide (CO₂) in the atmosphere are also causing more CO₂ to be dissolved in the ocean and hence acidifying it. Acidic sea water causes coral reefs to weaken and become more vulnerable to severe weather events, like cyclones. Recent studies suggest that even if atmospheric CO₂ stabilizes at the current level of 380 parts per million (ppm), fewer than half of existing coral reefs in the world will remain. If the levels stabilize at 450 ppm, fewer than 10% of reefs may survive. Weaker coral reefs will exacerbate the problem of coral bleaching and will have a serious effect on food security. Acidic seawater will also weaken the shells of various shell fish and threaten their survival. This could further limit food sources for Tuvaluans. SPC indicates that in Tuvalu, 25-65% of coral cover is likely to be lost by 2035 and up to 75% by 2100.

Food insecurity: Marine resources, in particular, remain an important source of protein for Tuvaluans. SPC estimates that fish provides more than 75% of dietary animal protein in Tuvalu, well above the regional average. In terms of livelihood security, 90% of households in Tuvalu engage in subsistence

²⁶ Watling, 1998.

²⁷ Pacific-Australia Climate Change Science and Adaptation Planning (PACCSAP) (2014).

harvesting of marine resources as an important part of their food source. Most Tuvaluan households engage in household-level fishing and collection activity to supplement their diet, and near-shore fishing is the main source of fish catch. The physiographical features of the island often determine the extent of marine resource collection. This occurs on all of Tuvalu's islands, but presents the greatest opportunities in Funafuti, Nanumea, Nui, Nukufetau, Nukulaelae and Vaitupu as they have central lagoons that connect with the outer ocean. These lagoons provide safe havens for marine resource collection. In these islands, this is an important livelihood activity for women and the elderly.

In light of the complexity and magnitude of the threats, root causes and impacts that surround the issues of marine and terrestrial biodiversity, water, and land management to the economy, society and environmental well-being of Tuvalu, an integrated, long-term solution at the national and island levels is much needed. Therefore, a multi-disciplinary ridge-to-reef (R2R) approach that combines a functional, representative, and sustainable systems of coastal and marine managed areas, integrated with the adoption of appropriate SLM, ICM, and IWRM approaches is proposed through this project.

1.4.1 Barriers to be addressed

There are a number of barriers that need to be addressed before long-term solutions for an integrated R2R management can be achieved. Key barriers are highlighted below. Through stakeholder consultations, ways of addressing these barriers have been explored and integrated into the R2R project design.

Key Barriers	Description of Barriers
Limited financial resources	Tuvalu has a small economy that is not able to generate a large income from taxes and fees in order to address biodiversity conservation, land and water management. Tuvalu is therefore dependent to a large extent on financial aid/ donor-funded projects to tackle environmental issues at the national and island levels.
Remoteness and Access to Outer Atolls	<p>The remoteness of Tuvalu as a whole is compounded by the distances between the capital atoll and its outer islands. The northernmost island of Nanumea is 464 km away from Funafuti. There is no internal air service between atolls with inter-island transport served only by government ferries²⁸. Outer island remoteness and the small overall size of Tuvalu's population and physical size have critical development implications. Extreme outer island isolation results in limited opportunities for viable economic activities. For example, exporting fisheries products from outer islands is hardly carried out due to significant distance to markets. At the same time, access to alternative livelihoods for outer island communities is also limited due to limited inflow of outside information and materials.</p> <p>Remoteness also creates significant communication challenges in providing effective development assistance. Because of limited logistical options and financial resources, the majority of development assistance inevitably concentrates only on the capital island of Funafuti. If donor programmes do work in outer islands, operations are often fraught with delays, eventual scaling-down or even cancellation because of limited options of visiting the islands access.</p> <p>All of these factors are thought to attribute to the increasing level of poverty as well as increasing inequality within the country as shown in the latest MDG country report (2013). In turn, as described in detail in the following sections, they constitute important design principle elements for the proposed GEF5 project.</p>
Limited technical and management capacity	Small Island Developing States (SIDS) such as Tuvalu faces of challenge of limited pool of national expertise implement biodiversity conservation, water (marine and terrestrial) and land management. There are typically shortages of knowledge, expertise, equipment, legal tools, policies and funding. As a result, technical information for conservation planning, legislation remains to be limited and/or insufficient. In particular, they have a small number of staff (maybe only two or three in the lead agency) responsible for biodiversity conservation across many projects. Managers have multiple projects to look after in addition to ensuring that the country meets its obligations under a range of conventions.
Limited environment and biodiversity awareness in island communities	The issue of over-harvesting marine and terrestrial resources is currently most directly caused by a lack of public awareness and knowledge. This is the major constraint to the development of ecosystem-based biodiversity programmes that often results in lack of support for conservation initiatives. Promoting a culture of self-regulation and greater community responsibility, based on heightened awareness and understanding of the biodiversity conservation at all levels, has been identified by donor agencies as an important cross-cutting activity. Promotion of public awareness on biodiversity can also incorporate strengthening traditional knowledge (Tuvalu DoE 2006).

²⁸ See Annex 1 for further details of distances and transport challenges between the outer islands.

Lack of legislation and policy frameworks	Tuvalu lacks sufficiently strong, comprehensive, up-to-date legislation for the conservation of species and ecosystems. Whilst it is acknowledged that the Tuvalu NBSAP (2009) is being updated, there still remains a general lack of policies and strategies at the sectoral level (e.g. agriculture, forestry, fisheries, public work) that adequately reflect conservation concerns. At the island level, some conservation areas have been established under local Island Councils but there is a need for systematic surveys and baseline data in order to develop appropriate management systems for these areas. A further challenge is to inculcate an environmental ethic to underpin individual, community and institutional behaviour.
Insufficient mainstreaming	Lack of understanding at the government level has a significant impact on biodiversity conservation through the allocation of priority and financial resources to biodiversity conservation. Insufficient mainstreaming of the issue also remains a barrier. In recent years, environmental concerns have started to feature in the National Sustainable Development Strategies, and in fact sustainable development is part of TK-II. Despite this, integrated biodiversity management, SLM, IWRM and ICM are not mainstreamed effectively into sector level strategies, business plans and importantly in island strategic plans.
Insufficient baseline data	Tuvalu has insufficient information about the distribution and abundance of terrestrial and marine biodiversity, which includes native, endemic, introduced and invasive species (McGeoch et al. 2010). There is often an opportunity cost for collecting such data with limited resources when biodiversity values may be under threat and requiring action. Tuvalu within its 4th National Report to the CBD (November 2009), states that no detailed surveys of plants or avifauna have been carried out in recent times and that the condition of inshore fishery resources is, as a consequence, difficult to gauge. However, since then, the initiation of the Tuvalu Marine Life Project has been started by a NGO (Alofa Tuvalu) to document the marine life of the islands. A literature review has documented over 1400 species in the process. Despite this, the project only provides site-based data for three of Tuvalu's islands.

Table 5: Summary of key barriers to address threats, root causes, and impacts in Tuvalu

1.5 Baseline Analysis and Gaps

Various efforts by the Tuvalu Government and Development Partners have taken place that are related to marine and coastal biodiversity conservation and water and land management. Nevertheless, there is much work to be done in the areas of:

- **Data** collection/update, management, assessment and communication;
- Participatory planning, establishment, monitoring, and management of **protected areas**;
- Implementation of island-specific, community-based **land and water management** initiatives; and
- Enhancing **national and local institutions and capacities** to develop and sustain tools and **governance** systems for integrated, long-term R2R approach that combines BD, ICM, IWRM, and BD principles.

The GoT has limited available internal resources to undertake the full range of environmental initiatives to address these existing gaps. A comprehensive assessment on the status of Tuvalu's

environment²⁹ was last conducted through the formulation of the State of Environment report in 1993 to inform the formulation of National Environmental Management Strategy (NEMS).

The annual Tuvalu government budget is approximately \$32 million with approximately 6.4% allocated to natural resource management through the Department of Environment (DoE). This is equivalent to about \$2 million per year which goes primarily to operational costs, including the payment of salaries of staff in undertaking their mandated functions, travel and other administration expenses. The funds includes external funds donated by donor agencies in the form of projects and programs implemented to address environment degradation. The portion of the recurring budget of the DoE that is counted is \$200,000 per year supporting an entire range of operational and administrative functions that will provide an important foundation or baseline for the implementation of the project.

The R2R project is designed to build on the baseline conditions, and address remaining gaps.

Biodiversity

There are 10 recognized conservation areas in Tuvalu spreading across the 9 islands governed by the 8 Kaupules. Only 1 of these conservation areas are nationally recognized protected area (Funafuti Conservation Area (FCA)) (see Annex 10). The Funafuti Conservation Area (FCA) was established within the South Pacific Biodiversity Conservation Programme (*SPBCP*) in 1997 in partnership with SPREP and UNDP financed by GEF. The establishment of the other CA sites was initiated by TANGO, supported through the Foundation for the People of the South Pacific International (FSPI) and GEF Small Grants Program in 2005 – 2007. These efforts were furthered through the Tuvalu NBSAP and PoWPA. The indicative budget for PoWPA Action Plan implementation is set at \$199,500. However, limited funding from government has been allocated further to implement PoWPA and advance LMMA efforts in Tuvalu.

As a result, the LMMAs are left with no systematic management plans (including FCA), limited baseline data, and haphazard systems of enforcement. There is a need for improved monitoring and evaluation methods coupled with community training / awareness raising efforts. Previous efforts have been made to map the LMMA boundaries through initiatives such as the *ReefBase Project*³⁰, where some GIS data on LMMA boundaries were developed for Tuvalu led by TANGO.

The Tuvalu Marine Life Project (2012) by NGO, Alofa Tuvalu, has completed data collection that documents 1400 species of marine life around the islands. However there is very limited quantitative or site-based data to justify extension of existing protected area boundaries. Additional surveys are therefore needed within this GEF5 project that focus on identifying indicator species and habitat health to help extend the protected area network in Tuvalu. The study was conducted on three islands and R2R will continue to cover the rest of the group to complete one set of biodiversity baseline.

Pacific Alliance for Sustainability (PAS): “Implementing the Island Biodiversity Programme of Work by Integrating the Conservation Management of Island Biodiversity (*IIB project*)” (2012-2015), executed by SPREP in partnership with DoE Tuvalu supported by UNEP and financed by GEF, has conducted a socio-economic survey on Funafuti to identify community perceptions on conservation of marine resources. They plan to expand these efforts to other 3 islands. The R2R project will build on the findings of the socio-economic surveys to be completed through the IIB project to enhance the design and formalization of the LMMA/MPAs.

²⁹ Chapters include natural environment, human environment, economic and built environment, managing the environment, and priority programmes.

³⁰ ReefBase is a database of the Global Coral Reef Monitoring Network (GCRMN), as well as the International Coral Reef Action Network (ICRAN). The ReefBase Project is housed at the WorldFish Center in Penang, Malaysia, with funding through ICRAN from the United Nations Foundation (UNF). (<http://pacificgis.reefbase.org>). It gathers available knowledge about coral reefs into one information repository. It is intended to facilitate analyses and monitoring of coral reef health and the quality of life of reef-dependent people, and to support informed decisions about coral reef use and management.

Pacific Regional Oceanic and Coastal Fisheries' Development Programme (*PROC Fish*) is a SPC initiative financed by EU to enhance management of reef fisheries in PICs by providing government and communities with accurate, un-biased scientific information about the status and prospects of reef fisheries. PROC Fish has conducted surveys (2004 – 2005) in Funafuti, Nukufetau, Vaitupu and Niutao. It conducted surveys on socio-economic and biological (fin-fish and invertebrate species) information on these islands. This information needs updating as well as expanded to other islands. The R2R project will take these next steps on board.

Tuvalu's LDCF project, 'Securing Marine-based Coastal Livelihoods from Climate Change and Climate-Induced Disasters' (*NAPA II project*), has an overarching goal to increase the resilience of outer island communities to future climate change induced risks such as declining marine resources productivity and increasing/intensifying climatic hazards. It will work on mainstreaming climate change into Island Strategic Plans to ensure that the resilience of marine-based livelihoods are enhanced, as well as implement activities that improve reef health (increase fish stocks hence livelihood) in the outer islands, such as installation of Fish Aggregate Devices. NAPA II project will also gather catch per effort data on all 9 islands through a creel survey. R2R will work closely with NAPA II project to complement its work, particularly in the establishment of indicators for monitoring and evaluation of LMMA/MPA systems as well as to strengthen engagement and capacity building of island communities to implement these systems.

Sustainable Land Management

SLM has been promoted in Tuvalu through a 4-year GEF-financed *Sustainable Land Management project* managed under the DoE in partnership with UNDP (2008-2012). This involved the use of terrestrial resources and ecosystems (e.g.: soils and plants) to provide goods and services such as food, drinking water, fuel, timber, without detriment to the long-term productive potential of these resources and their environmental functions. SLM is therefore seen as critical towards minimising and rehabilitating the effects of land degradation, and ensuring optimal use of resources for sustainable development and poverty alleviation. Tree planting activities were supported through this project in Funafuti, Nanumea, Nanumanga, and other islands as part of coastal protection efforts. Methodologies, approaches and lessons learned from these initiatives will be of good foundation for the implementation of R2R.

NAPA I supported tree planting activities in order to strengthen coastal greenbelts in Funafuti, Nukulaelae, and Nukufetau. However, in all the 3 islands, the interventions were not successful due to: lack of sufficient planning and assessment (waves, soil condition, etc) to determine suitable plant type and locations; lack of technical capacities to implement effective planting and monitoring activities; and lack of effective community consultation and support prior to implementation of activities. Building on lessons learned, NAPA I also encouraged home gardening efforts in all 9 islands where they supported the planting of vegetables and fruits utilizing sustainable agricultural practices such as composting. With additional funding from Australia (DFAT), new technologies for Pulaka farming were also explored on Niutao and Nanumanga. The processes involved in the salvaging and diversion of activities to meet NAPA I targets will be of good value to R2R throughout the implementation phase.

Information on many islands terrestrial resources (soils, etc) were captured through a specific set of *FAO Land Resources Survey* produced during the mid-1980's. In 2014, the *NAPA I project* conducted soil and nutrient sampling from home gardens on four islands (Funafuti, Nukufetau, Nukulaelae, Niulakita, and Vaitupu). The purpose of this analysis was to determine soil quality in order to make recommendation for enhanced productivity of food crops including vegetables and pulaka in order to enhance food security. However, on the other islands, no updated data has been gathered since the FAO report. Therefore gradual degradation of agricultural lands on many Tuvaluan islands has resulted in a shifted baseline, with much of the population unaware of the original forest cover of these islands, and of the potential to grow crops such as swamp taro (pulaka) as a reliable food source.

Stands of coconut palms of many islands such as Nanumea and Nukufetau are very tall and with reduced productivity. Replacing these assessments at a “whole island” scale would prove a large and long-term project that would require additional donor funding to achieve. As a consequence of this inaction, Tuvalu is fast losing its capacity to grow local foods, which are affecting livelihoods, particularly in the remote outer islands.

Some actions have been taken to re-forest some islands such as Nanumea, Nanumaga, Niutao, Nui and Nukulaelae have been completed whereby programmes have been initiated to replant coconuts and pandanus. Under the *Community Tree Care Project*, multipurpose tree nurseries have, since 2008, been established on the outer islands. The local tree species that have been planted (callophyllum, pandanus and casuarinas) is to mitigate against coastal erosion at sites in the near future. The cultivation of breadfruit and pulaka (*Cyrtosperma chamissonis*) in dug-out pits continues to expand. Mangrove replanting also continues to take place. For example, the Tuvalu National Council of Women (TNCW), supported through *Seacology*, planted 3,200 mangrove seedlings in Nanumea in 2008. The *Tuvalu Overview Project* planted mangroves in a community project at Funafala motu, Funafuti.

Water

A number of bilateral and multilateral agencies have been supporting the country to implement concrete activities in the areas of WASH (water, sanitation and hygiene). These areas of support reflect the priority threats to the island country which include the serious lack of water for domestic and other uses, the diminishing and pollution of the freshwater lens and the extreme vulnerability to climate change impacts such as sea level rise, coastal erosion, among others.

Tuvalu’s GEF Pacific IWRM Demonstration Project entitled “Integrated Sustainable Wastewater Management (EcoSan) for Tuvalu” (*Tuvalu IWRM project*) has strengthened arrangements for improved wastewater management and mainstreamed IWRM into National Policy. The project has also successfully shared sanitation solutions with other Pacific countries. Key project results include: successful design and replication of sanitation solutions; successful engagement of Tuvaluan communities and government; development of a National IWRM Policy and Indicator Framework; reduction in sewage pollution across Funafuti and a reduction in freshwater use for sanitation uses. The Tuvalu R2R project, along with the Regional R2R Project, will sustain and expand the engagement, knowledge, policy-mainstreaming, and community water interventions to the outer islands.

University of South Pacific (USP) Pacific Centre for Environment and Sustainable Development (*PaCE-SD*) completed an assessment in 2013, investigating the status, causes, and potential remedial measures to manage algal blooms in Funafuti Lagoon³¹. The assessment found a clear linkage between population density and algal blooms. There was a correlation between the density of human population on the shore and algal biomass, with the highest figures opposite a school and hotel in Fongafale. Water quality tests also showed nutrient levels were almost twice as high in front of populated areas than in unpopulated areas of the island. Following this assessment, chemical analysis of the algae has been completed in 2014. R2R will use these findings as baseline to build and implement part of component 2 specifically on Funafuti.

The “*Tuvalu Water, Sanitation and Waste Management Project*” (2011 – 2013) (EDF 10 – EUR 4,900,000) aimed at securing permanent access to safe drinking water and improved sanitation across the country as well as addressing the serious waste problem on the main atoll and the outer islands of Tuvalu. The project provided technical assistance to solid waste management and sanitation efforts in country, as well as provided water storage systems in 8 atolls. Composting toilets were also installed in selected sites. These efforts were coupled with education and awareness

³¹ “De Ramon N’Yeurt, Antoine and Iese, Viliamu (2013) Assessment of a seaweed bloom issue on Funafuti atoll and associated solutions; conducting awareness sessions for the local communities.

raising efforts on water, sanitation and waste management, which will serve as a good basis for the implementation of the R2R project.

Governance and Institutions

The successful implementation of any sustainable development strategy in Tuvalu depends on the establishment of a robust institutions and legal framework. The absence of these legal frameworks is likely to have created barriers to the implementation of effective integrated coastal, land and water resource management. Significant strides have been made in the past years to establish policy and governance frameworks at national and island levels in Tuvalu. As a result, Tuvalu is a signatory to various international treaties and conventions, and in partnership with regional and development organizations, have developed strategies and action plans to operationalize these international commitments in country. However, key challenges still remain in the area of policy coordination, integration / mainstreaming, and implementation, particularly in the outer island communities. The interventions under the R2R project will focus on addressing these existing gaps.

Mainstreaming: In regard to environmental issues, mainstreaming efforts in Tuvalu have focused on IWRM and Climate Change. As mentioned above, the Tuvalu IWRM project worked on mainstreaming IWRM into national policy, namely the Tuvalu National Water and Sanitation Policy Framework. NAPA I project focused on mainstreaming climate change into the agriculture sector. Similarly, NAPA II project focuses on mainstreaming climate change into the marine resource management as well as into the Island Strategic Plans (ISPs). The currently developing “Building Resilience of Health Systems in Pacific Island LDCs to Climate Change” (Pacific CCH project) submitted to the LDCF plans to mainstream climate change into the health sector.

Mainstreaming of BD, ICM, and SLM, however, has been limited. The TK-II defines eight strategic areas with 161 sector priorities and strategies. Whilst SLM or ICM is not mentioned anywhere within it, the strategic areas are defined both broadly and specifically, as they are intended to be pursued over the next ten years. As a tool to integrate environmental considerations within development in Tuvalu, GoT endorsed the “Environmental Protection (EIA) Regulations 2014”. From February 2014, a preliminary environmental assessment report, or Environment Impact Assessment (EIA), is required in accordance with Regulation 8 for all future developments. In addition, the MFATTEL will determine whether a full EIA is required for any development activity. However, the Regulations do not apply (are exempt) from the routine maintenance of public infrastructure including roads, airstrips and seawalls. Furthermore, capacities to implement the new EIA system requires further development, in terms of staff numbers and knowledge, as well as awareness raising within relevant sector ministries and island councils.

Coordination: Furthermore, provisions related to the environment are scattered within a number of pieces of legislation and island level bylaws governed by Kaupules (Island Councils) through participation and endorsement by the Falekaupules. These pieces of legislations appear to be fragmented across sector boundaries, resulting in limited enforcement. For example, the Public Health Act remains the responsibility of the Ministry for Health, while Pesticides Act remains the responsibility of the Ministry responsible for Agriculture; Neglected Lands Act is the responsibility of the Ministry responsible for Lands and many more.

Knowledge Management

Tuvalu IWRM project as part of the Regional IWRM generated a body knowledge related to water resources in Tuvalu. The project produced a number of knowledge and communication materials including a *National Integrated Water Resource Management Diagnostic Report: Tuvalu (2007)*, Hot Spot Analysis, and Videos.

NAPA I project produced a number of knowledge products for training, awareness raising, and communication. These include: a video documentary of home gardening and pulaka pit efforts in all islands, a documentation of best practices of climate adaptation measures in atoll islands. They have also conducted awareness raising and quizzes with primary and secondary schools to enhance knowledge and understanding of climate change impacts.

NAPA II plans to sustain knowledge management efforts on climate change initiated through NAPA I through continuing engagement with the primary and secondary schools. National and Island level awareness raising will be expanded through partnership with government and island councils on highlighting climate change issues during national and island events, including but not limited to: World Environment Day, International Women's Day, National Youth Day, etc.

The GIZ IKM (Information Knowledge Management) project, undertaken through the DoE is currently collecting environment baseline information on policies, strategies, plans, researches and assessments done on Tuvalu from the various Departments under each Ministries.

The R2R project will work with the various past and ongoing projects to collect, organize, and make accessible the various data, information, and communication materials that have been developed throughout the years.

The Department of Lands and Survey (DoLS) are responsible for managing the national GIS system and mapping services for the country, including DoE requirements as needed. At present, they operate using MapInfo software (version 11.0), through there has been pressure from other regional organisations for the Department to move onto a "freeware" platform (Quantum based GIS). The challenge with this approach is related to capacity demands and the fact that existing staff have now all been trained on the use of MapInfo. Any new move to introduce new software is likely to create timing challenges as the possibility of the Department's GIS staff (currently trained on the use of MapInfo) being able to train (in the future) DoE staff on another Quantum based GIS system) so they are able to better store, interpret and manage terrestrial and marine biodiversity related data may prove a challenge. At present, there is no formal institutional responsibility to store or manage biodiversity related data anywhere within the GoT, though technically (if trained correctly in the use of MapInfo) this should reside with DoE. There have been past requests for GIS maps (marine and terrestrial) to be centrally located, stored and made available even after completion of projects.

The R2R project will work closely with DoLS to define and establish an effective institutional arrangement and Standard Operating Practice (SOP) that would ensure that data, software/systems, and staff capacities to manage and update them will be established in a sustainable and organized manner.

1.6 Linkages with Other GEF and Non-GEF Interventions

This project is part of the programmatic approach entitled "R2R Pacific Islands Ridge-to-Reef National Priorities – Integrated Water, Land, Forest and Coastal Management to Preserve Biodiversity, Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods". Under the Pacific-wide regional framework, Tuvalu's R2R project links and complements other GEF interventions in Tuvalu including close coordination with the following ongoing initiatives:

The "IW Regional: Integrated Water, Land, Forest & Coastal Management to Preserve Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods (R2R Regional Support project)" (GEF/UNDP/SPC-SOPAC, CEO endorsed 6 April 2015) has been designed to support and coordinate the 15 national R2R projects, including the Tuvalu R2R project. This regional initiative builds on the successful completion of the Pacific IWRM project, the PICs will embark on the next phase of the stepwise progression towards catalyzing transformational change, an effort which initiated in 1997 during the preparation of GEF International Waters Strategic Action Programme

(SAP) for Pacific Island Countries, endorsed by the Heads of States of the 13 PICs. The objective of this project is “to maintain and enhance Pacific Island countries’ (PICs) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience”.

The Regional R2R Project will integrate and demonstrate climate resilient R2R in a holistic manner by building on the implementation of national IWRM plans in pilot sites in each country and linking this to the upland resilience approaches together with enhanced ICM. In Tuvalu, the Regional R2R project is designed to focus on:

- Demonstration of innovative approaches to **pig waste management** on Funafuti Atoll, Tuvalu
- Development and operation of a **targeted science programme** to: improve the operation of on-site waste management systems; and, to identify causal links between land-based contaminants and the degradation of lagoon health
- National and community **capacity building and awareness activities** in support of the enhance uptake of sustainable human and pig waste management systems on Funafuti and outer atolls and islets

The project will also serve a coordination function with the national R2R projects including the Tuvalu R2R Project. It will link directly to Component 4 of the Tuvalu R2R projects where representatives from Tuvalu will participate in the various opportunities for collaborative approaches, experience sharing, and learning toward future scaling up that will be led by the R2R Regional Support project.

Tuvalu is also part of another regional initiative entitled Pacific Alliance for Sustainability (PAS): *“Implementing the Island Biodiversity Programme of Work by Integrating the Conservation Management of Island Biodiversity” (IIB project)* (2012 – 2015) (GEF/UNEP/SPREP – GEF Grant US\$1,817,600). It is supporting Tuvalu and 3 other PICs to carry out a range of activities with their local communities to produce and strengthen management actions to save threatened species and ecosystems and to help ensure sustainable use of natural resources. Of relevance to the R2R project in Tuvalu is the integrated ecosystem-based management (EBM) approach which entails emphasizing the connectivity between systems, such as between land and sea and people. As mentioned above, the IIB project has conducted a socio-economic survey on Funafuti to identify community perceptions on conservation of marine resources. They plan to expand these efforts to other 3 islands. The R2R project will build on the findings of the socio-economic surveys to be completed through the IIB project to enhance the design and formalization of the LMMA/MPAs. The IIB project will contribute Component 1 and 4 of the R2R project.

The *“Increasing Resilience of Coastal Areas and Community Settlements to Climate Change” (NAPA I and I+)* (GEF US\$3,060,000; DFAT AUD 1,000,000) (2009 - 2015) project is designed to increase the protection of livelihoods in coastal areas in all inhabited islands of Tuvalu from dynamic risks related to climate change and climate variability. R2R will build on the food security efforts of NAPA I that took place in all 9 islands, and ensure that there are linkages to R2R’s efforts in promoting terrestrial biodiversity under Component 2, particularly in Nanumea and Nukufetau. The R2R project will also build on the various baseline data gathered through the NAPA I implementation on soil quality, gender, and home gardening assessments, which will feed into the knowledge management efforts under Component 4.

The *“Effective and responsive island-level governance to secure and diversify climate resilient marine-based coastal livelihoods and enhance climate hazard response capacity” (NAPA II project)* (GEF/UNDP – GEF Grant US\$4,325,000) is a 4 year project that started in 2013 and is being implemented to closely align with this proposed R2R Tuvalu project. This project plans to build resilience to climate impacts and support food security by enhancing traditional fishing combined with new sustainable fishing technology. Communities will be assisted to enhance locally managed marine protected areas and develop mechanisms to leverage international financing for climate change adaptation. The R2R project will link closely with the NAPAI project on matters relating to LMMA/MPA establishment, monitoring, and awareness raising for community-based marine resource

management under Component 1. It will further coordinate and collaborate operationally and technically on various aspects of project implementation, including but not limited to, outer island travel and technical expertise.

In addition to the abovementioned ongoing GEF financed initiatives, the project will also build upon the results and lessons learned from previous GEF projects including, but not limited to: A Pacific regional initiative, "*Pacific Adaptation to Climate Change*" (*PACC project*) (2013 – 2015) (GEF/UNDP/SPREP – GEF/SCCF US\$13,125,000 and DFAT) and "*Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries*" (*Pacific IWRM project*) (GEF/UNDP/SPC-SOPAC – GEF TF US\$9,748,136).

The EU-Global Climate Change Alliance (GCCA), PSIS "*Improving agroforestry systems to enhance food security and build resilience to climate change in Tuvalu*" (2013-2015 – EUR 500,000) demonstrates enhanced agricultural production on under-utilized land by establishing integrated agro-forestry demonstration sites on Nukufetau and Nanumea where unproductive trees (mainly coconut trees) will be thinned, and the soil will be enhanced with compost and replanted with crops and trees. The project will be recommending the import from SPC of "climate ready" plant collections developed by the SPC Centre for Pacific Crops and Trees (*CePaCT*). EU-GCCA trained teams from the Department of Agriculture will then train the land owners and communities in the cultivation and usage of the climate resilient crops (integrated agro-forestry farming systems). The R2R project will adopt a clear strategy for future intervention needs in both islands based on the results of this project to maximise donor interventions on food security related issues on the islands.

USAID is supporting the Pacific regional *Coastal Community Adaptation Project (C-CAP)* and Tuvalu is one of the focal countries for the provision of a small-scale infrastructure investment. Funding assistance will support three components; including (i) rehabilitating or constructing new, small scale community infrastructures, (ii) building capacity for community engagement and (iii) integrating climate change resilient policies and practices into long term land use plans and building standards. Activities and funds allocated from this project to Tuvalu are currently being developed. The R2R project will support this initiative by helping to provide appropriate SLM and ICM related interventions on Nanumea and Nukufetau.

The R2R project will ensure close coordination with the findings of the NZAID/World Bank "*Tuvalu Borrow Pits Remediation Project*" (NZ\$872,145). Particular links with the R2R project will be the issue of pollution sources on the over-crowded parts of Funafuti and remediation measures that can be introduced to mitigate future risks on lagoon water contamination. The completion of an Environmental and Social Impact Assessment and Management plan is being produced through the NZAID support programme.

The Taiwan Horticultural Crop Development (*Happy Garden*) Project (Ministry of Foreign Affairs, R.O.C. US\$1,431,000) in Tuvalu is designed to assist with and demonstrate technologies associated with vegetable and fruit cultivation and production as part of a wider promotion of the consumption of fruits and vegetables. The project aims to improve production, reduce imports, expand home gardening and promote the consumption of nutritious lunches through the operation of school vegetable farms. Through providing technical assistance through demonstration farms ("Happy Friendship Farm" or "Happy Garden"), the project has produced over 145 tons of fruits and vegetables. Furthermore, the project also works with EU to build composting facility where composts are then utilized for farming. The R2R project will collaborate with the Happy Garden project under Component 2 to utilize their successful training modules, manuals, and techniques to train representative from Nanumea and Nukufetau where sustainable livelihoods and agriculture practices will be implemented as part of SLM efforts.

The SPC/GIZ 'Coping with climate change in the Pacific Island Region (*CCCPIR*)' programme aims to strengthen the capacities of Pacific member countries and regional organisations to cope with the impacts of climate change. In Tuvalu, the Ministry of Finance and Economic Development and

Department of Environment requested SPC/GIZ to support the Ministry to conduct a cost-benefit analysis training and mentoring support to provide a stronger foundation for policy and programme decisions. Furthermore, the CCCPIR project is supporting the Tuvalu Association of NGOs (TANGO) to strengthen the capacity of their members to access climate change projects and programmes and partner with the government on the implementation of existing programmes. Additionally, the CCCPIR project also supports the DoE to strengthen their information and knowledge management systems. The R2R project will work very closely with CCCPIR in Component 4, where the enhanced environmental information management system established by the project will build on existing knowledge management efforts initiated by the CCCPIR project.

2. STRATEGY

The objective of project, “Implementing ‘Ridge to Reef’ approach to protect biodiversity and ecosystem functions in Tuvalu (Tuvalu R2R Project)” is “to preserve ecosystem services, sustain livelihoods and improve resilience in Tuvalu using a ‘ridge-to-reef’ approach”. To achieve this objective, the project focuses on: enhancing and strengthening conservation and protected areas (Component 1); rehabilitating degraded coastal and inland forests and landscapes and supporting the delivery of integrated water resource management (IWRM) and integrated coastal management (ICM) at a national scale whilst piloting hands-on approaches at the island scale (on three selected pilot islands) (Component 2); enhancing governance and institutional capacities at the national, island, and community levels for enhanced inland and coastal natural resource management (Component 3); and improving data and information systems that would enable improved evidence-based planning, decision-making, and management of natural resources in Tuvalu (Component 4).

The project is part of the Pacific R2R program on “Pacific Islands Ridge-to-Reef National Priorities - Integrated Water, Land, Forest & Coastal Management to Preserve Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods”. It is consistent with three of the GEF-5 focal areas including Biodiversity, International Waters, and Land Degradation, and is designed to advance Tuvalu’s work towards achieving national and international priorities in these key focal areas through a comprehensive Ridge to Reef approach. As such, the project will deliver directly on: the Convention on Biological Diversity (CBD)’s Programme of Work of Protected Areas (PoWPA) the Aichi Targets and the National Biodiversity Strategy and Action Plan (NBSAP 2012 – 2016); the UN Convention to Combat Desertification (CCD)’s National Action Programme (NAP); the Sustainable and Integrated Water and Sanitation Policy (2012 – 2021); and the Climate Change Policy and Action Plan.

Building on ongoing initiatives , the project will work across the 9 islands of Tuvalu on assessing natural resources status (baseline analysis and data collection), rehabilitating damaged island and coastal ecosystems including forests, and improving or developing Locally Managed Marine Areas (LMMAs), including Marine Protected Areas (MPAs) governed by the 8 Kaupules and Falekaupules (Island Councils). These activities assist in the recovery of degraded corals and breeding of fish populations. By the end of the five year implementation, the project aims to: increase and enhance Tuvalu’s LMMAs, including MPAs, by 15% with 9 formalized community management systems of marine conservation areas across 9 islands equipped with functional management plans; enhance and/or develop a centralized GIS database system on biodiversity, natural resources, and governance systems; implement sustainable land management interventions and agroforestry interventions; carry out remedial measures for algal bloom in Funafuti Lagoon; mainstream Ridge to Reef into national policies and Kaupule budgets; develop and implement national standard operational procedure on knowledge management; and enhance awareness and build capacities on Ridge to Reef.

The whole of Tuvalu is considered within this R2R project. Only Component 2 focusing on integrated land and water management (LD and IW) are limited to one of, or all 3 islands of Funafuti, Nukufetau and Nanumea, whilst other Components include all 9 islands of Tuvalu. The project will directly benefit the 6,194 people living in the urban capital Funafuti (55% of the population) as well as two outer islands of Nanumea (556 inhabitants) and Nukufetau (540 inhabitants) with improved integrated water and land management measures. In addition, the project will indirectly benefit the livelihoods of the entire population of Tuvalu through the long-term impacts of the R2R approach enhanced management of inland and coastal resources through the additional/improved LMMAs/MPA networks formalized in all 9 islands.

2.1 Project rationale and policy conformity

2.1.1 Consistency with GEF5 Focal Areas

The project has been designed to be in full conformity with GEF 5 Strategic Priorities under Biodiversity (BD), Land Degradation (LD), and International Waters (IW). This includes:

- BD-1: Outcome 1.1: Improved management effectiveness of existing and new protected areas.
- BD-2: Outcome 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation.
- LD-3: Outcome 3.2: Integrated landscape management practices adopted by local communities
- IW-3: Outcome 3.3: IW portfolio capacity and performance enhanced from active learning/KM/ experience sharing.

Biodiversity Strategy: The Tuvalu R2R will implement activities to expand and/or enhance LMMAs (including MPAs) by approximately 1200 ha or 12 km², representing 15% of additional and/or enhanced marine conservation areas in Tuvalu. Furthermore, the project will formalize LMMAs through the establishment of management plans (including information on the location of Protected Areas, hotspots, and bio-indicators) in all 9 islands of Tuvalu.

Land Degradation Strategy: The Tuvalu R2R project will enhance evidence-based land management strategy by conducting geotechnical land surveys in Nanumea, Nukufetau, and Funafuti, where information will be stored in a centralized GIS system governed by DoLA and made accessible to relevant stakeholders. Furthermore, at least 3 new SLM interventions, focusing on improved opportunities for underutilized local cop species, and agroforestry interventions will be introduced in Nanumea, Nukufetau, and Funafuti. This will contribute to sustaining and enhancing existing efforts towards improved food security and livelihood development.

International Waters Strategy: The R2R project will employ the IWRM approach to enhance water quality in Tuvalu. Building on previous projects and assessments, it will strategically focus on tackling the issue of algal bloom in the Funafuti Lagoon. Up to 3 water quality testing and algal bloom monitoring efforts will be implemented during the project lifetime, to test the effectiveness of the remedial measure that will also be implemented through the project.

The project will test cross-focal area (and cross-sector) integrated management of coastal and island ecosystems in the Pacific Islands. At the program level, the strategy of testing this R2R integrated management approach implemented through national multi-focal projects based on national priorities, complemented by regional multi-focal project (consisting mostly of IW funding) poses significant coordination, cooperation, learning, experience-sharing, and administrative costs for the PICs. However, as these activities are crucial for vulnerable SIDS to develop sustainably. Therefore, at the level of national projects under the program, the IW strategic Objective 3 is of relevance. This project is supportive of focal area strategic objective IW-3 for implementing IWRM (IW-3), supporting foundation capacity building, portfolio learning, and targeted research needs for joint, ecosystem-based management of transboundary water systems.

2.2 Country ownership: country eligibility and country drivenness

The R2R project is specifically designed to address GEF priority focal areas, notably: Biodiversity; Land Degradation; International Waters. Under the GEF 5 STAR allocation, Tuvalu is eligible to allocate their funds within these categories, where due to the level of allocation, it can apply the flexibility rule as it is doing in this proposed project.

This R2R project is country driven as it is in line with national policies and priorities that are in line with their international commitments.

The project is consistent with the TKII: “National Strategy for Sustainable Development (NSSD) 2005–2015” and in particular the four key policy objectives relating to agriculture namely:

- (i) Reverse the decline in subsistence agriculture production;
- (ii) Increase the availability of land for agriculture;
- (iii) Increase the production and consumption of local produce; and
- (iv) Mitigate climate change related agricultural impacts.

The project aims to specifically address these key policy objectives, outcomes, outputs and the corresponding priorities stated in the TKII: The following National Development Priority Strategic Areas are of most relevance to this project include:

- TKII Strategic Area 1: Good Governance: Strengthen and develop the institutional capacity of the Tuvalu Public Sector.
- TKII Strategic Area 4: Falekaupule and Outer Islands: Provide quality public service and create more opportunities for the sustainable development of Outer Islands.
- TKII Strategic Area 7: Natural Resources: Improve the management and use of natural resources for the sustainable development of Tuvalu;

The R2R project also aligns with UN's consolidated effort to support Tuvalu's development priorities highlighted within the UN's Development Assistance Framework (UNDAF) for Tuvalu. In particular, the following outcomes and outputs are of most relevance to R2R:

UNDAF Focus Area 1: Environmental Management, Climate Change and Disaster Risk Management)

- Output 1.1.1: Strengthened capacity of national and Falekaupule to develop and mainstream integrated policies on natural resources, environment, climate change, disaster risk reduction and management into national, sectoral planning and budgeting processes.
- Output 1.1.2: Communities, including vulnerable groups, have strengthened capacity to implement gender-inclusive and up-scaled/replicated climate change adaptation and mitigation measures.

UNDAF Focus Area 5: Governance

- Output 5.1.1: Strengthened capacity of local governance systems for inclusive planning and budgeting.

The R2R project also aligns with a range of pertinent international initiatives that Tuvalu is part of, such as the Millennium Development Goals (MDGs, 2000), the World Summit on Sustainable Development (WSSD, 2002), the 3rd World Water Forum (2003), and the review of the Barbados Programme of Action for Small Island Developing States (BPoA+10, 2004).

Furthermore, the R2R project is designed to directly support Tuvalu in achieving UNCBD Aichi targets 1, 2, 4, 6 and 11 under UNCBD by promoting awareness of the values of biodiversity as well as steps that can be taken to conserve and use it sustainably; integrating biodiversity into national and local development and poverty reduction strategies and planning processes; implementing plans for sustainable production and consumption and keeping the impacts of use of natural resources well within safe ecological limits; ensuring all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably; and conserving coastal and marine areas through effectively and equitably managed systems of protected areas. The project also supports the Decision 11/COP.10 of the UNCCD at its 9th Plenary Meeting in October 2011 that “*encourages eligible Parties, taking into account the cross-sectoral nature of land degradation, to use existing potential to harness synergies across the Global Environment Facility focal areas in order further to reinforce the importance of sustainable land management for integrating environment and developmental aspirations globally*”.

The GoT has developed four critical action plans that constitute the framework for this proposed project: *National Biodiversity Strategy and Action Plan* (NBSAP, 2012); the *Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management* (NSAP 2012), Action Plan for the Implementing the *CBD Programme of Work on Protected Areas* (PoWPA 2011) and the *UN Convention to Combat Desertification National Action Programme* (NAP) (2006). All these national strategies and plans have been considered in designing the project with the various priorities highlighted in Section 1.

The project will also advance various national policies, including the *draft Water Resources and Sanitation Management Bill* and the *draft Integrated Water Resources Management Plan*. The project will seek to strengthen these drafts and implement components of the building code to safeguard freshwater supplies and reduce sewage pollution.

2.3 Design principles and strategic considerations

2.3.1 Design Principles

The Tuvalu R2R project has been designed to strengthen the capacity of the government and island communities of Tuvalu to enhance sustainable management of the nation's marine and terrestrial resources and protection of its biodiversity through the implementation of a Ridge to Reef approach that integrates IWRM and ICM approaches. It also utilizes the LMMA approach that has been tested in Tuvalu, as well as other PICs as a way of strengthening the establishment, monitoring, and management of protected areas. Furthermore, implementation of the project will be carried out in coordination with, and building on, past and ongoing projects. Additionally, various lessons learned and best practices from past projects have been incorporated into the operational design of project management and implementation.

Locally Managed Marine Areas (LMMA): The project focus on delivering biodiversity through an LMMA approach. It is therefore centred on providing support to help deliver a “whole island” sustainable development and biodiversity approach. This is particularly centred on the sequencing of the investigations proposed, especially the knowledge management, communications and outreach and capacity building elements of the design. The approach towards improving LMMA creation is a core design principle. This is because LMMAs differ from what is more commonly known as MPAs (“no take zones”) in that LMMAs are characterised by local ownership, use and/or control and often follows the traditional tenure and management practices of the region. This differs from MPAs as they (in the more formal sense) are typically designed via a “top down” approach with little if any local input.

Integrated Water Resources Management (IWRM): IWRM is specifically focused on managing water in catchment areas, to cover all physical, social and economic aspects to ensure that water use and treatment is balanced between human use and health, environmental processes, and economic development. It employs a balanced approach to minimize conflict and ensure optimal, equitable and sustainable use, through the active involvement of all stakeholders in the planning and management of water. IWRM uses a range of water treatment methods such as collecting rainwater and treating it for domestic use to treating human sewage and other wastes such as from farms (especially piggeries) to reduce downstream pollution of stream and coral reef ecosystems.

Integrated Coastal Management (ICM): ICM covers all other aspects of the R2R concept, specifically the management of human activities on small island coastlines. It seeks to maintain coastal and marine ecosystem services and where necessary, repair damaged coastal systems for both human and environmental benefits. ICM in this proposed program will seek to replant shoreline vegetation (forests) and remove damaging invasive plants, protect coastal hinterland from erosion, repair damaged coastal agricultural lands, replant mangrove forests, implement protected areas, especially along the coasts and over coral reefs, and above all seek to raise awareness within communities and government of the need to sustainably manage coastal resources. ICM and IWRM will work synergistically to support the health of ecosystems and human populations on Tuvaluan islands.

Operational Design: The PPG consultations placed a strong emphasis on learning lessons from past donor-funded initiatives. One of the key lessons learned was the difficulty in accessing outer islands. Majority of past projects which exclusively relied on passenger vessels (Nivanga and Manufolau), fisheries boat (Manau), and the navy boat (Mataili) failed to deliver agreed activities and outputs fully or on time, leading to a decline in the engagement of local communities, and challenges of achieving project impacts. To deliver intended outcomes, achieve cost-effectiveness of the investments, and ownership of the project results, the operational design of the R2R project includes scheduled outer island visits at least once every 9-12 months. This will enable continuous assistance to outer island communities on technical and operational aspects of the project throughout the duration of the project implementation.

2.3.2 Site Selection Process

The whole of Tuvalu is considered within this R2R proposal. Only Component 2 focusing on integrated land and water management (LD and IW) are limited to one of, or all 3 islands of Funafuti, Nukufetau and Nanumea³², whilst other Components include all 9 islands of Tuvalu.

During initial project formulation (PIF), key stakeholders and GoT agreed for R2R project to focus to achieve more impacts and tangible effects on few, targeted sites, rather than spreading resources across the 9 islands. Nanumea, Nukufetau, and Funafuti were selected for Component 2 based on the following criteria:

- Level of risks to conserving terrestrial biodiversity (Nanumea and Nukufetau), and
- Level of risks to managing water quality and marine ecosystems (Funafuti)
- Vulnerability to climate change (Nanumea, Nukufetau, and Funafuti)

Nanumea: Terrestrial biodiversity in Nanumea has been threatened due to the destruction of the *Cordia Subcordata kanava* by a worm. All coastal plants *kanava* are dying leaving coastal areas prone to erosion. In addition to biodiversity, loss of *kanava* influence the livelihood of the island community as it is traditionally used for canoe³³, garland and handicraft making. Additionally, Nanumea, is perhaps most impacted upon in comparison to the islands in the central and southern parts of the group, as it is the driest island (lower average annual rainfall with long periods of drought experienced). During PPG consultations, one key reason why stakeholders ensured that Nanumea was part of the project sites was because they are often excluded from project opportunities due to its distance and inaccessibility (furthest from Funafuti).

Nukufetau: High seawater intrusion is a major concern for damaging pulaka plants. Furthermore, wave actions are causing severe erosion of the southern tip of the Savave islet, the main settlement, causing loss of indigenous plant species (such as *Callophyllum* spp.) in the coastal area.

Funafuti: On Funafuti, there is an increasing problem of eutrophication (algal blooms) covering the sea floors of Funafuti lagoon. This is caused by poorly designed latrines, household waste disposal options, pigs and livestock waste disposal and the disposal of natural and green wastes. Additionally, the marine environment in Funafuti Lagoon is deteriorating due to overharvesting of fish coupled with the high rate of pollutants entering the lagoon system (solid wastes and liquid wastes disposal into the lagoon in addition to the impacts of global warming and sea level rising) which is manifesting itself into a serious environmental problem.

³² During project implementation, if there is a scalable method that has been developed that is valuable and feasible to be scaled to other locations under the project scope, this can be discussed at the Project Board, though only 3 islands are proposed within this Project Document.

³³ Canoe making has been supported through NAPA II project in all 9 islands.



Figure 4: Tuvalu Islands and Pilot Island Location

(Source: Commonwealth Yearbook 2014)

During the PPG stage, one national and six community consultations were held in Funafuti, Nukufetau, Vaitupu, Niulakita, Nukulaelae and Nanumea³⁴. The participants were from various groups of the community, including the chiefly families, the kaupule members, men, women, youths, government officials and the Funafuti primary students. The setting of the consultations were the same throughout and the results were put together to formulate the activities. In total more than 5 % of Tuvalu were consulted and involved in the PPG process. In addition there was a 30 min radio program that was aired for a few days on the Tuvalu radio to raise awareness.

2.3.3 Gender Considerations

The project design process has ensured that gender considerations are integrated into all Components and activities. Women on the outer islands of Tuvalu often face challenges in terms of equal involvement in project activities, as well as equitable access to project resources. At the same time, they often express their interest in becoming more involved in certain project activities, and in accessing specific resources (Bernard 2013).

³⁴ Niutao and Nanumaga communities on Funafuti were consulted during PPG. The islands were not visited due to transportation challenges.

Incorporating lessons learned from other projects, the R2R project will organize targeted activities for groups that are often under-represented in environmental projects. During the design phase, adolescent females, mothers, the elderly (male and female) and special needs children were identified as groups that may need active engagement during project implementation. Therefore, a series of targeted training events will be designed to focus specifically on these groups during R2R implementation. In doing so, the R2R project will refer to existing tools and guidance note, including the UNDP and GEF guidance on gender (“Gender in Action – 2012 Gender Report of UNDP Supported GEF Financed Projects” October 2013.)

The R2R project has identified and will monitor and evaluate gender disaggregated indicators throughout the project implementation. These indicators can also contribute to reporting on GoT gender priorities including TK-II³⁵ and the draft Department of Women’s Strategic Plan. Currently, as there is no standardised national target for gender participation or inclusiveness, stakeholder consultation during the PPG phase recommend to utilize the 30% participation target in line with the Tuvalu MDG Progress Report 2010/2011 for R2R.

2.3.4 Comparative Advantage of UNDP

UNDP has the required on-the-ground operational, financial and technical capacities to effectively manage and guide this proposed project in Tuvalu under the umbrella of the United Nations Development Assistance Framework, UNDAF (2008-2012 UNDAF for the Pacific Sub-region) and the extension UNDAF (2013-2017). The Tuvalu 2013-2017 UNDAF country results matrix indicates four priority outcomes, including “4.1 Environmental sustainability and sustainable energy are mainstreamed into regional and national policies, planning frameworks and programmes. Pacific communities effectively manage and sustainably use their environment, as well as natural and cultural resources” and “4.2 Pacific communities effectively manage and sustainably use their environment, as well as natural and cultural resources”.

The UNDP national level support to Tuvalu is detailed in the *UNDP Sub-Regional Programme Document for Pacific Island Countries 2013-2017* with one focus being ‘Environmental management, climate change and disaster risk management’. The Fiji Multi-country Office (MCO) based in Suva, will be the responsible UNDP unit for this project, and the office has the required capacity and staff in relevant areas: operational and financial services; and the Sustainable Development Pathway Unit (7 staff). One staff member will function as the UNDP focal point for the project. The UNDP/GEF Regional Technical Advisor for International Waters who is part of the Bangkok Regional Hub will technically oversee the project to ensure that it achieves its objectives in line with GEF guidelines. UNDP is the only GEF agency that has a full-time resident presence in Tuvalu, who will be the first point of interface with the Government of Tuvalu. The Tuvalu Joint Presence Office is supported operationally, administratively and technically by the Fiji MCO.

The successful implementation of R2R will be built upon the long history of successful partnerships between GoT in the area of environmental management at both national and international levels. These include, but not limited to GoT/DoE and UNDP’s successful joint efforts in: NAPA, SNC and NBSAP, and mainstreaming of environmental sustainability into national policies, planning frameworks and programmes. In addition, UNDP, in collaboration with TANGO, has been assisting the Government in promoting community-based management of marine resources through GEF Small Grant Programme (SGP). Furthermore, UNDP also played a leading role in establishing the only national conservation area that exists in Tuvalu – Funafuti Conservation Area – with financial assistance from the GEF as part of the Regional South Pacific Biodiversity Conservation Programme in 1996.

³⁵ Strategic Area 3 Goal: Provide Tuvaluans with the highest attainable standard of health, adequate accommodation and an active life free from hardship and gender discrimination.

In addition to the areas related to biodiversity conservation and environmental management, supporting the government's aspiration for enhanced outer island-level governance and participatory decision making targeting vulnerable groups, has been an important area of UNDP support. UNDP's assistance for local governance reform in Tuvalu dates back to 1997 when the Falekaupule Act was enacted and the process of devolution of authority first began. Since 2005, support for more institutionalized outer island development framework has been provided through SLG I and II. Local island Kaupule capacity to formulate Island Strategic Plans was strengthened and implementation of projects supported.

2.4 Project Objective, Outcomes and Outputs/activities

The overarching goal of the Pacific Islands National Priorities Multi-Focal Area 'Ridge-to-Reef' (R2R) program is to *"maintain and enhance ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience"*. From the above regional goal, the Tuvalu R2R Project's objective is to *"preserve ecosystem services, sustain livelihoods and improve resilience in Tuvalu using a 'ridge-to-reef' approach"*.

2.4.1 Component 1: Conservation of Island and Marine Biodiversity

Co-financing amounts for Component 1

Dept of Fisheries	USD 7,524,000
Total Co-financing:	USD 7,524,000
GEF Grant Requested:	USD 1,600,000

OUTCOME 1.1: Improved management effectiveness of system of conservation areas composed of existing and expanded Locally Managed Marine Areas (LMMAs)

Outcome 1.1 will strengthen and expand current protected areas by assessing the status in the 11 existing conservation areas (CAs) established by the 8 Kaupule (Island Councils) across the 9 widely distant islands and atolls of Tuvalu. The nationally developed Funafuti Conservation Area (legislation revised in 2008) will be used as the model for this process with the aim (within NBSAP 2011) of having an additional 15% of existing conservation areas in Tuvalu. The geographical boundaries of these expanded LMMAs will be mapped along with key biodiversity information. In addition, these LMMAs will be formalized through creation of community-based management plans. In order to ensure community support and capacity development, various consultation and training activities will be carried out with participation of women, men, youth, and vulnerable groups.

The R2R project will also establish an enhanced biodiversity GIS platform system that serves as a central information hub for biodiversity and environment related issues in Tuvalu. Various baseline data gathered and updated through this project will contribute this database development. The methodological approach for an improved marine biodiversity baseline surveys will be modeled after the Alofa Tuvalu Project (2012), PROC Fish, IIB, PICC, ReefBase, and NAPA II, where R2R will build on, integrate, and enhance existing biodiversity baseline data and management systems for Tuvalu.

This outcome will be co-financed by Department of Fisheries of Tuvalu. Department of Fisheries Inshore Section is responsible for the effective management of coastal ecosystems in Tuvalu. The R2R project enables Fisheries Department Inshore Section to deliver directly on their mandate to enhance their database on marine resource stocks and current fishing and management practices. In turn, the Fisheries Department Inshore Section will lead the Outcome 1 activities in LMMAs.

establishment, community consultation, development and implementation of monitoring frameworks through providing technical and implementation support.

Output 1.1.1 National biodiversity surveys of terrestrial and marine fauna & flora completed, with specific targets on endemic species to develop the biodiversity component of the GIS-based management information system (as described in Output 4.1.1)

Both scientific and traditional knowledge will be utilized to conduct marine and terrestrial biodiversity surveys in the 9 islands of Tuvalu. Bio-indicators will be developed through a participatory process combining both scientific (i.e. biodiversity significance, endemic species, and hotspots, etc) and traditional knowledge and significance. Community members will be trained on various, simple, community-based biodiversity-monitoring systems such as biodiversity mapping and field mapping approaches³⁶. R2R Island Officers that will be placed within the 8 Kaupules will be trained on how to collect basic marine biodiversity data so that they may lead in the baseline collection, monitoring, management, and update of the biodiversity information along with the community members. Initial baseline assessment will be conducted where bio-indicators and community-based monitoring methods will be tested and refined. Expertise from various government and regional agencies and past and ongoing projects will be provided, including but not limited to Department of Environment, Fisheries, Lands and Survey, SPC, USP, IBP, and NAPA II.

Through effective training, mentorship, and partnerships, each island community will be able to carry out the survey work led by the Kaupules/Falekaupules and the R2R Island Officers. By the end of the project, community trained teams will be able to produce basic marine biodiversity information, such as the distribution of intertidal and sub-tidal habitats, which will help determine whether any measures could be required to prevent or reduce damage or disturbance to an acceptable level and enable sustainable development. It is expected that a total of at least 30 marine and terrestrial species will be monitored and tracked as key bio-indicators.

It is expected that the data gathered and reported will be done in both Tuvaluan and English so that the island community themselves can have ownership and access to the data, while data can be also consolidated and utilized for reporting to the international conventions. All data will feed into the GIS-based information management system, which the island will update every year. Wherever possible, biodiversity data that will be fed into the database will incorporate good internationally tested practices on marine and terrestrial biodiversity data collection, information storage and monitoring of indicators.

Activities for Output 1.1.1 are indicated below.

Output 1.1.1: National biodiversity surveys of terrestrial and marine fauna & flora completed, with specific targets on endemic species to develop the biodiversity component of the GIS-based management information system (as described in Output 4.1.1)
Activities
1.1.1 a) Engage communities in defining bio-indicators (incorporating science and traditional knowledge) and community monitoring methods for biodiversity.
1.1.1 b) Train R2R Island Officers and other island representatives on island level biodiversity monitoring
1.1.1 c) Conduct biodiversity baseline survey (of at least 30 species) with communities in the 9 islands. Endemic coastal vegetation, submerged marine ecosystems (seagrass/coral) and other biodiversity hotspots to be identified.
1.1.1d) Incorporate all new field survey data into a GIS-based management information system, which is to be updated every year.
1.1.1 e) Community monitoring to take place annually. R2R Island Officers to update data every quarter.

Output 1.1.2: Existing marine conservation areas in the 9 locations expanded to cover 15% of existing conservation areas (approx 1200 ha or 12 km²) by including more land and sea areas and fish spawning aggregation sites where appropriate, building on completed assessments and additional National Biodiversity Surveys (as described in Output 1.1.1). Repeat assessments supported at midterm and

³⁶ Biodiversity 2020: Developing indicators for measuring success Technical Discussion Paper can be used as a reference material for bio-indicator development

project end to measure management effectiveness. Information incorporated into the GIS-based management information system (as described in Output 4.1.1)

During PPG consultation, most of the island communities have conveyed their willingness to extend their conservation areas (Annex 3). Building on the confirmation of community interests for LMMAs/MPAs expressed during PPG, the project will conduct a comprehensive desktop review and update of the current extent, status and potential for expansion of 11 Tuvaluan Locally Managed Marine Areas (LMMAs) including Marine Protected Areas (MPAs) located across 9 islands. This review will inform the preliminary identification of CAs that are most likely to extend their CA boundaries and where rehabilitation programmes are likely to have the most impact. For logistical and cost purposes, through focused and robust consultation programmes on all 9 islands, consultation and awareness raising interventions on LMMA expansion will only be conducted on the selected sites³⁷. Progress and lessons learned from the marine management efforts such as NAPA II (in installing Fish Aggregate Device and LMMA boundary signage) will also inform the selection of sites for LMMA expansion.

Through a participatory and iterative process, government agencies (DoE, DoF, DoLS), the Kaupules/Falekaupules, and the community members will agree on the specific locations for LMMA/MPA expansion for each island, which will result in at least 15% (approximately 1200 ha or 12 km²) expansion of existing LMMAs/MPAs in Tuvalu.

As enforcement and policing of the agreed upon CA areas and practices is a significant challenge on the remote outer islands. Therefore, the process of establishing LMMAs needs to adopt a fully participatory approach, which is as important as the end results. Community members will therefore be mobilized to participate in the discussion, understand the benefits of managed catch and communal management practices. While tools and know-how will be shared across the 9 islands and 11 LMMA/MPA sites, based on recommendations from past projects (IBP/BIORAP), the R2R project will ensure that the management efforts will be island specific and contextualized, where management rule will vary per island depending on its unique circumstances.

Furthermore, the awareness programs to be initiated will inform all members of the community (elders, school children, mothers, youth and adolescents etc) about the importance of CAs on their island. The purpose of this is to inform each gender and vulnerable group of the choices that they may make regarding their role in the conservation of specific marine and terrestrial habitats/faunal assemblages found on their islands. Specific “choices” may include their roles in supporting seasonal and zonation conservation, enforcing fishing techniques and restrictions, their role on the management of their conservation areas and also, their role in helping to collect traditional knowledge to better design and identify the new conserved areas. The number of people aware and participating in marine conservation management, as a consequence of these Activities will represent up to 30 % of the island (to include a broad demographic of men, women, children, elderly and vulnerable groups).

Community members will also be engaged to help design and define pilot “*community focused habitat rehabilitation*” programmes that may help to gain agreement on extending existing conservation area (CA) or LMMA boundaries. Nanumea Kaupule, for example, has confirmed their preference to extend the current CA boundary towards the islet of Lakena. Therefore, Lakena will be earmarked as a “reserve” or “safe haven” for the protection of turtles. In addition, a coral rehabilitation project will be initiated for each CA which will be designed and created as a “*controlled rehabilitation experimental area*” to help monitor the cause of ciguatera (fish poisoning) that is being currently recorded on islands such as Nanumea. Within Nukufetau, the Kaupule are likewise interested in undertaking a coral rehabilitation project to help towards possibly extended their existing CA or possibly creating a new area. The actual location of this site will be determined through the more detailed biodiversity assessment (conducted under Output 1.1.1) and socio-economic surveys (conducted through the

³⁷ It is proposed that the most likely islands for attention will be Funafuti, Nukufetau and Nanumea though all islands will be approached for potential focused intervention programmes.

NAPA II project in all islands). In Funafuti, there is a need to extend the existing CA through effective dialogue through community consultations with the Kaupule to better explore various options for extending conservation areas. The current work under the IIB project (SPREP 2014) is conducting a survey to identify the level of awareness/knowledge of the Funafuti residents with regard to the Funafuti Conservation Area. The habitat restoration activity can be mirrored in other islands if successful. This is subject to the availability of sufficient time and resources to take forward. Nukulaelae, for example, has expressed interest in taking this forward and could represent an ideal site for this activity due to its size and its demonstrated success on delivering community focused conservation programmes.

The important phase of project monitoring and evaluation (M&E), which is currently not effectively being carried out on Tuvaluan environmental management projects, will be ensured through the R2R project. Key findings will be communicated not only at the local level (island specific communities), but also at the national level (GoT decision makers) and at regional Pacific R2R events (see Output 4.1.3). Through the participatory M&E processes, challenges (such as no monitoring of CA's, role of the "Island Chief" in management etc) and solutions to enhance LMMAs/MPA management efforts at the individual sites will be examined early on and throughout the project, to better structure the community approaches needed to ensure robust and implementable R2R management approaches will be adopted on each island.

Activities associated with Output 1.1.2 are tabulated below.

Output 1.1.2: Existing marine conservation areas in the 9 locations expanded to cover 15% of existing conservation areas (approx 1200 ha or 12 km ²) by including more land and sea areas and fish spawning aggregation sites where appropriate, building on completed assessments and additional National Biodiversity Surveys (as described in Output 1.1.1). Repeat assessments supported at midterm and project end to measure management effectiveness. Information incorporated into the GIS-based management information system (as described in Output 4.1.1)
Activities
1.1.2 a) Review of current extent, status and potential for expansion of 11 Tuvaluan Locally Managed Marine Areas (LMMAs) including Marine Protected Areas (MPAs) located across 9 islands.
1.1.2 b) Through community consultation and scientific assessments (through Output 1.1.1), identify and agree on specific locations for LMMAs/MPA expansion by 15% (approximately 1200 ha or 12 km ²) and community-focused habitat rehabilitation programs.
1.1.2 c) Conduct awareness program to educate the R2R Island Officers, kaupule members, and community on LMMAs/MPAs, marine conservation techniques, and the importance of conservation with reference to livelihoods and adaptations.
1.1.2 d) Develop/update GIS maps of new LMMAs/MPAs boundaries in partnership with SPC
1.1.2 e) Through a participatory process, implement, enforce, and monitor the implementation of marine conservation techniques piloted across the 9 islands

Output 1.1.3 Community management systems of marine conservation areas formalised following participatory LMMAs approaches, with biodiversity focus to address threats, including climate change.

Output 1.1.3 will design and produce clear awareness raising and actions that will catalyze the formalization and implementation of the community based management systems for all 8 kapules/falekaupules governing the 9 islands. This will be achieved by using existing information plus (where possible) data collected from Output 1.1.1 to inform the wider public, of the importance of conserving biodiversity with regard to livelihood, building resilience to climate change, improving biodiversity conservation and management and the economic benefits that may be derived from these actions. Whilst Funafuti already has a CA with no take zones as well as a draft management plan, the project will build on and strengthen the existing plan in Funafuti whilst in addition, preparing a set of more detailed and enforceable plan structures for the remaining LMMAs/MPAs governed by 7 kapules in Tuvalu.

MPAs/LMMAs governance arrangements will also be reviewed in a consultative approach, which will happen whilst the community members are engaged in monitoring training events. There is a common atmosphere amongst the island community for this review to happen as issues have changed since

their establishment. The arrangement of institutions and the upgrading of their legal statuses will be noted in these consultations with possible solutions tailored to the island needs and traditions.

A robust monitoring and enforcement (and associated training thereof) of community members on LMMA/MPA management techniques will be addressed within this output (similar to those outlined in Annex 10). Associated training exercises will also be conducted on each appropriate island community over an agreed period of time (possibly over 2 or 3 days). Specific “conflict resolution” exercises will be designed coupled with specific courses that have been already developed, such as the USP/FSPI/SPREP/Darwin Institute entitled the “Pacific Island Community Conservation Course”. This runs for 5 weeks over a 6 months period and is tailored for Pacific Island community needs for community adaptive conservation. The course will provide participants with the practical knowledge and skills required for the sustainable management of natural resources such as fisheries management and conservation areas and other forms of protected areas such as LMMAs/MPAs. Youth is a key stakeholder to be engaged in LMMA/MPA management, as they will be R2R “wardens for the future”. Therefore, youth will also be engaged in the training activities. Additionally, a series of parallel training programmes will be designed relating to business continuity, community based adaptive planning and risk management procedures.

To further strengthen monitoring and enforcement capacities, an annual event of community monitoring will be arranged where island representatives will have a chance to exchange know-how and good practices. At this event, all invitees/attendees will be involved in the training “process” on an informal basis linking it with existing community events, i.e. Island Day, etc targeting island groups/feituala day, youth group day rather than creating new, independent event. These annual events will be implemented through the support of DoE, DoF, DoA and subsequently implemented across the Tuvalu group of islands. There will be trained officials, with R2R Island Officers requested to lead the event and subsequently identify key community members who show an interest in being trained more formally as future biodiversity advocates.

The event will present an opportunity for outer island community members to share and learn R2R related lessons from other island communities in addition using other Pacific Islands’ examples who have conducted similar methodology. It will also seek to engage residents of other outer islands on residing in Funafuti thus ensuring their voice is heard on this topic, and how their input may influence/contribute to future LMMA/MPA management, IWRM, ICM, governance and institutions, and knowledge management objectives. It will focus on the demonstration of MPA and LMMA area setting for different islands and options of habitat rehabilitation in the few selected sites with the possibility of expanding to all islands if feasible in the project life. The annual or community monitoring gatherings will also be used to demonstrate the effectiveness of MPAs and LMMAs. The project will assist key stakeholders from outer islands to attend and participate in events and will encourage local business and NGO sponsorship in prizes, retailing of preserved seafood products, helping to ensure the establishment of the event on an annual basis.

The timing of these events will be influenced by the completion of all necessary fieldwork and no earlier than a year after the training of R2R Island Officers and the project inception workshop. The experiences and data will then be used as case studies to learn more about CAs, community monitoring systems that actually will work, and as a result improve Kaupule governance capacities for the long term that sustain the LMMA/MPAs. Outcomes will also be communicated at regional Pacific R2R donor conference events (see Output 4.1.3).

Activities associated with Output 1.1.3 are tabulated below.

Output 1.1.3: Community management systems of marine conservation areas formalised following participatory LMMA approaches, with biodiversity focus to address threats, including climate change.
Activities

1.1.3a) Review the current management system and traditional Kaupule conservation area management plans through community consultations to determine the weaknesses and strengths, as inputs to the LMMA/MPA plans (1.1.3b) in 9 sites.
1.1.3b) Strengthen, formalise and implement Funafuti MPA Plan and other LMMA/MPA management plans for each of the 9 sites
1.1.3 c) Community-based monitoring and enforcement system for LMMA/MPA management plans developed and implemented by community members and R2R Island Officers
1.1.3 d) Host annual community management and monitoring event

2.4.2 Component 2: Integrated Land and Water Management

Co-financing amounts for Component 2

(NB: SWAT providing co-financing as AUD (1 AUD = USD 0.78))

Dept of Agriculture	USD 475,000
Dept of Fisheries	USD 4,750,000
<u>Solid Waste Agency of Tuvalu (SWAT)</u>	<u>USD 1,036,809</u>
Total Co-financing:	USD 6,261,809
GEF Grant Requested:	USD 1,425,000

Component 2 aims to enhance integrated land and water management through targeted interventions implemented in the 3 selected islands of Nanumea, Nukufetau, and/or Funafuti. This will be achieved through the adoption of integrated landscape management practices in the island communities, which will be facilitated by improving/establishing a resource inventory for land and water, characterization of soil, which will be incorporated into a national GIS system. Furthermore, degraded areas will be re-vegetated with indigenous hardwood tree species, which will improve hydrological functions, coastal resilience, and livelihoods. In Funafuti, water quality issues will be tackled through the implementation of remedial measures proposed through previous studies conducted by Alofa Tuvalu. The effectiveness of these measures will be monitored through water quality testing throughout the project.

By the end of the project implementation, the R2R project will have: 3 geotechnical surveys conducted in Nanumea, Nukufetau, and Funafuti, where gathered data will be contributed to the national GIS information system that will monitor the status of marine and terrestrial biodiversity and management efforts in Tuvalu; 3 new SLM techniques and agroforestry interventions tested in the 3 selected islands, coupled with consultation, training, and awareness raising efforts with the island communities; and at least 1 remedial measures implemented to reduce the point and non-point sources of pollution causing the algal bloom in Funafuti Lagoon.

This Outcome is co-financed by Department of Agriculture, Fisheries, and the Solid Waste Agency of Tuvalu (SWAT). Department of Agriculture experts will lead and advice on the implementation of SLM practices such as replanting, nursery establishment, and training and monitoring of farming techniques on planting and maintenance. Department of Fisheries and SWAT will be engaged in the remedial actions of algal bloom in the Funafuti Lagoon. In line with their government mandates, they will lead and provide technical support in assessing pollution sources, water quality, and marine resource health.

OUTCOME 2.1: Integrated landscape management practices adopted by local communities

Outcome 2.1 aims to rehabilitate degraded terrestrial and coastal habitats, lands, and water. New detailed ground truth soil, geological, topographic and land resource characterization field surveys will be completed in at least 3 islands. Each intervention will integrate land and water management practices and techniques that employ R2R principles in tandem with instilling biodiversity conservation principles. This will be undertaken through completing the following interventions:

- Undertake resource inventories and characterizing hazards to these resources (Develop sustainable agroforestry by replanting degraded island and coastal forests with suitable hardwood and fruit tree species and, where appropriate, mangrove trees planted in at least 3 islands with suitable habitats by working with the *Kaupule*, NGOs and womens' organizations supported by key national and regional agencies (Output 2.1.2 and 2.1.3);
- Remedial interventions that address the causes and impacts of algal blooms in the Funafuti lagoon; (Output 2.1.4);
- Implement agroforestry integration production, including rehabilitation of coconut plantations and underutilized local crop species with the involvement of *Kaupule*, NGOs and women's organizations in about three islands supported by key national and regional agencies (Output 2.1.2).

Outcome 2.1 will allow for the management of biodiversity within the broader island landscape. The geographic focus of the interventions will be on the three islands of Nanumea, Nukufetau and Funafuti which have suitable terrestrial habitats interconnected with the coastal/marine areas. The focus on three locations is borne by the available resources and the need to test integrated approaches for replication described in the Site Selection Criteria.

In line with the R2R principles building on IWRM, and ICM, the inter-dependency and trade-offs between the "upper" landscape for agriculture³⁸ and coastal/marine areas will be carefully examined, which will inform and be incorporated within the Island Strategic Planning processes.

Output 2.1.1 Resource inventory performed, soils characterized and hazards to land and water resources identified and incorporated into GIS area mapping, complementing Output 1.1.1 towards improving decision making in the management of production landscapes and maintenance of ecosystem services

Output 2.1.1 focuses on the generation of information to provide the basis for integrated SLM and planning through the completion/update of inventories of land and water resources. This work will be implemented through the establishment of resource indicators for land and water through a community-based and scientific process; training of R2R Island Officers and community members on monitoring and management of these indicators, updating soil surveys, storing the data in the GIS-based management information system, identify gaps and opportunities to further deliver on NBSAP priorities, and to ensure that data is updated and monitored regularly.

Assessments will be carried through partnerships with national and regional agencies, including but not limited to DoE, DoA, DoF, DoLS, SPC, USP, SPREP, etc. The assessments are expected to examine the following key issues:

- i) Soil characteristics, nutrients levels, toxic levels (eutrophication)
- ii) Freshwater lens characteristics, toxic levels, availability or total water volume available within soils to better ascertain vegetation /crop consumption rates in cases of severe drought events
- iii) Climate resiliency to determine which favorable crops species could be grown on each pilot island of Funafuti, Nanumea and Nukufetau and from this to determine whether these species are native or introduced to the island (introduced species will be trialed only on Funafuti)

The soil survey efforts will build on the now outdated FAO Land Resource Survey for Funafuti, Nanumea and Nukufetau produced in 1986, and the soil and nutrient sampling from home gardens on four islands (Funafuti, Nukufetau, Nukulaelae, Niulakita, and Vaitupu) conducted in 2014 supported through the NAPA I project. Island level resource inventory will also refer to and include the basic Island profiles produced through by the Strengthening Local Government (SLG I) Project (NZ Aid, UNDP, SPC, 2014).

³⁸ 67% of the land area is noted in the PIF as being under agriculture

The water quality assessments, the project will facilitate assessments (for the three sites) on the level of impact that the disposal of 2nd World War ammunition relics has had on biodiversity and particularly water quality of Nanumea Lagoon. This is important as the people of Nanumea have expressed the importance of this assessment to better understanding environmental quality concerns. Further to the new recently endorsed “Environment Protection (EIA) Regulations 2014”, the Regulations are exempt where routine maintenance of public infrastructure including roads, airstrips, seawalls and pathways are taking place. The DoE will, (as R2R project implementation agency) clearly advice on any regulatory compliance that maybe required with regards to any approach being recommended.

The collected data from the above activities will represent a key part of the R2R monitoring approach and will be conducted with support from the appointed R2R Island Officers, and will feed directly into the GIS-based data management system developed under Component 4.

Activities associated with Output 2.1.1 are listed below.

Output 2.1.1: Resource inventory performed, soils characterized and hazards to land and water resources identified and incorporated into GIS area mapping, complementing Output 1.1.1 towards improving decision making in the management of production landscapes and maintenance of ecosystem services.	
Activities	
2.1.1 a)	In line with bio-indicators developed under 1.1.1, develop resource indicators for land and water through community-based and scientific process.
2.1.1 b)	Train R2R Island Officers, island leaders and community members on the significance of land and water resource monitoring and management
2.1.1c)	Through a community-based and scientific approach, carry out an inventory to determine the quality and quantity of natural resources in the 3 selected islands (Nanumea, Nukufetau, and Funafuti)
2.1.1d)	Building on existing data (produced by FAO and NAPA II project), produce detailed ground truth soil, geological, topographic and land resource characterisation field surveys in the 3 selected islands
2.1.1e)	Incorporate all new soil and land resource characterisation field survey data into a GIS-based management information system.
2.1.1 f)	Identify information gaps/datasets needed for future surveys to help better deliver NBSAP principles
2.1.1 g)	Update information on resource-indicators annually within local and national GIS-based management information system.

Output 2.1.2 Re-vegetated degraded areas with indigenous hardwood tree species (including mangroves, coconuts and local crop species) in selected sites in 3 islands (Funafuti, Nanumea and Nukufetau), towards improving hydrological functions, coastal resilience against climate impacts, and improving livelihoods and securing food production with involvement of Department of Agriculture, Department of Rural Development, Kaupule, NGOs and women’s organizations (Tuvalu National Council of Women)

The activities associated with Outputs 2.1.2 supports integrated landscape and watershed management and measures to avoid deforestation and forest degradation and to improve the management of agricultural activities through agroforestry.

To inform appropriate SLM interventions, a “Tuvalu Climate Resilient SLM Techniques Guide” will be produced in English and Tuvaluan. The guide will also be utilized not only to inform interventions in the 3 pilot sites, but will also be updated incorporating lessons learned so that it can be up-scaled and replicated to other islands. In addition, a specific training programme will be designed and implemented to strengthen knowledge and skills on how to implement the SLM techniques highlighted in the Guide³⁹.

³⁹ Support to pulaka pit rehabilitation and protection will be a priority particularly for the men on Nukufetau (Fale Island), as it is of great cultural significance as a staple food used mainly for special occasions. Therefore the R2R project will continue to support this activity, however with better technical guidance on how to adapt pulaka to climate variables such as salinity and drought, to ensure that this activity is ultimately successful and sustainable. This work will build on the lessons learned from the SLM Terminal Evaluation (2012), which observed key challenges in two main technical areas, including:

Criteria of how to define and select techniques to be included in the Guide will be discussed thoroughly amongst key experts and community stakeholders. For example health and nutrition is expected to be included/ considered. In addition, consideration may be given towards protecting large trees over replanting smaller trees (to help enhance island biodiversity). As part of the Guide development, there will also be a review of the status of species *Cordia subcordata* on Nanumea and how effective precautionary measures to protect this species need to be as recommended by the DoA (supported by SPC). Details on appropriate plants and vegetation for future interventions are presented in the consultation findings with the local community (Annex 3). In addition the published work of Randy Thaman, Eliala Fihaki and Teddy Fong (“Plants of Tuvalu – 2012) will be an important document to refer to. Detailed intervention methodology reports will be produced prior to any intervention.

The inventories of land and water resources (Output 2.1.1) will also be used to obtain a basis for the selection of the SLM intervention sites and methods. Wherever relevant and effective, participatory mapping and data visualization efforts will be utilized as a tool to enhance community participation and consensus-building regarding the specific SLM interventions, their sites, and community-initiated management/monitoring systems.

At least 3 new SLM interventions will be introduced on Funafuti, Nanumea and Nukufetau (1 on each island if possible) that positively contribute to food security development. This Output includes a series of activities that will action the replanting of degraded island and coastal forests with suitable hardwood and fruit tree species and, where appropriate, salt tolerant mangrove/pandanus trees along with suitable supporting habitats (Annex 4). Some of these initiatives may focus on rehabilitating large areas of degraded coastal and inland forests and, where requested by communities, repair degraded and abandoned swamp taro ‘pulaka’ pits that are threatened by saltwater intrusion. Of importance to note, this Output will review activities to avoid any duplication or avoidance of lessons learned from other donor funded projects. For example, NAPA1, SLM and other projects have undertaken re-vegetation related projects, and these have not always brought immediate benefits or provide an immediate solution to the loss of current native trees. Consequently, before implementation activities take place, baselines will be revisited to identify the priority areas per this component.

With regard to the actual SLM interventions in the pilot sites, a few possible approaches⁴⁰ have already been discussed with island communities during the PPG process (Annex 3). These points will be revisited early on in the R2R project process. At present, however, and with reference specifically to Nanumea, the Kaupule have confirmed the benefits of pursuing the following interventions:

- i) Pilot Project 1: Planting of mangroves in the uninhabited areas of Matagi, Tafega. Close involvement of local communities in this intervention project.
- ii) Pilot Project 2: Initiate a pilot project involving the replanting of *Kanava Scordia codellia* at this location will be undertaken (replanting programme) following confirmation that the worm destroying the plants is not living on the island.

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- Systematic capacity building and mainstreaming of SLM principles;
 - Enhanced technical support at the local, outer island and national level to assist integrated decision making.

Based on these findings, participatory design and training activities will be enhanced in terms of number and quality.

⁴⁰ “Cash-for-work” (CFW) schemes have also been explored during the PPG phase as an effective method to get community participation in some of the SLM interventions. The CFW may provide modest compensation for planting trees along the coastline, specifically targeting participation of women and youth on the islands. Compensation schemes that may be implemented could include a modest payment per tree planted, and half of that payment then made to the individual each subsequent year thereafter should the tree demonstrate signs of stability and is growing well. This approach will only work if it is based on solid technical guidance (Activity 2.1.2a) and clear advice is provided within it on appropriate locations for planting and varieties of trees to use, thus mitigating against failure of these activities, which in turn could quickly demotivate participants. This activity will help to capitalize on young women’s physical strength and energy in constructive ways, which will teach them valuable life skills such as work ethics and productivity, as well as some technical competencies. UNDP in Fiji (and hence passed to the team in Tuvalu) has recent experience in appropriate design and implementation of CFW schemes in a Pacific context, which can be drawn upon. Whether and how CFW approach may be utilized through the R2R project will be revisited and discussed during project inception.

- iii) Pilot Project 3: On Nukufetau, the local Kaupule have stated their preference for a pilot project that involves the replanting of coastal plants such as *Scaevola taccada*, *Ipomea spp* and other possible mangrove species (but again not in the settlement areas).
- iv) Pilot Project 4: On Funafuti, the R2R project will learn from the example of SLM, PACC, NAPA 1 to better ascertain why replanting of coastal plants failed. A decision will then be made to determine the most suitable geographic location (maintenance and management) for the pilot project.

NGOs such as Tuvalu National Council for Women (TNCW) will be engaged in this Output, most likely linked to the replanting of coconuts, banana species and varieties that are resilient to sea-spray, certain species of breadfruit that grow in other outer island atolls and finally, species of pandanus that can play a dual purpose in providing an economic and practical livelihood security (handicrafts) option to enable community groups (e.g.: women) to make mats plus separate species that can be used as a food source. The project will review the status of similar projects carried out by TCNW in replanting and livelihood improvement. On Nanumea, for example, work has already begun on replanting both coconuts and pandanus varieties through the involvement and support of the local Kaupule. This work will be reviewed, and if deemed successful, encouraged for development (replication/upscaling) to other parts of the island.

This work will also be enhanced through learning and partnership with the ongoing Department of Agriculture’s “Happy Garden” initiative (supported by Taiwan) and biodiversity garden demonstration sites (supported by EU-GCCA). It is envisioned that each year, 2 community representatives from Nanumea and Nukufetau, and Funafuti will participate in home gardening, composting, and agroforestry trainings in Funafuti. The participants will then be expected to implement similar SLM efforts when they return to their home island with a report subsequently submitted to the Project Implementation Unit (PIU). These reports will inform whether the training is effective (sustainable and scalable) and that the capacity of the island community is enhanced in appropriate gardening techniques that contribute to the restoration of biodiversity of the outer islands. The community based training provided on home gardening techniques and climate change impacts on agriculture will be designed to ensure the invitation of and inclusion of women, with particular outreach to younger women to ensure their inclusion. Sex and age disaggregated data will be systematically gathered on all training provided, and monitored to verify whether women of all age groups are included.

Activities associated with Output 2.1.2 are listed below.

2.1.2 Re-vegetated degraded areas with indigenous hardwood tree species (including mangroves, coconuts and local crop species) in selected sites in 3 islands (Funafuti, Nanumea and Nukufetau), towards improving hydrological functions, coastal resilience against climate impacts, and improving livelihoods and securing food production with involvement of Department of Agriculture, Department of Rural Development, Kaupule, NGOs and women’s organizations (Tuvalu National Council of Women)
Activities
2.1.2a) Building on past and ongoing efforts (i.e. SLM project, etc), develop the “Tuvalu Climate Resilient SLM Techniques Guide” covering agroforestry, agro-biodiversity, and agriculture interventions that would improve hydrological functions, coastal resilience against climate change, and improve livelihoods and food security in coordination and cooperation with Department of Agriculture
2.1.2b) Implement priority SLM interventions in accordance with the Guide (2.1.2a) including the replanting of over 500 suitable hardwood (coconut / mahogany, etc) fruit tree species and underutilized local crop species.
2.1.2c) Create community training and involvement plans to aid in local engagement (including sponsoring organize community-based tree planting restoration programs involving local youth and women in raising mangrove saplings and maintaining the mangrove and coconut plantation nurseries).
2.1.2d) In order to enhance community capacities to manage and sustain SLM interventions, support participation (2 participant per island per year) of island representatives to trainings in partnership with the “Happy Garden” Initiative and agroforestry demonstrations of the Department of Agriculture with involvement of Kaupule, NGOs and womens’ organizations on Nanumea, Nukufetau, and Funafuti.

Output 2.1.3 Review of completed algal bloom assessment in Funafuti; Implement remedial measures to reduce occurrences and severity

Through the PPG process, it was found that an algal bloom assessment was conducted by N'Yeurt and Lese 2013 under the University of the South Pacific Centre for Environment and Sustainable Development. Therefore, the output was revised to review and implement the remedial measures proposed through this assessment. The assessment focused on algal bloom observations in Funafuti Lagoon. The study was guided by the following objectives or expected outcomes.

1. Assessment of the extent and type of the seaweed bloom problem in Funafuti;
2. Water quality measurements for Fongafale affected areas, and the Conservation Area;
3. Assessment of current agricultural practices by Funafuti farmers in relation to seaweed fertilizer, and possibilities for expansion of this method to other farmers;
4. Best practice handbook for the mitigation of seaweed and COT outbreaks in Funafuti.
5. Change in community perception, attitudes and practices that will reduce the incidence of seaweed and COT outbreaks;
6. Future implementation of biogas digesters for seaweed and COT to alleviate the symptoms of algae/COT outbreaks and provide a sustainable source of cooking biofuel and organic fertilizer;
7. Presentation of the initial results of the survey to the local Tuvalu Island Council (Kaupule).

7 sites were selected on the coastal areas of Fongafale Island. In addition a comparison was made to the baseline conditions within the Funafuti Conservation Area.

The findings concluded that algal blooms were observed only near the coasts of Fongafale and the CA. Its distribution and density is believed to be correlated to the levels of toxins recorded within the water. There is also a high concentration of nitrate in particular this is very high close to the densely populated sites of the seven selected sites recording stations, namely in front of the Nauti Primary School and hospital. Nitrates (according to the report) are produced through sewage discharge which are nutrients which boost algal growth.

The common dominant species found widely in the selected areas was *Sargassum polycystu* which is believed to be an introduced invasive by commercial shipping services through the discharge of ballast water, anchors, etc. The report states that the species was probably first introduced from the Wallis Islands. The invasive species favours hard substrates and willow waters within a water depth of less than 1 meter. Its distribution has a close correlation to the levels of nitrate in the water and the densely populated areas.

The study also looked at ways of reducing or mitigating this problem as follows;

- Continue addressing and reducing pollution of lagoon – fix the latrine and waste problem.
- DoE and DoF to continue research to cover all other areas of Funafuti and continue monitoring the seaweed growth and distribution using the same reference points and method.
- Implement proper inspections and enforcements of shipping laws – no ballasting of water.
- Establish a small committee to spearhead efforts to address the seaweed problems.
- Put in place pilot projects in Funafuti for converting seaweed biomass into fertilizer for local farmers.

Based on the above recommendations, the output will review the USP-PACE SD report, and based on recent progress, analyze the baseline conditions to identify the priority remedial measure that will be supported through the R2R project. It has been reported that following this assessment, chemical analysis of the algae has been completed in 2014. The baseline assessment will review and update this assessment if necessary as part of the baseline assessment. The baseline analysis, including

the chemical analysis of the algae, will then be used to assure the community how safe algae can be for gardening purposes. This will create confidence within the community to harvest the seaweed for compost as it has proven by the farmers studied in the report by N'Yeurt & Lese 2013.

In addition this Output will focus on the most affected areas (sample sites) as per the study and provide measures such as composting toilets confirmed by the communities (i.e. through a survey). The survey will be informed by the two reports produced by the PACC/IWRM projects in 2009 and 2013 on the demand and associate problem with the establishment and usage of compost toilet. The survey should cover a high representation of Funafuti population and at least 90% of the residents in the most affected areas as per the Lese & N'Yeurt report. Composting toilets are an acceptable environmental measure and their introduction follows on from the former IWRM project where there is a growing interest to enhance their use and introduction within the community. The outcome of this will not only help reduce the levels of sewage discharge into the lagoon, but it will also help to assist future water management and sustainable land management strategies. The output will complement findings produced by SWAT who noted that some composting toilets were distributed to households that were not in need of compost toilets i.e. needy communities were left out. Lesson learnt identifying needy communities prior to supporting compost toilets is therefore to be undertaken as part of this output.

A study report (Activity 2.1.3a) will be conducted that reviews the current situation on the nature and extent of human/animal discharge (including domestic, commercial and industrial sources) in the Funafuti lagoon through review of new and existing water quality monitoring data relative to prevailing environmental conditions. The study will seek to identify correlations between the area of cover and the types of latrine systems in that area plus more detail on households and inhabitants. The recent 2014 work on the Funafuti borrow pits (household surveys funded by NZAID) will be used to avoid any duplication of effort on social figures etc. The assessment will be carried out with support from SPC/USP, making use of published reports produced by SPC to better identify the trends, distributions and patterns of potential pollution sources. From this work, some clear information and data gaps will be defined.

Activity 2.1.3b, will then be initiated to start a new data collection programme that identifies the hydrological link between off-site movement of pollution and other environmental factors such as vegetation cover (height and density of trees); landscape (soil, slopes, buffer strips); climatic conditions (rainfall events, soil dryness index); and methods of chemical pesticide/fertilizer application as well as waste disposal from point sources and non-point sources in a consultative process with the residents of Funafuti.

Activity 2.1.3c will then be conducted that involves a detailed review and evaluation of the use existing legal and institutional instruments for control of water quality in Funafuti lagoon. This will identify key compliance issues and constraints and from this, recommend appropriate technologies and systems to mitigate the existing and potential impacts of non-compliance. Follow up consultation with the residential community on Funafuti (plus residents from other islands regarding the steps or the remedial actions) will be undertaken as part of this Activity.

Finally, Activity 2.1.3d will be executed (as a pilot project) that will implement the recommendations set out in Activity 2.1.3a, b and c. Clear design measures will be implemented to help reduce the impact or growth of the algae into Funafuti lagoon.

It is recommended that specific interventions (at this time) may include actions that address the pollution through introducing engineering mechanisms that operate and regulate dispersal during ebb tides, plus activities that deal specifically with domestic wastewater leakage detection from existing bottomless septic tanks and pit toilets (addressing run off directly into the lagoonal coast whilst appreciating tidal exchange. It is also proposed that there is a need for a chemical analysis of the eutrophic algae present in Funafuti lagoon to address the concerns being raised by local communities.

Activities related to Output 2.1.3 are in line with GEF5 Strategic Outcome IW-3, regarding on-the-ground modest actions implemented in water quality, quantity, fisheries, among others.

Activities associated with Output 2.1.3 are tabulated below. (Output title extracted from PIF).

Output 2.1.3 : Review of completed algal bloom assessment in Funafuti; Implement remedial measures to reduce occurrences and severity	
Activities	
2.1.3a)	Review existing algal bloom assessment by USP PACE-SD to analyze the baseline condition and identify effective remedial measures and indicators for monitoring/evaluating the impacts of remedial measures
2.1.3b)	With community support and participation, implement remedial measures such as, but not limited to, composting toilets in hot spots, waterless pig waste management, composting of algae, reducing point and non-point sources for pollution
2.1.3 c)	Conduct awareness raising efforts regarding the causes and impacts of algal bloom in the Funafuti Lagoon
2.1.3d)	Monitor water quality of Funafuti Lagoon (baseline, midterm, and final) and assess the effectiveness of remedial measure

2.4.3 Component 3: Governance and Institutions

Co-financing amounts for Component 3

(NB: DRD providing co-financing as AUD (1 AUD = USD 0.78))

Dept of Rural Development	USD 350,964
Dept of Fisheries	USD 285,000
UNDP:	USD 47,000
Total Co-financing:	USD 683,464
GEF Grant Requested:	USD 330,000

The understanding and capacity in the outer island communities of Tuvalu regarding the concepts of holistic and integrated biodiversity management is limited. Management of natural resources is therefore predominantly through a sectoral approach such that external funds are needed to bring all sectors of government and the community together to share the management of natural resources; especially on the outer islands where there is limited capacity understanding in the *Kaupules* of the potential impacts of climate change and current adaptation mechanisms.

There is therefore a need to strengthen the capacity of both outer island administrations and community members for monitoring, reporting and verifying the progress of enhanced protected areas and R2R implementation. In outer island communities, where upward and downward accountability (to the central government and to citizens respectively) are weak due to its remoteness, it is critical to nurture the sense of oversight among community members. At the same time, outer island administrations also need to develop their capacity to report the use of resources and progress of investments to their constituents.

The major objective of Component 3 will be to provide training for government and community people in ICM and IWRM to raise awareness of a whole of ecosystem approach to natural resource management. The component will focus on:

- Mainstreaming integrated approaches in policy and regulatory frameworks to inform national decisions;
- Enhancing national and community capacity in understanding and implementing integrated approaches through appropriate trainings on ICM and IWRM;
- Supporting government and NGO staff for post-graduate certificate level training; and
- Implementing training for *Kaupule* and other community leaders in whole island conservation and management.

This Component is co-financed by Department of Rural Development, Fisheries, and UNDP. Department of Rural Development is the responsible agency for all Kaupule governance. Therefore, they will lead in the formalization of the community conservation management plans for the LMMA/MPAs. They will also facilitate mainstreaming of R2R principles integrating ICM and IWRM into ISPs and coordinate partnerships with other government agencies. Department of Fisheries will ensure that lessons learned, good practices, and information gathered through LMMA/MPA establishment efforts under Component 1 are integrated into the mainstreaming of R2R into island governance, community conservation management plans, and national policy. UNDP through support provided to the Tuvalu Trade Capacity Development and Institutional Strengthening Project will assist in further mainstreaming sustainable resource management (i.e. solid waste management) into other key sectors of the economy.

OUTCOME 3.1: Integrated approaches mainstreamed in policy and regulatory frameworks

Output 3.1.1: Kaupule conservation area management plans examined and documented in conjunction with various departments (Environment, Fisheries, Rural Development, and Budget and Planning) and communities, and used to inform national planning and development of regulations and legislation at the national level in support of integrated approaches (ensuring that documents are also translated into local language).

Output 3.1.1 will focus on mainstreaming R2R principles into national and island policies through enhancing the institutional capacities for natural resource management within all levels of governance. In doing so, the Output will coordinate with past and ongoing projects to develop a toolkit to mainstream R2R (ICM and IWRM) principles into national and island planning processes.

The toolkit, which will be coupled with training, will be developed through inputs from key national stakeholders (i.e. Departments of Environment, Home Affairs, Planning and Finance, Fisheries, and Lands and Survey, etc), civil society organizations (TANGO, TNCW, etc), and relevant community representatives. Among other things, it will include practical tools and good practices associated with: marine and terrestrial spatial planning, consensus building, cost-benefit analysis, etc. The toolkit will also be designed to complement the “Climate Resilient SLM Technique Guide” where implementation of SLM techniques can be mainstreamed and sustained within national and island governance systems. It is envisioned that the toolkit will encompass improved maps and approaches that balance development and conservation through the introduction of planning tools⁴¹ that reflect multi-sectoral objectives such as conservation, economic development, and maintaining existing uses.

A series of training will also focus on raising awareness in the outer island communities regarding national policies including but not limited to Tuvalu’s Environment Act, NBSAP, and National IWRM Policy. This process will foster synergies between outer island and national planning processes and regulations, where island-level planning processes will inform enhance national regulatory frameworks, and in turn, national level priorities and legislations will be better communicated, integrated, and implemented within ISPs and conservation area management plans at the island levels.

For example, in Funafuti, as part of Outcome 2.1.3, water quality improvements will be implemented through remediating the algal bloom in the Funafuti lagoon. This will identify key compliance issues and constraints and from this, recommend and design an appropriate institutional arrangement such as the National IWRM Policy Framework (currently in draft form) and a completed island level conservation area Management Plan (currently outstanding). Similar approach will be taken in other islands where national and island governance will be synergized to advance mainstreaming of R2R

⁴¹ Marine Spatial Planning (MSP), as applied to the Convention on Biological Diversity, is a forward looking, participatory and iterative process which inculcates all environmental and socio-economic considerations; it is also a management planning “tool” that is comprehensive, science-supported and area-based, and promotes sustainable development. Utilization of the MSP approach will be revisited and explored during the project inception.

into national and local policies and budgets. These efforts will link closely with the update of ISPs being initiated by the Ministry of Home Affairs, as part of the NAPA II project.

At the national level, particular attention will be also paid to synergize regulations across sectors to harmonize multi-sectoral, and integrated management of natural resources based on the principles of R2R. To do so, the project will support relevant national departments and ministries to review biodiversity conservation management arrangements and regulations in protected areas that currently have been established in a haphazard manner. In addition, and importantly, the outcome seeks to introduce planning regulations that will be used and implemented easily. The intention is not to introduce any new “system” that cannot be enforced within existing legislation or statute.

Enhancing the awareness of R2R principles and interventions through community training sessions, annual events and production of a series of community outreach materials is also an integral part of the R2R project. These sessions and events, organized in Outer Islands and the capital, will take place throughout the project implementation. In the early phase, training and consultation events will be organized to foster awareness and support for project implementation and progress; the nature of the training events will shift more to reviewing and sharing of the lessons learned and impacts of natural resource management and conservation. During implementation, the project will undertake a thorough analysis to identify key events⁴² taking place on each island to identify what the best modes of engagement are (communication channels, time, place, messaging, etc) for the various stakeholders.

Activities associated with Output 3.1.1 are tabulated below. (Output title extracted from PIF).

Output 3.1.1: Kaupule conservation area management plans examined and documented in conjunction with various departments (Environment, Fisheries, Rural Development, and Budget and Planning) and communities, and used to inform national planning and development of regulations and legislation at the national level in support of integrated approaches (ensuring that documents are also translated into local language).
Activities
3.1.1a) Coordinating with past and ongoing projects (i.e. NAPA II, EU-GCCA, CLFG and C-CAP (USAID) Project) develop a toolkit to mainstream R2R (ICM and IWRM) into national and island planning processes.
3.1.1 b) Formalise the integration of R2R principles into the Island Strategic Plans (ISPs) and budgets in close coordination with other relevant projects (i.e. NAPA II, EU-GCCA, CLFG and C-CAP (USAID) Project,etc)
3.1.1 c) Mainstream R2R principles into national legislation, policies, plans, and budgets
3.1.1 d) Examine, document, and formalize Kaupule conservation area management plans/ agreements/ protocols with relevant national and island level authorities

OUTCOME 3.2: Capacity on integrated approaches enhanced at the national and community levels

Output 3.2.1 Training packages including manuals, guides and modules on LMMAs, MPAs, SLM, ICM and IWRM, to advanced and basic levels, that include biodiversity status and assessments developed and implemented in collaboration with the regional R2R program support project⁴³

Output 3.2.1 aims to ensure that learning and knowledge/skills transfer for the various R2R natural resource management and conservation takes place effectively throughout the project. In doing so, the R2R project will support the production of good quality training manuals, guides and modules on natural resource management appropriate for Tuvalu, so that the interventions implemented with national and community stakeholders within the respective Components (1 – LMMA/MPAs; 2 – SLM and IWRM; and 3 – conservation area management plans and R2R mainstreaming) are be done utilizing the best knowledge and tools available. Regional organizations such as the SPC-SOPAC

⁴² These may include: social functions such as religious gatherings & other special days such island days, island constitution days

⁴³ A change has been made from the original PIF in that Output 3.2.2 has been combined with Output 3.2.1. The reason for this is that to facilitate implementation, during the PPG phase, it was recommended that the 2 separate outputs identified in the PIF, which both focused on training, should be simplified into one integrated approach

and SPREP have published a number of relevant outreach materials on similar activities that have been tailored, through over 15 years of their production, to a range of target audiences appropriate to island settings. A preliminary assessment for Tuvalu was already completed through a specific workshop consultation event⁴⁴. This workshop aimed to examine policy processes, institutional arrangements and information and knowledge management.

Community awareness, outreach and education programs in the Tuvaluan language are an essential part of any R2R strategy to ensure that island people understand the implications of good SLM, ICM, IWRM and biodiversity conservation principles. In this regard, the R2R project will produce Tuvaluan awareness raising materials (on LMMA, R2R (ICM/IWRM), SLM, , undertake “train the trainer” exercises and work with the Department of Education to include R2R principles into a number communication related media, and school activities where possible. The project will focus on developing community leader training packages specifically for the small island situation of Tuvalu and supporting government and NGO staff for post-graduate certificate level training.

The training of identified representations from the Island Kaupules of the 3 pilot sites (though not limited to these islands should interest from other islands be positive) will be undertaken together with all R2R Island Officers. The training will produce appropriately designed training manuals that will help equip the attendees on how to develop or design future conservation management plans that comply in total with the ISPs (that embraces R2R (IWRM/ICM) principles). The training will help to ensure that the R2R Island Officers of the participating islands have the knowledge and tools to lead the production of management plans which will be one of their future key performance indicators (KPIs) to demonstrate progress and capacity development. The outcome of the training will be to not only improve capacity amongst individuals, but also to contribute to the effective design of the respective ISPs. This activity will also coincide with relevant training activities that are linked to the NAPA II (especially Component 2) which will (separately) involve community consultation on respective sites to identify issues regarding the management of CAs and production of supporting Management Plans.

The R2R project will also develop and provide training for national representatives in Funafuti on the “best practices” from the Regional R2R projects on ICM and IWRM specific topics, including how to mainstream the key principles of ICM and IWRM into development planning as well as how to set national bio-indicators to better monitor health and stressors on terrestrial and marine fauna and flora. Annual outer island training events (on 3 islands) are planned, where Tuvaluan communities and Kaupule can enhance their understanding on ICM and IWRM principles. The R2R project resources will also use existing NGO networks (TANGO, TNCW, etc) to carry out face-to-face awareness raising campaigns in each pilot island. Moreover, the project resources will be used to produce additional materials that support implementation of the NBSAP and dissemination of improved biodiversity protocols and procedures.

As a minimum, the project will produce and translate four awareness raising material “packs” during the course of the project implementation, focusing on IWRM, ICM, biodiversity conservation practices (including data collection) and community engagement. These will be supplemented by development of R2R specific radio programme which will capture these topics in an easy to understand way. The production of a basic community monitoring and mapping manual for island communities will also be produced. Where possible, and where accepted by the local schools, versions will be produced for dissemination at various educational levels and age/gender groups. The biodiversity baseline manual (marine & terrestrial) will be adapted for each pilot island and produced using outputs from Outcome 1.1 and 1.2 (including baseline numbers, pictures, maps etc).

The training will also focus on the practical implementation of local laws etc. For example, Nanumea, Nukufetau and Funafuti have all expressed a need to draft legislations/by-laws to protect their CA.

⁴⁴ 2014 June conducted by Aaron Buncle (Pilot Project on Climate Resilient) through the Tuvalu Planning and Aid Department. Though this project is Climate change focus the methodology used for mainstreaming may be repeated with biodiversity focus.

Nanumea have progressed this issue, however, the lack of legal drafting services to provide the legislative “muscle” to help regulate is presenting a major challenge. The training will therefore focus on how to help Island Kaupule with legal drafting services to expedite this challenge in the future. This is seen as a useful training exercise, as such a drafting exercise could also be used extensively by the DoE any other line ministries to tidy up all matters regarding legal arrangements of CA’s.

The R2R project will initiate a “learning by doing” approach to designing a more pragmatic “train the trainer” programme on marine biodiversity issues and habitat assessment work to help provide a forum for mainstreaming. Therefore, annual DoE capacity “Train the Trainer” events will take place, in partnership with capacity development initiatives organized by NAPA II project, wherever appropriate⁴⁵.

Additionally, biannual capacity building activities for Tuvaluan development policy makers will be organized on R2R (ICM and IWRM) mainstreaming. A community based biodiversity monitoring will be strengthened to help with the formulation and implementation of R2R activities that are in line with national and island policies

Training events will be organized in partnership with relevant government departments, regional technical agencies, and civil society organizations. For every training event, all consultation products produced (hand-outs/findings reports etc) will be documented in a manual form (picturesque and user friendly format) and presented in both Tuvaluan and in English. More than 300 trainers trained by end of project with at least 30% of participants (if possible) being from vulnerable groups of society (women, children, adolescents, elderly). 4 national training events will be conducted.

Activities associated with Output 3.2.1 are tabulated below. (Output title adapted from PIF)

Output 3.2.1: Training packages including manuals, guides and modules on LMMAs, MPAs, SLM, ICM and IWRM, to advanced and basic levels, that include biodiversity status and assessments developed and implemented in collaboration with the regional R2R program support project	
Activities	
3.2.1a)	Develop training manuals and modules on LMMAs, MPAs, climate resilient SLM Technique Guides, and Integrated Coastal Management (ICM) and Integrated Water Resources Management (IWRM) by building on existing information and approaches in coordination with regional R2R project;
3.2.1b)	Organize annual training on 3 islands targeting key Tuvaluan communities and Kaupule Organize on ICM and IWRM principles including “Train the Trainer” events focusing on delivering effective marine conservation SLM, ICM and IWRM techniques.
3.2.1c)	Implementation of the training using manuals and modules developed in 3.2.1 a) for 10% of the population (including women, children and youth) by trainers from 3.2.1b)
3.2.1d)	Organize capacity building activities (for year 3, 4, and 5) for Tuvaluan development policy makers on R2R (ICM and IWRM) mainstreaming.
3.2.1e)	Support participation of Tuvalu representatives to trainings on the “best practices” from the Regional R2R projects on ICM and IWRM specific topics, including setting national bio-indicators to better monitor health and stressors on terrestrial and marine fauna and flora (biodiversity);
3.2.1f)	Develop training materials for community based biodiversity monitoring

2.4.4 Component 4: Knowledge Management

Co-financing amounts for Component 4

Dept of Environment	USD 256,000
Dept of Fisheries	USD 171,000
Total Co-financing (US\$):	USD 427,000
GEF Grant Requested:	USD 228,661

⁴⁵ Although R2R will specifically focus on biodiversity field data capture techniques

Component 4 aims to strengthen knowledge generation and management in Tuvalu on biodiversity and natural resource topics. The project will support this effort through the development/enhancement of a comprehensive data and information system which will serve as a central repository for all data gathered through Components 1 – 3 of the R2R projects, as well as past and ongoing initiatives. In order to facilitate good data management, as well as ensure that these efforts are sustained, a standard operational procedure (SOP) on knowledge management will be developed and disseminated across relevant government agencies and key stakeholders. Furthermore, collaborating with various projects and stakeholders, including the regional R2R project, the project will produce innovative and effective communication materials that will facilitate the engagement and capacity building of national, community, and international stakeholders on R2R efforts in Tuvalu.

This Component will be co-financed by the Department of Environment and Fisheries. As the project Executing Agency / Implementing Partner for R2R, the Department of Environment will lead the coordination at the national and island level implementation to ensure that project results are captured and disseminated effectively. Furthermore, they will provide day-to-day technical support and guidance of project implementation, as the Project Coordination Unit will report directly to the Director of Environment. Department of Fisheries will play a key role in the management of knowledge generated by the project, as a contributor of data as well as maintaining and updating information within the database.

OUTCOME 4.1: Improved data and information systems on biodiversity, forests land management adaptation best practice

This Outcome will focus on strengthening existing data and information systems related biodiversity conservation, land management best practices, marine ecosystem management, and climate change threats and other potential risks. A special focus will be to integrate existing data and information in more user-friendly and accessible mechanisms and platforms and make these available in formats of use for all communities through the development of a GIS-based management and information system.

Outcome 4.1 is designed to ensure that the proposed GIS-based, environmental information management system/portal is sited and managed within a host that participates within a regionally sustainable network plus in a way that uses the Tuvaluan language where possible. The project attempts to link with the regional support project (GEF ID 5404) to integrate and link the project and its demonstration sites into the regional portal. The proposed environmental information management system/portal will focus on indigenous and endemic species, with all new updated vector data outlining the extended protected areas being the major tangible output developed along with the creation of a “multi- donor project” electronic library to access past knowledge, including reports, data etc. in parallel with ongoing projects, e.g., NAPA II project.

The Outcome will produce suitable numbers of brochures, media releases, video documentary in local dialect, feature press article, and websites are produced, distributed and used in training and capacity building activities concerning the ecosystem services of studies islands in Tuvalu. In addition, at least 50 participants attend training courses (on all islands) conducted on database setup & maintenance. It will also ensure that all GIS maps (marine and terrestrial) are centrally located, stored and made available after completion of project.

Output 4.1.1 Improved GIS-based management information system installed for biodiversity, forests and climate change, land & coastal management and best practices that includes an electronic library to access past knowledge, including reports, data etc. in parallel with ongoing projects, e.g., NAPA 2 project. Years 1 & 2 focus on collection of information and assessments with years 3 & 4 to focus more on applications.

The R2R project will establish and enhance an integrated GIS information management system and database that includes capacity to store, update and manage datasets relating to all terrestrial, coastal and marine biodiversity data that will be captured in Outputs 1.1 and 2.1. It is proposed that updated and running information system will eventually be housed as part of the Tuvalu National Library Institution. Prior to that time, the DoLS will manage the process and the systems maintenance within their offices. A designated officer is to be employed to manage this aspect of the project (initially from the DoLS) though with the plan for this individual to be an employer of the new National Library⁴⁶ by the end of the project.

A multi-stakeholder/donor forum will be hosted to gather information and agree upon an effective data management system so that the information management system can be effectively sustained after the lifetime of the project. A Standard Operational Procedure (SOP) for environmental data management in Tuvalu will be developed through this process. It is envisioned that an electronic library to access past knowledge, including reports, data etc. will be established/updated. The GIS information management system and the electronic library will use the data collated from Outcome 1.1 and 2.1 plus additional information from the community monitoring of extended CAs. It will also store other sources of information collected throughout the project life (R2R, NAPAI & II, and other projects generating relevant environmental information in Tuvalu). This initiative will be implemented in close partnership and collaboration with the GIZ funded IKM project. The IKM activities being conducted through the GIZ initiative will better equip the staff involved to properly manage the information they have and be more knowledgeable on the processes involved. As these are cross-cutting issues relevant to all sectors of society and the economy information from many different sectors, government departments, non-governmental organizations, etc are potentially relevant to manage climate and disaster risk more effectively⁴⁷.

This Output will also include capacity building, using support from regional agencies such as SPC /SPC–SOPAC, who have strong capacity and resource capabilities in GIS mapping) to train local counterparts from the DoLS to enhance their capacity on data management and to support the R2R process on biodiversity data management. Training and dissemination of the SOP will also be conducted. Collaborated synergy will also be established between GIZ and PPCR and other current GEF projects to establish a streamlined environmental data management system with further training and technical assistance anticipated from SPREP, USP GIZ, SPC, etc. as appropriate.

Activities associated with Output 4.1.1 are tabulated below.

Output 4.1.1: Improved GIS-based management information system installed for biodiversity, forests and climate change, land & coastal management and best practices that includes an electronic library to access past knowledge, including reports, data etc. in parallel with ongoing projects, e.g., NAPA 2 project. Years 1 & 2 to focus on collection of information and assessments, years 3 & 4 to focus on applications.
Activities
4.1.1a) Establish/enhance integrated GIS information management system and database that includes all terrestrial, coastal and marine biodiversity data captured through the R2R project, as well as other past, ongoing, and future projects
4.1.1 b) Host a multi-stakeholder/ donor forum to gather information and agree upon an effective data management system that can be effective and sustained
4.1.1c) Support and coordinate with ongoing efforts to develop an electronic library where past and ongoing data, knowledge, and information, including reports, data etc. are collected and hosted by the Government including the Tuvalu National Library

⁴⁶ . This has been promoted due to two major reasons: 1) it's an established system for sustainability and the Education Department (with DoE/Lands) can maintain the system; and 2) the information will be accessible to the public in a user friendly format.

⁴⁷ For example, 'Te Kaniva' – Tuvalu National Climate Change Policy 2012, 'Fakanofonofoga moVai mo te Tumaa' – Sustainable and Integrated Water and Sanitation Policy 2012 – 2021, Tuvalu National Energy Policy and 'Enetise Tutumau' – Master Plan for Renewable Electricity and Energy Efficiency in Tuvalu 2012 – 2020, are highly relevant for those working to promote climate and disaster resilient development as actions contained within these policies and plans are crucial for developing infrastructure and interventions that take into account current and future risks posed by natural hazards.

4.1.1d) Support from regional agencies such as SPC /SPC –SOPAC (capacities in GIS mapping) to train local counterparts such as Department of Lands and Survey to enhance their GIS and data management capacities
4.1.1 e) Standard Operating Procedure (SOP) on knowledge management developed and disseminated to ensure that data management systems will be maintained and updated after the project lifetime

Output 4.1.2 Knowledge products (videos, photo stories, flyers, brochures) on all focal areas and best practices developed and disseminated through print, broadcast and through Kaupule, schools, NGOs, women’s and youth groups. All translated into Tuvaluan.

The R2R project will produce, publish and disseminate an array of knowledge on R2R, LMM/MPA, SLM, ICM and IWRM approaches trialed in Tuvalu. This activity is fed by the information, knowledge, reports, assessments conducted as part of the implementation of Components 1 to 3. Organisations such as USP, SPC-SOPAC, SPREP, as well as NGOs in the region already have amassed a large body of booklets, pamphlets, posters and other literature that provide guidelines and more detailed information relevant to many of the topics included under this project. Building on, while not duplicating, these efforts, the R2R project will be used to develop several types of awareness and information materials which may include: (i) translation of existing relevant materials produced by regional organisations into Tuvaluan while customizing based on specific investments proposed under this Component or integrating biodiversity conservation and R2R related element; and (ii) creation of new materials where there are currently none such as Tuvalu specific marine protected area management and resilient fishing practices.

Technical support from regional agencies such as SPC /SPC SOPAC will be sought to develop relevant and targeted video documentaries that may be used for training and communication. Training focus will be placed on using to best tools/mediums to engage local counterparts (such as DoLS) to enhance their capacity on message dissemination, visualisation techniques etc⁴⁸. Similar to ongoing efforts in NAPA I and II, video documentaries will also be used as a tool for capturing baseline, and monitoring project progress, as well as enhancing community participation and ownership of issues framing and implementation.

The establishment of a simple web page will play a central role in allowing some of the written materials, such as R2R news stories, to be stored, updated, and shared real-time. A newsletter which mirrors the web page content will be printed to allow for news (in Tuvaluan) on the project to be physically distributed on outer islands during the regular visits. A research/information/knowledge management guidelines/templates will also be developed to help safeguard data and information and to ensure that data is consistently kept on record for each R2R pilot project or study completed in Tuvalu. A committee can be selected, on voluntarily basis, to help monitor the implementation of this policy. It should be seen more of a mandate that anyone undertaking research in Tuvalu should receive approval from the committee.

An editorial and graphic designer expert will be contracted to compile multi-media productions throughout the R2R project, though especially for the production of all public awareness materials (used for educational purposes). The project will ensure to engage all stakeholders, including vulnerable and/or hard to reach groups. Two specific tools will be introduced to help facilitate this. The first is a community scorecard where selected representatives from various interest groups such as adolescent women, youth groups, minorities, fisher’s association, and Red Cross volunteers, assess performance of outer island administrations in terms of the use of island natural resources. This scorecard will be a simple questionnaire and entails criteria such as “completion of proposed projects”, “level of beneficiary engagement” and “targeting of proposed beneficiaries”. The specific reporting format will be determined in the first consultation, both at outer islands and Funafuti, during the inception phase of the project. The information from the scorecard will be compiled and considered as benchmarks for the implementation of this activity. The R2R Project will also introduce a

⁴⁸ An example of a similar approach done for Montserrat R2R project maybe viewed from the link: <https://www.youtube.com/watch?v=U60zqu8Q1rM>

participatory video tool. This tool has been tested in Samoa to enhance the accountability and information exchange of community-based climate change small grant projects. Staff within the PIU will be trained with the support of SPC, SPREP, USP whom in turn will train community members (most likely members of women’s associations etc), on how to use similar and available technologies on documenting and monitoring project impacts and knowledge. This will help participants to assist the PIU towards developing an updateable R2R “story-board”, and how also to help them to record their planned approaches plus edit videos to present their message. The compilation of the videos, photos, and communication materials from all islands will be shown at the Annual Events (supported under Outcome 3.2) which will help with information exchange and maintaining interests from community members. These knowledge products and communication materials will also be showcased and fed into the Regional R2R project and the PacIW: LEARN that will be developed within the regional initiative.

Local reporters and radio station will be trained on R2R related issues. Regular radio programmes and short community-made videos/photo stories will be used to disseminate success stories among Tuvalu's islands as activities aimed at enhancing R2R implementation. The use of radio, art, and photography/video to promote understanding of issues that affect communities in the area of biodiversity conservation, SLM, R2R, IWRM and ICM related issues will therefore be designed. The project resources will be used to translate (and improve with climate-resilience focus, where necessary) these existing materials into Tuvaluan and English and distributed to outer island communities. It is proposed that in a similar way to that adopted for the UNDP SLM project (2008-2012), a weekly radio show updating project implementation status will be designed and implemented.

Activities associated with Output 4.1.2 are tabulated below. (Output title extracted from PIF).

Output 4.1.2: Knowledge products (videos, photo stories, flyers, brochures) and best practices developed and disseminated through print, broadcast and through Kaupule, schools, NGOs, women’s and youth groups. All translated into Tuvaluan.
Activities
4.1.2a) Develop and disseminate an array of knowledge techniques that disseminate the R2R (ICM and IWRM) approaches
4.1.2b) Establish, update and improve web based products
4.1.2c) Create innovative public awareness and education campaigns
4.1.2d) Support from regional agencies such as USP/SPC/SPREP/SOPAC (capacities in video documentary) to train key stakeholders in Tuvalu on innovative communication and knowledge product development
4.1.2e) Training of local reporters/radio station on R2R related issues

Output 4.1.3 Systematic monitoring system established, with data sharing and joint training and survey activities for terrestrial and marine areas and integrated approaches; monitoring and evaluation results are fed to the R2R program through the regional program support project to facilitate lessons sharing and cross-country fertilization

The sharing of expertise between PICs is important to help strengthen sustainability of individual R2R projects across the Pacific plus also the other GEF and non- GEF projects that seek to deliver against allied environmental targets. The inclusion of knowledge management is specifically designed to help the project connect more formally to the above regional IWRM and R2R networks.

A major agency-donor conference will be organized to discuss the final draft of the Tuvalu R2R outputs and solicit support for implementation and “lessons learnt” at regional level. It is assumed this donor conference will be arranged at a mutually acceptable location for all R2R program National and Regional representatives, though this is most likely to be in either Samoa or Fiji.

Through this Output, R2R Projects, along with other national R2R projects, will ensure that all monitoring and evaluation (M&E) results produced are fed directly to the Pacific R2R program that

will be used to help facilitate lessons sharing and cross-country fertilization. Representatives from Tuvalu will participate in technical and coordination meetings facilitated by the Regional R2R project.

Activities associated with Output 4.1.3 are listed below.

Output 4.1.3: Systematic monitoring system established, with data sharing and joint training and survey activities for terrestrial and marine areas and integrated approaches; monitoring and evaluation results are fed to the R2R program through the regional program support project to facilitate lessons sharing and cross-country fertilization
Activities
4.1.3a) Initiate and implement a major agency-donor meetings to discuss proposals from unfunded priorities identified in the project and solicit support for implementation and “lessons learnt” at regional level.
4.1.3b) Participation, knowledge sharing, and application of information and tools from the Regional R2R program to enhance cross-country fertilization of R2R efforts nationally, and regionally.

2.5 Project indicators

The projects key performance indicators developed for assessing the achievement of the project are detailed in the Project Results Framework (PRF) and include both impact (objective) indicators and outcome (performance) indicators, as detailed in Table 6 below. Each of these indicators are SMART: Specific, Measurable, Achievable, Relevant, and Time-bound. These indicators along with their baseline, end of project targets, sources of verification and risk assumptions and those associated with the output level are included in the Project Results Framework in Section 3 of this document.

The indicators will be monitored and reported on annually, through the Project Implementation Report (PIR) process which will inform the annual work planning processes. A comprehensive M&E framework (aligned with national, GEF and UNDP M&E procedures) will be developed at project inception in order to help guide and monitor the project implementation and will be set up to reflect each pilot islands performance

The PRF in Section 3 details indicators, baseline, targets and sources of verification at the Objective and Outcome level. At the level of the Project Objective, the indicator is set as follows:

- *Increase (up to 15%) in spatial extent of the Tuvalu marine protected areas network;*
- *The integration of new ridge to reef (R2R) knowledge and information into all appropriate national and island wide policy and legislation, and*
- *Delivery of at least 3 “on the ground” R2R intervention techniques that improve community and livelihood resilience to climate change and biodiversity impacts by the end of the project.*

Table 6 outlines the Objective and Outcome level indicators and how they link to the GEF5 Indicators.

Indicator	End of Project Target
Objective Level	
Tracking Tool BD-1.1: Improved management effectiveness of existing and new protected areas	<ul style="list-style-type: none"> ➢ Expansion/enhancement of the LMMAs including MPAs by approximately 1200 ha or 12 km² (representing an additional 15% of existing LMMAs/MPA in Tuvalu)
Tracking Tool BD 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation	<ul style="list-style-type: none"> ➢ Creation of 1 nationally recognized Policy Framework that integrates R2R principles ➢ 9 formalized community management systems of marine conservation areas with management plans (hotspots, PAs, bio-indicators etc). ➢ 8 ISPs have R2R principles integrated that incorporates ICM, MSP and IWRM
Tracking Tool LD 3.2: Integrated landscape management practices adopted by local communities	<ul style="list-style-type: none"> ➢ Introduction of at least 3 new sustainable land management (SLM) (focusing on improved opportunities for underutilized local crop species) and agroforestry interventions in Nanumea, Funafuti and

	<p>Nukufetau that (if improved upon) will positively contribute to food security development on the 3 islands, for over 300 community members (or 30% of island population; 30% of which should be female) by the end of the project.</p> <ul style="list-style-type: none"> ➤ At least 1 knowledge product on climate-resilient SLM techniques developed and 2 suitable awareness programs to educate people (gender sensitive) on “climate resilient” replanting of arable crops (i.e. Happy Garden initiative), benefiting over 200 vulnerable community members (30% at least being female) by the end of the project. ➤ Planting of over 500 suitable hardwood (coconut/mahogany etc), fruit tree species and underutilized local crop species over at least two islands by the end of Y4. ➤ At least 3 agricultural interventions (1 each in Nanumea and Nukufetau) implemented (with number of beneficiaries (at least 30% women and/or youth) and value of investments recorded).
<p>Tracking Tool IW 3.3: IW portfolio capacity and performance enhanced from active learning/KM/ experience sharing.</p>	<ul style="list-style-type: none"> ➤ At least 1 remedial measure implemented to reduce point and non-point sources of pollution causing algal bloom in Funafuti Lagoon. ➤ At least 5 delegates from Tuvalu participate and provide inputs to the design of a regional/international agency donor conference for R2R lessons learned (at least 2 female candidates) by the end of the project.
<p>Outcome Level</p>	
<p>Outcome 1.1 Improved management effectiveness of system of conservation areas composed of existing and expanded Locally Managed Marine Areas (LMMAs)</p>	<p>By the end of the project,</p> <ul style="list-style-type: none"> ➤ 1 updated/new national environment GIS-based information management system. ➤ At least 9 GIS maps for each Tuvalu LMMA/MPA (1 per conservation area) with data and information (including BD hotspots and existing projects), integrated into reports and plans, and distributed and utilised by decisions makers. ➤ At least 50% of participants engaged in data collection and dissemination are from vulnerable groups of society (women, children, adolescents, elderly). ➤ Expansion/enhancement of the LMMAs including MPAs by approximately 1200 ha or 12 km² (representing an additional 15% of existing LMMA/MPA in Tuvalu) ➤ 9 formalized community management systems of marine conservation areas with management plans (hotspots, PAs, bio-indicators etc). ➤ At least 50 % of participants engaged in consultations are from vulnerable groups including women and youth
<p>Outcome 2.1: Integrated landscape management practices adopted by local communities</p>	<p>By the end of the project,</p> <ul style="list-style-type: none"> ➤ Up to 3 (1 for each pilot islands) new land and geotechnical surveys undertaken on Nanumea, Nukufetau and Funafuti and information stored within the GIS by the end of Y2. ➤ Introduction of at least 3 new sustainable land management (SLM) interventions (focusing on improved opportunities for underutilized local crop species) and agroforestry interventions in Nanumea, Funafuti and Nukufetau that (if improved upon) will positively contribute to food security development on the 3 islands, for over 300 community members (or 30% of island population; 30% or over should be female) by the end of the project. ➤ Up to 3 water quality testing and algal bloom monitoring efforts implemented (baseline, midterm, and at project end). ➤ At least 1 remedial measure implemented to reduce point and non-point sources of pollution causing algal bloom in Funafuti Lagoon.

<p>Outcome 3.1: Integrated approaches mainstreamed in policy and regulatory frameworks</p>	<p>By the end of the project,</p> <ul style="list-style-type: none"> ➤ At least one report/toolkit on mainstreaming “ridge to reef” principles into national and island planning (ISP) by end of Year 1 which is developed and disseminated to all stakeholders in at least 2 different formats, and translated into local language. ➤ Creation of 1 nationally recognized Policy Framework that integrates R2R principles ➤ 8 ISPs have R2R principles integrated that incorporates ICM, MSP and IWRM
<p>Outcome 3.2: Capacity on integrated approaches enhanced at the national and community levels</p>	<p>By the end of the project,</p> <ul style="list-style-type: none"> ➤ 75% of 2014 staffing numbers (30% of which being female or more) are trained to be able to identify environmental risk and help towards implementing the R2R components of the ISP by the end of the project. ➤ As a result of the training, at least 50 GoT staff and 200 community members are able to identify environmental risks and prioritize, plan, and implement effective conservation and integrated measures.
<p>Outcome 4.1: Improved data and information systems on biodiversity, forests land management adaptation best practice</p>	<p>By the end of the project,</p> <ul style="list-style-type: none"> ➤ At least 1 improved or new integrated data and information system (fed by components 1, 2, and 3) established and accessed ➤ National standard operational procedure (SOP) on knowledge management developed and disseminated to cover 10 key institutions and 20 % of the general public (i.e. by radio programs) ➤ By the end of the project, production of at least 5 separate types of innovative and effective awareness and communication materials developed and disseminated to at least 50% of island populations (30% of which are women, youth, and vulnerable people) ➤ At least 5 people are trained (between all the islands – 30% of which are female) on database set up and maintenance by end of Y4

Table 6: Key Project Indicators and Targets

2.6 Risks and Assumptions

In line with UNDP project risk management practices a Risk Log has been prepared that provides information on project risks and their mitigation actions (Annex 7). The following sub-sections present a summary of the key risks and assumptions for this Tuvalu R2R project.

2.6.1 Limited Technical Capacities and Human Resources

The first risk that potentially affects the achievement of the project objective relates to severe local capacity constraints to deliver strategic planning at the national level and most importantly at the Kaupule level. Tuvalu faces serious challenges of capacity with agencies with a small staff having to deal with multiple responsibilities including the requirements of different MEA’s. The capacity within outer island administrations for facilitating participatory local development planning process is still underdeveloped although they have made progress in recent years with the support from UNDP-assisted SLG and CLGF. The support from these two entities resulted in the establishment of Island Strategic Plans (ISPs) where each island identifies and consolidates, through a participatory and gender-sensitive process, development priorities for submission to the Ministry of Home Affairs and Rural Development (MoHARD). Concurrently, the Special Development Expenditures (SDE) and Falekaupule Trust Fund (FTF), two financial mechanisms to finance activities to meet the development priorities, have been established. The former represents the government’s on-budget measures while the latter represents an off-budget mechanism. However, the ability of outer island administrations to identify additional risks, such as increasing climate variability, set out proposed

actions to address them, budget them and reflect them in their respective ISPs has not yet been developed or reflected in a set of tools available to them.

In addition, the capacity of the central government ministries to provide guidance to outer island administrations in strengthening their development planning within the context of R2R related issues (including ICM and IWRM) is equally weak. For example, the Ministry of Natural Resources whose key mandate is to promote the sustainable use of natural resources which are inevitably influenced future climate change, the MoHARD who act as the custodian of outer island development process, and the Ministry of Finance who is the gatekeeper of the national government expenditures, have limited understanding of what the ongoing expenditures are on coastal environmental and land management sectors and what areas/sectors require additional investments to enhance climate resilience and ultimately achieve the national development goal of TK-II. Without such understanding, the guidance from these Ministries to outer island administrations also bears a risk that they simply follow business-as-usual development scenarios. The capacity at the national level in turn would enhance the likelihood of attracting external resources to fill the domestic financial gap and eventually assist outer island communities.

While additional qualified staffing positions would be desirable on ICM/IWRM/SLM topics, existing staff vary in their educational backgrounds and technical and managerial skills and would benefit from additional training. Technical support, e.g. scientific expertise, is rarely available in country and building such capacity is a long-term challenge. Tuvalu often has to rely on outside organisations for technical inputs but doesn't have sufficient local budgets to bring this in as required, except through outside funded projects. Scholarships could, for example be awarded to educate officials to be able to master the concepts of R2R and SLM and be able to come back and work in Tuvalu. These may take into account officials at Kaupule level and not simply concentrate at the national level. *Kaupule* and other NGOs involved in project conceptualization will then be called upon during design and for the implementation of many of the planned activities. Moreover, community participation will be supported through signed agreements to ensure that communities are not disadvantaged and all activities will be totally funded. Project will go through the UNDP environment and social screening process to ensure social acceptance

Finally, environment agencies in Tuvalu, due to the geographic spread of the islands, tend to be very office-based with limited field capacity (which is often budget related). This R2R project aims to address this by providing basic equipment and training to strengthen capacity on this aspect.

Departments acting as responsible parties to DoE have agreed to assign a dedicated senior government officer as the focal point for project activity (supported by an alternate). This will avoid commonly observed situations in which numerous officers attending project technical meetings and board meetings and continuity in project support from these technical agencies are ensured. The lack of government capacity is also supported by the provision of budget to support (through co-financing with NAPA II project) a number of project-funded officers (located in DoE, DoA, DoF and DoLS) as well as a full-time international Chief Technical Advisors (CTAs). Moreover, the project places considerable emphasis on engaging NGOs and civil society organizations (women's groups, youth groups, fisher's associations) as a key player to fill the public service shortfall. Their specific roles include delivery of biodiversity and R2R related awareness raising activities, administering simple monitoring surveys to continuously check the health of marine resources, and general monitoring of outer island level budget expenditures and execution. The project will finance, for example, a number of "R2R Training of Trainer" events so that the community members themselves can become a conduit for greater capacity building in their respective islands. Lastly, close collaboration with SPC (and SOPAC Division) on Components 1 and 2, which started from the outset of the PPG phase by closely engaging their advisors, is likely to supplement the capacity building support envisaged in this R2R project. The impact of this collaboration is expected to go beyond the five years of project implementation as they are likely to use their regional presence to continue some of the support in this project. This also aligns well with the strategy already set up and being implemented through the NAPA II project.

2.6.2 Lack of Sustainable Finance

Budgetary constraint is a key barrier to long term R2R implementation. Tuvalu may set up a good legal framework, a coherent planning framework, the correct capacity and staffing structure but without any budget provisions, it is improbable that any R2R activities would actually progress at all. So the need to seek external budgetary support is crucial given the pressure and limited government budget.

Sustaining funding is an issue for most small island nations and this remains the case for Tuvalu. Although the country has implemented some biodiversity conservation activities, this has been achieved by using a mix of government and aid sources (though largely dependent on the latter). A current issue is that with the recent downturn in the global economy there is major pressure on local budgets with environmental issues lower down in priority, and other funding providers have reduced their support of biodiversity projects. There are, however, an increased number of small grant programmes which in particular facilitate community involvement in conservation projects.

To ensure that co-financing budgets are secured and released at appropriate times of the project, all donor agencies will enter into signed agreements with the GoT although delays in project commencement and implementation may still occur.

2.6.3 Limited community awareness and support

Outreach efforts are patchy in Tuvalu, often associated with specific projects or certain target audiences e.g. schools or village councils. This R2R project subsequently places an increased emphasis on outlying island working rather than purely on the main island of Funafuti. Communities tend to be more stable in these situations and closer to the management of their natural resources so awareness programmes and involving them closely in projects should be more effective.

Although there is a level of general awareness among Tuvaluans about climate change and potential impacts on biodiversity and habitat health, such awareness is usually linked only with dramatic crisis events (disasters that may not be solely linked to climate change). When it comes to the impacts of biodiversity aspects such as livelihood protection, there is a limited knowledge about specific measures people can employ to help them adapt to the change facing them (often awareness about alternative land uses or sea uses are not well conveyed). Therefore, in remote island settings, where accessibility of information acts as a significant constraint to building resilience, an important first step is to provide community members with knowledge about a range of practical options that are suitable in their unique circumstances.

Early engagement by DoE (MFATTEL) of potential partners will need to be undertaken to help mitigate the risk of poor stakeholder engagement on islands. NGOs (through TANGO) are generally keen to cooperate and support a stronger role by DoE in biodiversity conservation. Strong stakeholder cooperation will also be essential for the actual implementation of ISPs especially for each specific outer island (namely Nanumea and Nukufetau).

2.6.4 Complex Island Logistics

The key risk for the R2R project stems from the considerable logistical challenges related to travelling to, and communicating with, the outer islands. The irregularity of Government vessel travel, the lack of air or other transport options, and the considerable times (often weeks) required to be spent on each island as a result, could, without effective mitigation, cause the project to fail and leave outer island communities frustrated. These challenges have been experienced by many previous projects, leading to a reluctance of some donors to invest in outer island interventions. This issue was repeatedly stressed during the Inception Workshop consultations (Annex 2), and during the NAPA II Inception Meeting event in May 2014. Consequently, budgets were agreed (during NAPA II) to secure

funding for new boats to enable project team access. Without this intervention, and the designed partnership between the R2R and NAPA II projects, travel/logistical risks would continue to have a compounding risk-effect that could lead to insufficient ownership (for both projects) by communities for greater impact and sustainability and also the potential for communities to ignore climate change projections in relation to their investment decision-making process. This risk has been mitigated (through the NAPA II project) by the planned purchase of a dedicated project vessel, that is capable of travelling to the outer islands through a more frequent and predictable schedule that will be managed by the Project, ensuring timely delivery of project activities, maintaining continuous interface between project staff and community members, and ultimately generating confidence among outer island communities.

2.6.5 Climate Change Impacts and Tsunamis

Climate change presents a major threat to humans, the economy and biodiversity alike in Tuvalu. The effects include more extreme/intense rainfall events with associated localised and wide-spread flooding, and increased soil erosion and sedimentation; sea-level rise causing damage to coastal plant communities and infrastructure and ocean acidification which could quite dramatically and unpredictably lead to collapse of ocean food webs and ecosystems. Whilst tsunamis are a threat to all Pacific nations, there is no historically recorded occurrence of any events in Tuvalu. Despite this, the low topographic nature of all the islands means that this hazard must be considered within island strategic planning, especially for Tuvaluan coastal communities. The threat of a Pacific wide tsunami is always possible, but not envisaged in the short-term of the project.

2.6.6 High Political Turnover

A significant and common risk is the frequent changeover of political leadership that can include changes in cabinet membership as well as the prime minister. At any point during the four year term before the next national election, members of parliament can “cross the floor” from cabinet to opposition party or vice versa. Change in leadership can also therefore incur change of policies and focus that may influence (or even encourage the termination) of project implementations. It can also affect the remission of funds from the implementing agency or within the governments’ financial system.

2.7 Cost-effectiveness

The proposed project is based on the promotion and dissemination of low-cost, terrestrial and marine conservation and natural resource management options suitable for outer island communities in Tuvalu. Significant cost effectiveness is expected as a result of the proposed approach of promoting capacity building for R2R-ICM-IWRM, SLM, and LMMA/MPA to enhance outer island administrations and community members. To achieve the intended Objective and Outcomes of the project, the following alternative options were considered:

2.7.1 Approach 1: Promoting R2R delivery through the conventional sectoral support

This option considered the BAU approach that adopts the traditional donor support to individual line ministries based in Funafuti. This would continue to provide the necessary sectoral services in outer islands (agriculture, fisheries, forestry etc) that are based on centrally-planned activities and budget lines. This approach was deemed less cost-effective for three reasons. Firstly, given the significant capacity constraints in central ministries in Funafuti, it is highly likely that the current trends of significant public service delivery shortfall will continue into the future. In other words, to achieve the same level of impact from an intervention, the central government would be required to significantly strengthen technical “sector” ministerial staffing and to ensure separate sectoral budget lines are large enough to undertake continuous visits to outer islands to help the staff to execute the proposed activities. Secondly, this centrally led approach would imply that relatively large financial resources made available to each outer island (*approximately \$100,000 per year per island including SDE, FTF*

distribution and core revenues, based on the indicative co-financing for the project cycle) will continue to be budgeted and expended based on the “business-as-usual” considerations (see Section 7.1). Thirdly, this approach would certainly not guarantee community ownership of any intervention measure proposed by a Department of Ministry (“the idea came from Funafuti”). This would undermine the sustainability of investments in the medium to long term. For these reasons, this approach was considered less cost-effective towards delivering R2R and achieving any degree of sectoral integration on outer islands.

2.7.2 Approach 2: Relocation of outer island communities to Funafuti

This option considers the provision of funds to relocate outer island communities to Funafuti, thus “pooling” all donor support onto the main atoll of Funafuti to avoid the dilution of effort to “please everybody” and to enable communities to be closer to technical assistance and external support so that communities can continue to engage in BAU marine and land resource extraction for required daily subsistence. This option is not considered for multiple reasons. Firstly, to maintain a similar level of natural resource dependence under a changing climate (land and marine) to support the entire population of Tuvalu on one island (Funafuti), it is expected that significant investment would be needed to achieve this, far outweighing the cost of community relocation from outer islands to Funafuti. Secondly, potential social, environmental and infrastructural implications of an increased population density in Funafuti, which is already overpopulated (1891 persons per sq km in 2011), and the additional investment needed to accommodate additional 50% of the population, is likely to be high (including significant coastal protection costs). Thirdly, and most importantly, the option to relocate outer island communities runs counter to the fundamental aspiration embedded in TK-II, which is to strengthen the outer island governance and preserve unique cultures.

Thus, after considering the above options to achieve the same objective, it may be concluded that the approach proposed in this R2R proposal is most cost-effective as it integrates the following elements in an integrated manner within the same project framework:

- 1) Placing Kaupules and outer island communities at the center of the R2R process in which to identify locally specific risks to biodiversity conservation and sustainable land management;
- 2) Integrating IWRM and ICM into their strategic island plans and associated budgeting;
- 3) Building capacities of Kaupules to identify, combine and sequence available R2R related resources, from existing revenues, or new external resources;
- 4) Executing, with technical support from central ministries, R2R related actions that are simple, and maintainable, which ultimately enhance the sustainability and ownership of such investments and which integrate IWRM and ICM related principles.

2.7.3 Cost-Effectiveness of Proposed Integrated R2R Approach

The project has been designed to be cost effective in several ways. Firstly, it will focus on building on the collective knowledge and experiences from government, non-government, academic institutions, and national and international community-based organizations to plan for biodiversity conservation prioritization and developing action plans that would set up a sustainable mechanism for enhanced marine and terrestrial conservation and resource management. It also focuses on the use of existing government mechanism through mainstreaming within national planning exercise rather than through any new mechanism, further ensuring cost-effectiveness. Most importantly, due to the development of national priorities and action plans for conservation, precious and limited resources available in the country will be used wisely leading to less wastage of such resources.

From consultations with the island councils and community members it appears that a key lesson learnt from past and ongoing GEF/UNDP supported projects in Tuvalu is to support the strengthening of engagement and ownership of island Kaupules in demonstration activities. A key lesson learnt from the NAPA projects is that some island councils do not feel a strong sense of ownership of the project, even though there are Island Community Officers present on each island, because they report directly

to the Department of Environment in Funafuti, and as a result the island “ownership” appears to be diluted. In addition, some of these Island Community Officers have often spent periods of 1 – 3 months off island. For this reason, the cost effectiveness of the R2R project is being demonstrated through its co-financing support (with the NAPA II project) for specific “focal point officers” for each pilot island who will be based at the respective island councils office and who will report directly to the Department of Environment through the island council Kaupule (for Nanumea and Nukufetau for example). This approach will also complement the NAPA II team approach and thus help to reduce some resource costs such as for office space, laptop and budget for other expenses e.g.: communication, monitoring and evaluation etc.

A common project board will also be utilized for all UNDP supported GEF financed project including NAPA I and II. This will enhance synergies and strategic decision-making regarding allocation of resources, implementation focus, and operations, and would enhance coordination between and amongst the various ongoing sustainable development initiatives in Tuvalu.

The project will address the identified barriers in national and local capacities for sustainable natural resource management and planning, primarily through the delivery of technical assistance. This financial modality is considered the most appropriate means by which to strengthen the systemic planning and institutional capacities of the national system for biodiversity conservation. The barriers identified in the R2R project relate to gaps in capacities, and barriers to mainstreaming biodiversity into sub national level. These will be addressed through the development of national plan, tools and models, and targeted capacity assistance to overcome capacity barriers.

Concerning the need for technical support/training, regional agencies (e.g. SPC/SPC-SOPAC, SPREP and USP) will be engaged and national consultants wherever possible. Partnering with regional agencies will be cost-effective due to the fact that the project can build on their expertise and experience, as well as their existing mandate to support Pacific Island countries technically on areas that will be addressed under the R2R project.

These win-win partnerships have already been utilized successfully through ongoing GEF/UNDP projects. For example, the NAPA II project has engaged SPC to provide technical support for four islands and is already considering their support for remaining islands. Similar partnerships will be explored and implemented in all components of the R2R project.

2.8 Sustainability

2.8.1 General Sustainability Issues

Sustainability and replicability are inherent to project design. As a result, the project was designed through extensive, in-depth consultation with a wide range of project beneficiaries in the outer islands, with national and island-level governments (Annex 3). A key part of this consultation process was to understand the on-going needs of outer island communities and their capacity so that the R2R project is designed in such a way to maximize the sustainability of the benefits accrued from the project.

Based on inputs from government agencies as well as outer island communities elicited in stakeholder consultations and the proposed baseline surveys (Components 1 and 2), the implementation process of the project was designed in such a way to engage local communities continuously through a number of island-level workshops and Funafuti-based activities which bring key stakeholders to the main island (such as training of trainers events and annual events – Components 3 and 4). Importantly, Component 3, which will integrate R2R interventions and measures into the existing outer island development planning framework. This is expected to contribute to the overall sustainability of the project results. In addition, the project will promote cooperative action among agencies concerned, thereby combining sustainable use and conservation with economic development objectives, and fostering joint planning of the sustainable use of the globally and nationally significant terrestrial and marine ecosystems.

On-the-ground activities, promoting integrated sustainable use of biodiversity as well as the conservation of ecosystem services of each atoll being targeted (Funafuti, Nanumea and Nukufetau). This will build on community knowledge and awareness providing the opportunity for continued grassroots support and partnerships, involving participation of local people and traditional leaders, with local and national governments as well as the private and non-profit sectors. Thus, the widespread adoption of integrated sustainable practices in the island communities and their continued application beyond the life of the project are envisaged.

The proposed R2R interventions are also innovative and demand-driven, linking to positive changes in efficiency of policy measures for conservation and sustainable use of the atoll ecosystems under pressure, enabling national governmental organizations and local Kaupule to translate innovative activity into tangible performance improvements, as well as rehabilitation of damaged landscapes, seascapes and supporting habitats. The project will apply integrated approaches to improve, maintain and enhance the ecosystem services of the respective LMMAs by supporting sustainable fishery practices, coastal habitat (reef and mangroves) conservation, sustainable agricultural practices and agro-ecosystem activities through appropriate extension and training, water resource and land use improvements, and coastal adaptation interventions that create awareness and provides (where possible) income opportunity for local communities particularly women and young people. The model of working with local communities to identify common resource requirements, through a R2R approach (e.g., fisheries, water quality, coastal erosion control) for conservation and community development needs and focusing investment on those common needs is one which may have broader application for conservation outside of traditional LMMA or designated protected area system.

Finally, the project's sustainability has been ensured through the considerations of institutional, financial and social sustainability. These are described individually below.

2.8.2 Institutional sustainability

As noted in the cost-effectiveness section (Section 2.8), the project will build the existing national institutional mechanism for biodiversity conservation rather than create new structures. The project will reaffirm MFATTEL (DoE's) mandate and strengthen its capacity as the lead state agency responsible for biodiversity monitoring and reporting. The update to the existing NBSAP (2009) will certainly enhance MFATTELs profile and reputation as a source of up to date information on biodiversity conditions and trends. By setting priorities and targets (as part of the reporting system needed to produce the CDB National Reports), the project will also increase transparency and stakeholder confidence in the government's commitment to biodiversity conservation. By building partnership between state and non-state organizations, the project will establish a strong institutional basis for NBSAP implementation.

The project will also review and start to reform the incentive system that drives natural resource and land use decision making at the outer island Kaupule level. This aspect is essential to ensuring the more effective transmission of policies from Funafuti to outer island levels. Currently, environmental policies and regulations have little impact because the incentive system does not include explicit biodiversity conservation criteria. Given the vested interests in the status quo, seeking to reform the performance evaluation system is a major challenge and one that will not happen absent international support and attention.

2.8.3 Financial sustainability

The GoT makes significant investments in biodiversity conservation, particularly through support to protected areas. But these investments are often complex, cumbersome, deliver relatively little conservation. In other words, improving the design of conservation investments is just as important as increasing total funding levels. By assessing the costs and benefits of numerous conservation projects and programs in Tuvalu, the R2R project will shed light on how better to design, fund, and implement these efforts. With many years of internationally funded conservation experience in Tuvalu,

there is a long and detailed track record to review, which can serve as the basis for formulating recommendations on conservation financing that are realistic and evidence-based. These are expected to lead to increased and more sustainable investment in biodiversity conservation, better tracking of investments (and allocation) by other stakeholders based on identified national priorities, and further raising of funds through innovative finances for critical gaps in conservation financing.

2.8.4 Social sustainability

The R2R project will pay special attention to natural ecosystems such as coral reefs, lagoons wetlands and forests on which the more vulnerable communities often depend disproportionately. This approach is to be adopted as the loss of habitat, through encroachment and pollution, has major public health impacts and their effective protection and sustainable use is expected to be a major R2R recommendation. This recommendation is not new but the R2R project will seek to increase the probability that existing habitat protection regulations are enforced.

Water pollution is a public issue in Tuvalu and the NBSAP is an opportunity to galvanize public opinion in favour of tougher law enforcement. By contributing to better management of Tuvalu's natural resources, the R2R project will support the livelihoods of the poorest and most natural resource-dependent communities and thereby contribute to increased social sustainability. The project's impacts on conserving the ecosystems to the nation as a whole and especially on which the poorest depend, will aid social sustainability. The adaptation benefits of ecosystems to the predicted climate change impacts on Tuvalu will also be accounted for in national and Islands Strategic Planning and prioritization so that they are further enhanced. These will have additional social benefits in the longer term for Tuvalu. Many of the threats to biodiversity are also detrimental to human well-being such as marine pollution. By addressing several of the threats to biodiversity, gains will also be made in social sustainability.

2.9 Replicability

For effective management of marine protected areas and LMMAs around Tuvalu, there will be a need to mainstream environmental issues and sustainable development into the national strategic development plans, institutional operational plans, and reflected in the community development plans. For this R2R project, active discussions took place during the PPG consultation process (Annex 2 and 3) as to why only three islands were included and whether there was any possibility of including other islands in the project. Due to budget constraints, this is not possible, however, the strategy to encourage project outcome replication will include participants from other islands in many of the training events planned in Outcomes 1.1, 2.1 and 3.2 in particular.

In addition, this project's strong partnership approach (by bringing together all key Tuvaluan conservation stakeholders) and its robust knowledge management and lesson learning focus allows for best practices from different parts of the country to be documented so that all can learn and replicate the best available practices (through adopting Adaptation Learning Mechanism (ALM)). The project will improve the collection and exchange of knowledge and thus enhance the replicability of successful marine-based livelihoods, biodiversity conservation, marine protected area management, coastal adaptation and sustainable land management practices both within Tuvalu and in other countries. Systematic contribution to the ALM and hosting of national workshops on R2R practices are included in the project activities. Synergies will be created to other regional processes and projects (such as those undertaken by SPC) while the global network of UNDP, assisted by the Tuvalu Multi Country Office and Region-based Technical Advisors, will play an additional role in disseminating good practices to other countries.

As the project includes an important strengthening aspect, the capacities of key government agencies to plan, monitor and promote best practices, is anticipated to result in replication impacts to be greater due to the impacts of this project's actions. This builds on Tuvalu's aspiration to implement an

improved decentralized approach for outer island development planning. Consequently, the national approach for biodiversity planning through an improved partnership approach could thus be adopted and replicated at the outer island Kaupule level.

A key element of Component 4 (Knowledge Management) is to share knowledge and experiences within (between elders and youth), among islands and within the greater Pacific community. As outlined above, this will be achieved through an extensive array of communication pathways through which knowledge will be shared, such as Annual R2R Events.

2.10 Stakeholders

2.10.1 Stakeholder Mapping and Analysis

A description of the diverse and considerable number of R2R project stakeholders, including their interests and activities in Tuvalu, potential/planned roles and relationship to the R2R project is presented below. For the purposes of stakeholder mapping and analysis they have been grouped into six broad categories, viz. Tuvalu Government Ministries and Statutory Boards, Local peoples and associations; NGO/CSO and networks; Education, Research & Technical and Regional Organizations; and International Organizations, Donors and Funding Mechanisms. It is emphasized that this list, while reasonably comprehensive, may have missed some or left-out minor stakeholders.

The primary level stakeholder in the implementation/execution of the R2R project is the Department of Environment (DoE) within MFATTEL. As the government agency responsible for environmental planning, policy and legislation, including biodiversity conservation and sustainable management of ecosystem services, the DoE will play a key role of bridging and ensuring the collaboration and close communication between Ministries, conservation NGOs (especially for Components 1 and 2) and other project partners.

Some of the key roles for DoE will be: a) consultation with relevant stakeholders, as well as seeking financial assistance through appropriate co-financing arrangements, b) project implementation, management, monitoring and evaluation including housing the project manager and consultants, and providing secretariat as required c) information sharing and collaboration with Ministries, relevant national committees and authorities on mangroves, fisheries, forestry, agriculture, land use, water quality and pollution, natural resources conservation and management, either directly or through the project advisory body and committees; and, d) exchanging best practices and lessons learned with other projects under the Pacific Island R2R Program at appropriate occasions as well as with other stakeholders at regional, national and local levels.

The other key Government Ministries whose close and active collaboration is needed for the successful project delivery and whom are providing co-finance are set out below.

Tuvalu Government Ministries and Statutory Boards

- a) *Ministry of Foreign Affairs, Trades, Tourism, Environment and Labour (MFATTEL)*, specifically the *Department of Environment (DoE)* which will act as the project focal point and direct link to the National Climate Change Advisory Board. The Ministry of Finance, the Ministry of Natural Resources (Department of Fisheries and Agriculture), the Ministry of Home Affairs and Rural Development (Department of Local Government and Rural Development); the Falekaupule Trust Fund (FTF); and the Department of Planning and Budget are all key members of the National Climate Change Advisory Board and will be involved in implementing many components of the project and in ensuring financial stability;

- b) Department of Fisheries (DoF) is the overarching arm of Government concerning the marine environment and will be closely involved in the project's activities of survey and monitoring, planning for sustainability and conservation areas development.
- c) Department of Agriculture (DoA) monitors the impacts of agricultural development on the environment
- d) Department of Lands & Survey (DoLS) is responsible for land use planning and provides data for development of environment and biodiversity conservation programmes.
- e) Department of Planning (DoP) is the policy-making arm of government whose involvement is vital to gain political support in environment related matters.
- f) Solid Waste Agency of Tuvalu (SWAT) is responsible for waste collection, disposal, and management on all islands. SWAT will support interventions to remediate algal bloom interventions in Funafuti and advice on enhanced IWRM and ICM.
- g) Public Works Department (PWD) is responsible for water infrastructure installation, maintenance and management. PWD will support the construction of water infrastructure (i.e. compost toilets, etc.)
- h) Department of Education oversees all primary and secondary schools in Tuvalu as well as maintains and operate the National Tuvalu Library. The project will work closely with the Department of Education in engaging youth and children in the monitoring, training and awareness raising efforts on all islands. It will also play an important role in developing and implementing the Standard Operating Procedures for Component 4.
- i) Department of Women ensures that all activities are gender inclusive. They will advise on community outreach and implementation activities, knowledge management, and policy and governance mechanisms, to ensure that men, women, and vulnerable groups are given equal opportunity to contribute and benefit from the R2R project.
- j) Office of the Attorney General is responsible for the formation and enforcement of legislation concerning biodiversity conservation.

Local peoples, governments and associations

- k) Communities: The local communities will be key partners during project design and implementation. The Conservation Areas Act of 1999 specifically requires the involvement of communities, and also owing because to the fact that most of the land (and sea) is currently under customary use. The LMMA framework that is proposed for adoption in this project is a community-centric framework with local residents making and carrying out decisions for themselves. The local stakeholders, including villagers, village and community leaders, resource owners, farmers and fishers are key to successful project implementation and sustainability of action and efforts, including sustainable management of natural resources.
- l) Local governments:
 - The Falekaupule is a traditional institution and the key decision making body on the islands where major issues of concern to the community are discussed at this level. All eight islands have a Falekaupule. Its powers, whose powers were legalised in the Falekaupule Act 1999. When it comes to issues concerning communal land, Falekaupule is the right place to discuss such issues concerning communal land. Traditional knowledge and practices are often echoed in the Falekaupule.

- The Kaupule has a wide range of functions under the Falakaupule Act 1999. It has the power to grant licenses for removing of materials from the foreshore, erecting residences, industries, business, etc. on private land. This local authority has a direct link with those at the grass root level, especially landowners. The drawback facing this the Kaupule is the lack of capacity and financial resources to effectively carry out its functions. There is a need to strengthen the capacity of this Institution to effectively carry out its functions. All activities on the islands, with the partial exception of Funafuti, should be coordinated through the *Kaupule*; they have been involved in initial project formulation, and will be involved in detailed planning. In addition, organisations representing women on each island will be involved in this detailed planning and project implementation. Planning related to land in Tuvalu is normally carried out by the Land Use Planning Committee, which is made up government stakeholders. This Committee's role is to approve any development request to be erected only on Government Lease Land. Other developments erected on private lands had to be approved by local council (Kaupule). The Kaupule is also responsible for approving request for extracting materials from the foreshore or reclamation of land within the foreshore area.

NGO/CSO and networks

- m) *Non-governmental organisations (NGOs)*: TANGO - Tuvalu Association of NGOs is the umbrella for Non-Government Organisations and has been facilitating mangrove planting programmes and working with island leaders to establish conservation areas and produce management plans with them. Other NGOs include TNCW - (Tuvalu National Council of Women),; the Church organisations, and; Tuvalu Youth Development. Government services on the more remote islands are limited; therefore the NGOs will be critical for the implementation of projects on the ground. Another possible minor stakeholder is the Tuvalu Red Cross Association who is very effective on the implementation of environmental and climate change awareness programmes in the past and have a good solid network within the outer islands.

International and Regional Organizations

- n) *International organisations*: UNDP; UNEP; FAO; World Bank. GEF funds for Pacific countries are being facilitated through the implementing agencies UNDP, UNEP and FAO to assist in biodiversity conservation, land management and climate change mitigation. The UNDP coordinates with UNEP and FAO to implement the Ridge-to-Reef Program in the 14 Pacific countries.
- o) *Regional and sub-regional programmes*: ADB; SPREP; USP; SPC-SOPAC. These agencies are assisting Pacific countries with other projects in parallel to the R2R program, therefore they will be consulted closely to achieve complementary outcomes and avoid overlaps. These projects will provide co-financing for the R2R projects (see Annex 12).
- p) *Other project donors and development partners*: Australia Department of Foreign Affairs and Trade (DFAT); European Union; German GIZ CCCPIR Project; Pacific Environment Community Fund (PECF); Japanese Government and JICA. These donor agencies are organising environmental themed projects in Tuvalu and many of their activities will be complementary to this project and contribute to co-financing .

2.10.2 Stakeholder Engagement and Communication

One of the key areas for successful implementation of a project is to have an appropriate and effective public awareness, communication and mainstreaming strategy that will deliver the message to the people in order to achieve the project objectives. The mode of communication and type of public awareness will depend on the target audience. There will be a need for ongoing awareness

throughout the project duration, in order to influence behavioural change and gain support from all audiences for the implementation of the project and the continuous management of the lagoon beyond its project life. For effective decentralized island planning and management in Tuvalu, there will be a need to mainstream environmental issues (marine and terrestrial biodiversity) that contribute to conservation and sustainable development into the national strategic development plans.

A wide range of stakeholders will be involved in the R2R project, tailored to the specific needs of the three project components. A crucial component of PPG activities was to consult on the detailed design of stakeholder engagement (Annex 5). Key stakeholders to be engaged include a range of government line ministries to implement and support the project implementation, NGOs, island-specific Kaupules and Falekaupules and local communities including some of their interest/community groups. In general, stakeholder engagement in the project implementation begins at the Inception Workshop which will be held in Funafuti. Government departments, Funafuti-based representatives from island Kaupules, NGOs/CSOs and citizens will be invited to the workshop and the focus of the project, the timing of island visits and stakeholder consultations, types and nature of adaptation investments, and expectations from stakeholders engaged will be (re)presented. During the first series of island visit, island-level inception workshops will be organized (on Nanumea and Nukufetau) covering the same topics.

Each Outcome of the R2R project has its own stakeholder groups:

Outcome 1.1 will be delivered in partnership between the DoE and the Dept of Fisheries (DoF) who will be the key implementing stakeholder and will provide technical management and training;

- 1) Lands Department for recording and storing of biodiversity surveyed data,
- 2) Department of Rural Development linking PIU and outer islands, and facilitate the implementation of activities through the monitoring of R2R Island Officers housed under each Island Kaupule, 9 Island Communities;
- 3) Department of Women ensuring the participation of women, and other vulnerable groups
- 4) The Office of the Attorney General providing support in the formalizing LMMAs Management Plans with related legal arrangements;
- 5) IIB/NAPA 2 & NBSAP Review Projects, NGOs, , Fisherman Association, TANGO, Alofa Tuvalu to assist with completing one set of biodiversity baseline to extend the survey to the remaining 6 islands.
- 6) SPC/SOPAC, USP & SPREP (PICCC) technical and training support in data collection, management and maintenance. In addition conducting surveys to identify possible area of rehabilitation. SPREP and USP collaboration on PICCC training to be conducted in Tuvalu.

Outcome 2.1 will be delivered in partnership between the DoE and the DoA who will be the key implementing partner and will provide technical management. Other important stakeholders include;

- 1) Department of Lands and ICT - keeping and maintaining of the Environment GIS Information System that is all data collected throughout this component;
- 2) Department of Rural Development linking and enhancing communications between PIU and the three implement sites. Facilitating the implementation of activities and monitoring R2R Island Officers, Kaupules, Nukufetau, Funafuti, and Nanumea Island Community;
- 3) Department of Women providing support and ensuring gender participation and input to the implementation of output 2.1.1 replanting of 500 plants/crops/indigenous trees
- 4) SWAT- provide technical support in the implementation of remedial actions for reducing or managing algal bloom on Funafuti;
- 5) PWD- provide information on water infrastructure and advice on building infrastructure with regard to remedial measures on Funafuti and if there is a need for outer islands;
- 6) Projects as EU_GCCA PSIS/USP, NAPA 1, SLM, Tuvalu Overview, Happy Garden initiative and TANGO to complement this output's activities based on their previous experiences and
- 7) SPC, CE-PAC, to provide the technical support to do soil surveys (rest of the islands), research, produce and preserve genetic diversity.

Outcome 3.1 will be delivered in partnership between the DoE and the Department of Planning and Budget (DoPB) and Aid Coordination Unit who will be the key stakeholder and provide technical management. In addition the following stakeholders are equally important;

- 1) Department of Agriculture, Fisheries and Lands - collate and interpret data from Component 1 and 2 to justify the establishment of a policy framework inclusive of R2R principles and also the production of the mainstreaming toolkit;
- 2) Department of Rural Development linking and enhancing communications between PIU and the three implement sites. In addition facilitating the mainstreaming of R2R issues and the development of ISPs with inclusion of SLM, ICZ, IWRM issues;
- 3) Department of Media and Education- assist the project in the formulation of training, knowledge and information materials/manuals incorporating SLM, IWRM, ICM;
- 4) Department of Attorney General/Legal - provide legal support and formalise institutional arrangement regarding LMMAs, SLM, ICZ, IWRM matters
- 5) Department of Women- ensure gender inclusiveness, assist the production of training, knowledge and information manuals regarding R2R;
- 6) All other departments assist the project in mainstreaming and reflecting R2R principles in their work plans, budgets, etc. In addition collaboration efforts in producing of manuals and toolkit for future mainstreaming exercises and;
- 7) IIB, NAPA 2, EU_GCCA PSIS, IWRM, PACCC, USAID C-CAP, SLG, CLGF, NBSAP their experiences in project implementation in the particular focal area will assist the project. In addition creating synergies to share and pool resources for effective implementation

Outcome 4.1 will be delivered in partnership between the DoE, Dept of Lands and Survey (DoLS) who will provide technical support on the establishment of the Environment GIS Information System and to produce 9 digitize GIS maps of Tuvalu's biodiversity. In addition the following stakeholders are also important in the implementation of this outcome and it include;

- 1) Department of Agriculture, Fisheries and Lands - collate and maintain the process of data collection to input into the database from outcome 1 and 2 to justify the establishment of a policy framework inclusive of R2R principles and also the production of the mainstreaming toolkit;
- 2) Department of Rural Development linking and enhancing communications between PIU and the three implement sites. In addition facilitating the mainstreaming of R2R issues and the development of ISPs with inclusion of SLM, ICZ, IWRM issues;
- 3) Department of Media and Education- assist the project in the formulation of training, knowledge and information materials/manuals incorporating SLM, IWRM, ICM. In addition Department of Education, National Library will assist the project formulating the Standard Operation Procedure for Information and Knowledge Management;
- 4) Department of Women- ensure gender inclusiveness, assist the production of training, knowledge and information manuals regarding R2R;
- 5) Department ICT and Statistics- will provide support in maintaining and managing the database;
- 6) Foreign Affairs- will coordinate and organise a forum for donors investing in Tuvalu to plan and establish the e-library for the effective use of data and information related to Tuvalu;
- 7) Aid Coordination Unit- will monitor and track the project performance in terms of implementation
- 8) IIB, NAPA 2,EU_GCCA/PSIS, & Alliance USP/PACE, SLG, PPCR-PR and CCCPIR Projects collaborated efforts in information management and maintaining
- 9) SPC/SOPAC, USP, SPREP provide technical assistance and infrastructure maintenance of the Environment GIS Information System. Provide training and build the Environment Data Specialist capacity in maintaining the database;
- 10) EU, ADB, GEF, UNDP, WB donors to assist in the formation of the e-library.

The project intends to run regular meetings incorporating R2R educational videos, the outcomes of the participatory monitoring videos (under Components 3 and 4) and other mechanisms to stimulate discussions and derive steering for the project. This will ensure that the interventions such as

extended MPA areas (Component 1) and new SLM or coastal adaptation pilot measures (Component 2) remain in touch with community stakeholder aspirations at all stages of the project that will be enhanced through the scheduled outer island visits). In addition, events that are designed to promote information sharing about the adaptation effectiveness of investments in Component 1 and 2, such as annual R2R events which are expected to provide additional stakeholder engagement benefits.

In Tuvalu, due to its unique geographical circumstances, workshops and training activities in outer islands (or in Funafuti that bring outer island communities to the capital) are a vital opportunity not only for the sake of capacity building, but also for exchanging information across islands and maintaining the engagement throughout the course of the project. Inevitably, due to the logistical challenge, some of the workshops/trainings will be jointly organized with multiple objectives covering different elements of the four Components or even with parallel co-financed projects such as NAPA II.

All project activities will be closely monitored by the individual implementers (who will vary by topic), the Project Coordinator assisted by the CTA, and the DoE. This will include detailed records of stakeholder involvement, the decisions made by communities and Kaupules and written and photographic/video records of the interventions themselves. Towards the end of the project, the CTA, with assistance from LMMA Officer and the R2R Island Officer, will modify the baseline survey to measure outcomes as perceptions in the community.

More detailed community engagement plan is described under [Annex 5](#).

2.11 Social and Environmental Screening

Environmental and social safeguards and associated policies and procedures are a cornerstone of technical and financial support that this project will strengthen to achieve sustainable poverty reduction, enhance the livelihoods of communities and protect their environment. The objective of these safeguards and associated policies and procedures is to prevent and mitigate undue harm to people and their environment and strive to develop benefits in the development process. More specifically, safeguard policies and procedures are designed to avoid, mitigate, or minimize adverse environmental and social impacts of projects and strategies, and to implement projects and strategies that produce positive outcomes for people and the environment.

Human Rights Based Approach: The human rights based approach has been reflected in the design of the project as gender, poverty reduction, and equity has been considered during the project formulation phase. During the project implementation phase, all stakeholders including women, men, and marginalized groups will be engaged in the design of island conservation management plans. This will ensure that the project will provide equal opportunities for vulnerable individuals and groups to participate and access benefits from the project. During the community consultations and development of plans, the project will identify measures including capacity building and other policy and/or institutional processes where appropriate, to ensure that the community-based medium and long-term conservation planning and implementation of activities will be carried out integrating key principles of human-rights. Furthermore, during the project inception period, appropriate mechanisms will be put in place that will allow project stakeholders and community groups to raise their concerns and /or grievance related to the project implementation including a redress process when the project activities could adversely impact them.

Gender Equality and Women's Empowerment: During the project, community management systems of marine conservation areas will be formalized on all islands following participatory establishment, monitoring, and enforcement of locally managed marine protected areas. The project is targeting that at least 30% of the total participants of the R2R project, are from women, youth and vulnerable groups. Baselines data collection, midterm, and final evaluations will include a gender-based assessment, which will point out the specific biodiversity, water, and land issues and vulnerability specific to men,

women, and other vulnerable groups such as youth and elderly. Several existing tools available will be utilized, including but not limited to “UNDP Gender Equality Strategy 2014 - 2017” and “as well as time-use-study (or build on existing studies available under NAPA I) that assess how men, women, as well as different age groups spend their time differently in order to highlight gender and age specific vulnerabilities based on their differentiated roles within society. The results of this assessment will inform the identification and development of gender-sensitive community based interventions to be included in community based initiatives and knowledge management products. These strategies will be technically specified (including the required targeted capacity building and financial support) and their cost-effectiveness vis-a-vis alternatives approaches clearly demonstrated. Furthermore, project log frame is inclusive of gender consideration of gender specific indicators as well as allocation of budget resources to specific gender-based activities in order to ensure that gender concerns are integrated throughout the project design and implementation.

Mainstreaming Environmental Sustainability: Overall, the proposed Tuvalu Ridge to Reef Project aims at strengthening Tuvalu government’s capacity to improve ecosystem based conservation, resilience of its people, economy, and the environment in short, medium, and long-term at both national and island levels. It is designed to advance a number of Tuvalu’s environmental priorities outlined in a number of national and international policy frameworks including: the Convention on Biological Diversity (CBD)’s Programme of Work of Protected Areas (PoWPA) the Aichi Targets and the National Biodiversity Strategy and Action Plan (NBSAP 2012 – 2016); the UN Convention to Combat Desertification (CCD)’s National Action Programme (NAP); the Sustainable and Integrated Water and Sanitation Policy (2012 – 2021); and the Climate Change Policy and Action Plan . the 9 islands of Tuvalu on assessing natural resources status (baseline analysis and data collection), rehabilitating damaged island and coastal ecosystems including forests, and improving or developing Locally Managed Marine Areas (LMMAs), including Marine Protected Areas (MPAs) governed by the 8 Kaupules and Falekaupules (Island Councils). These activities assist in the recovery of degraded corals and breeding of fish populations. By the end of the five year implementation, the project aims to: increase and enhance Tuvalu’s LMMAs, including MPAs, by 15% with 9 formalized community management systems of marine conservation areas across 9 islands (and managed by the 8 Kaupules) equipped with functional management plans; enhance and/or develop a centralized GIS database system on biodiversity, natural resources, and governance systems; implement sustainable land management interventions and agroforestry interventions; carry out remedial measures for algal bloom in Funafuti Lagoon; mainstream Ridge to Reef into national policies and Kaupule budgets; develop and implement national standard operational procedure on knowledge management; and enhance awareness and build capacities on Ridge to Reef. The adoption of participatory planning processes will strengthen ownership and engender commitment at the national and island level.

Associated social and environmental risks are expected to be limited and low for the Tuvalu R2R project. A risk is identified in relation to Indigenous People, where conflicting views amongst the indigenous communities on the islands over Locally Management Marine Areas (LMMA) in terms of its size, location and management methods/ authorities. These risks will be managed through the utilization of community participatory approaches and dialogue in the development of management plans. In addition, South – South cooperation by having a representative from a successful LMMA community sharing results and best practices with other communities will also be explored.

The full Social and Environmental Screening Template / Report is included in Annex 11.

3. PROJECT RESULTS FRAMEWORK

<p>This project will contribute to achieving the following Country Programme Outcome as defined in CPAP/CPD or UNDAF: UNDAF Focus Area 1: Environmental Management, Climate Change and Disaster Risk Management Regional UNDAF Outcome 1.1: Improved resilience of PICTs, with particular focus on communities, through integrated implementation of sustainable environmental management, climate change adaptation/mitigation, and disaster risk management. Tuvalu UNDAF Outcome 1.1: National and local authorities and partners enhance resilience of vulnerable communities and natural ecosystems to threats, shocks, disasters, and climate change Output 1.1: Strengthened capacity of national and Falekaupule to develop and mainstream integrated policies on natural resources, environment, climate change, disaster risk reduction and management into national, sectoral, planning and budgetary processes,</p>					
<p>Country Programme and/or UNDAF Outcome Indicators: Outcome 1.1: Percentage of terrestrial and marine areas protected (MDG7) (baseline = 0.2%); Percentage of communities supported with climate change adaptation and disaster risk reduction measures (baseline: 81.3%).</p>					
<p>UNDP Strategic Plan Indicator: Output 2.5: Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation</p>					
<p>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy</p>					
<p>Applicable GEF Strategic Objective and Program: BD-1: Improve Sustainability of Protected Area Systems: BD-2: Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors: LD-3: Integrated Landscapes: Reduce pressures on natural resources from competing land uses in the wider landscape: IW-3: Support foundational capacity building, portfolio learning, and targeted research needs for joint, ecosystem- based management of trans-boundary water systems:</p>					
<p>Applicable GEF Expected Outcomes: BD-1: Outcome 1.1: Improved management effectiveness of existing and new protected areas. BD-2: Outcome 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation. Outcome 2.2: Measures to conserve and sustainably use biodiversity incorporated in policy and regulatory frameworks. LD-3: Outcome 3.2: Integrated landscape management practices adopted by local communities. IW-3: Outcome 3.3: IW portfolio capacity and performance enhanced from active learning/KM/ experience sharing.</p>					
<p>Applicable GEF Outcome Indicators: Indicator 1.1(BD-1): <i>Protected area management effectiveness score as recorded by Management Effectiveness Tracking Tool.</i> Indicator 2.1(BD-2): <i>Landscapes and seascapes certified by internationally or nationally recognized environmental standards that incorporate biodiversity considerations (e.g. FSC, MSC) measured in hectares and recorded by GEF tracking tool.</i> Indicator 3.2(LD-3) <i>Application of integrated natural resource management (INRM) practices in wider landscapes.</i> Indicator 3.3 (IW-3) <i>GEF5 performance improved over GEF4 per data from IW Tracking Tool; capacity surveys.</i></p>					
Objectives and Outcomes	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective	To preserve ecosystem services, sustain livelihoods and improve resilience in Tuvalu using a 'ridge-to-reef' approach				
	Expansion area (in ha) over existing conservation areas	Existing conservation area has been verified as 76.026 as per PoWPA. 15% of this is 11.4 km ² or approximately 12km ² (rounded up to this figure throughout the Prodoc),	Approximately 1,200 ha or 12 km ² expansion area	Ground truth surveys completed to help achieve the Outcome 1.1 expected target to expand the LMMA/MPA network to 87.7 km ² (or more) after year 5.	Government agencies aware of and committed to marine biodiversity conservation and willing to use the new information collated in integrated policy decision making.
	The integration of new ridge to reef (R2R) knowledge and information into all appropriate national	Whole island planning (referred to as ISP) remains in its infancy in Tuvalu though it is being initially addressed within NAPA 2, though as of	8 ISPs have R2R principles integrated that incorporates ICM, MSP and IWRM	Review of legislation, policies, and ISPs	Continued political support and commitment for engaging communities into the planning and implementation process

	and island wide policy and legislation	September 2014, no details on the ISP process are available.			
COMPONENT 1 – CONSERVATION OF ISLAND AND MARINE BIODIVERSITY					
Outcome 1.1 <i>Improved management effectiveness of system of conservation areas composed of existing and expanded Locally Managed Marine Areas (LMMAs)</i>	Status GIS-based information management system for biodiversity-focused natural resource management.	The current database on biodiversity parameters and natural resource data is available but not organized/accessible. Tuvalu Marine Life (completed by Alofa Tuvalu) plus follow up activities are proposed for 2015 (to be funded by USAID). Existing baseline information is included on the ReefBase Project (http://pacificgis.reefbase.org) database. The fisheries department through their Community Fishing Centre are collecting catch data. Household Income surveys also data regarding fisheries and other natural livelihoods. 5NR is current under implementation	1 updated/new national environment GIS-based information management system. At least 9 GIS maps for each Tuvalu LMMMA/MPA (1 per conservation area) with data and information (including BD hotspots and existing projects), integrated into reports and plans, and distributed and utilised by decisions makers.	National Report (NR) to CBD using spatial and biodiversity data gathered through the project. Quarterly and annual M&E reports from R2R Island Officer. Review of legislation, policies, and ISPs.	Kaupule and other NGOs have been involved in project conceptualization. They will need to be called upon during design and for the implementation of many of the planned activities. Moreover, community participation will be supported through signed agreements to ensure that communities are not disadvantaged and all activities will be totally funded.
Outcome 1.1 Outputs					
Output 1.1.1 National biodiversity surveys of terrestrial and marine fauna & flora completed, with specific targets on endemic species to develop the biodiversity component of the GIS-based management information system (as described in Output 4.1.1)	Number of biodiversity surveys of terrestrial and marine fauna and flora completed and updated every 2 yrs. Number of species surveyed based on agreed upon biodiversity indicators (including endemic species and other endangered species) (Supports delivery of GEF5 Indicator 1.1 & 2.1 (BD-1	The fourth National Report (Convention of Biological Diversity) was produced 2009 and published available on CBD webpage. NBSAP was produced 2011 and endorsed in 2013. Specifics for island NBSAP sites are presented through currently not linked closely to R2R principles. The 2014 NBSAP is currently under review and a consultant has been engaged under UNEP. Previous survey has been conducted under various separate initiatives but not centrally stored and/or data analysis is incomplete. The IBP/ BIORAP has recommended that the implementation of MPAs must be island specific /contextualised i.e. management	9 (1 per Island) surveys of terrestrial and marine fauna and flora completed and updated every 2 yrs. At least 50% of participants engaged in data collection and dissemination are from vulnerable groups of society (women, children, adolescents, and elderly). At least 30* species to be surveyed with agreed upon biodiversity indicators for monitoring <i>*to be reviewed during project implementation</i>	National Report (NR) to CBD using spatial and biodiversity data gathered through the project. Quarterly and annual M&E reports from R2R Island Officer. M&E reports including baseline, and annual updates on monitoring results. New information (mapped data) held by Dept of Lands and Survey and accepted by MFATTEL. Clear and measurable bio-indicators and targets set for all LMMMA/MPAs.	Community management of LMMAs and associated scientific work is adequately resourced and function effectively. Community having strong interest in conservation of species which are not of economic/social value or are edible Loss of main source of livelihoods for district communities; lack of resources for implementation; and conflicts between atoll communities. Execution of biodiversity surveys dependent upon prevailing weather conditions (i.e. affecting travel between islands and surveys on each island) Reports of surveys compiled in timely and made available to stakeholders (collection of large amounts of data from all islands will involve

	and	2))	rules will vary per island depending on circumstances.		Effectiveness of the LMMA/MPA will be measured through biodiversity surveys conducted within and outside of the LMMA/MPAs.	considerable time in analysis and compiling reports) Success dependent upon commitment of several stakeholders including Fishery, Agriculture, Lands, Environment, Department of Rural Development , Kaupule and Falekaupules
Activities						
1.1.1 a) Engage communities in defining bio-indicators (incorporating science and traditional knowledge) and community monitoring methods for biodiversity.						
1.1.1 b) Train R2R Island Officers and other island representatives on island level biodiversity monitoring						
1.1.1 c) Conduct biodiversity baseline survey (of at least 30 species) with communities in the 9 islands. Endemic coastal vegetation, submerged marine ecosystems (seagrass/coral) and other biodiversity hotspots to be identified.						
1.1.1d) Incorporate all new field survey data into a GIS-based management information system, which is to be updated every year.						
1.1.1 e) Community monitoring to take place annually. R2R Island Officers to update data every quarter.						
Output 1.1.2	Existing marine conservation areas in the 9 locations expanded to cover 15% of existing conservation areas (approx 1200 ha or 12 km2) by including more land and sea areas and fish spawning aggregation sites where appropriate, building on completed assessments and additional National Biodiversity Surveys (as described in Output 1.1.1). Repeat assessments supported at midterm and project end to measure management effectiveness. Information incorporated into the GIS-based management information system (as described in Output 4.1.1)	Number of marine conservation techniques piloted Number of people aware and participating in marine conservation management (30 % women, children, elderly and vulnerable groups) (Supports delivery of GEF5 Indicator 1.1 (BD-1))	Currently there are 11 marine conservation areas (CA) across 9 islands governed by 8 Kaupules. Funafuti Conservation Area is the only legalized CA. However, no CAs currently have fully endorsed and enforced Management Plans, including FCA.	At least 9 marine conservation techniques piloted (1 per island) 30 % of total Island Population aware and/or participating in marine conservation management (at least 50% are women, children, elderly and vulnerable groups)	Mid Term M&E Reports.(end of Yr 3) representing a reports of biodiversity baseline of a specific designated studied area, one in each site. End of project report of the community biodiversity baseline (to coincide with BD DAY or Environment Day) to sustain monitoring of CA and data collection. Effectiveness of the LMMA/MPA will be measured through biodiversity surveys conducted within and outside of the LMMA/MPAs.	Community willingness to extend size of existing conservation areas Potential community disagreements on size, location and duration of conservation areas Strong sense of ownership and commitment at community levels to regularly monitor and evaluate progress of demonstration activities at three island as well as other islands Success of demonstration activities dependent upon weather conditions. (coral replanting affected by changing oceanic temperatures e.g. coral bleaching previously experienced) and natural disasters (e.g. hurricanes) Project to identify community champions as key leaders for demonstration activities
Activities						
1.1.2 a) Review of current extent, status and potential for expansion of 11 Tuvaluan Locally Managed Marine Areas (LMMAs) including Marine Protected Areas (MPAs) located across 9 islands.						
1.1.2 b) Through community consultation and scientific assessments (through Output 1.1.1), identify and agree on specific locations for LMMA/MPA expansion by 15% (approximately 1200 ha or 12 km2) and community-focused habitat rehabilitation programs.						
1.1.2 c) Conduct awareness program to educate the R2R Island Officers, kaupule members, and community on LMMAs/MPAs, marine conservation techniques, and the importance of conservation with reference to livelihoods and adaptations.						
1.1.2 d) Develop/update GIS maps of new LMMAs/MPAs boundaries in partnership with SPC						
1.1.2 e) Through a participatory process, implement, enforce, and monitor the implementation of marine conservation techniques piloted across the 9 islands						

<p>Output 1.1.3 Community management systems of marine conservation areas formalised following participatory LMMA approaches, with biodiversity focus to address threats, including climate change.</p>	<p>Number of formalized community management systems of marine conservation areas (shared with Outcome Indicator)</p> <p>Number and effectiveness of system in place to monitor/report that R2R communities are fully engaged in the updating and implementation of LMMAs.</p> <p><i>(Supports delivery of GEF5 Indicator 2.1 (BD-2))</i></p>	<p>Except for Funafuti the other seven islands have established their CA based on a community based approach (LMMA). The management of these areas are done traditionally without formal legal and institutional support from Government directly. The Kaupule the executive arm does not interfere with the management of the LMMA except directed by the Assembly Fale Kaupule. Despite this, The role of different community groups (women, men, teenagers, elderly) are not made clear with regards to sustainable land management and marine biodiversity conservation and their island wide implementation.</p>	<p>9 formalized community management systems of marine conservation areas with management plans (hotspots, PAs, bio-indicators etc).</p> <p>For all 9 LMMA's including Funafuti, an effective monitoring/reporting and evaluation system is in place by Y2 with evidence on how R2R communities are fully engaged in the updating and implementation processes \</p> <p>Vulnerable groups and women are involved (at least 30%) in the community management systems</p>	<p>National Report (NR) to CBD using spatial and biodiversity data gathered through the project.</p> <p>Quarterly and annual M&E reports from R2R Island Officer.</p> <p>Review of legislation, policies, and ISPs.</p>	<p>Continued political support (at national and island council level) and commitment for engaging communities into the planning and implementation processes.</p> <p>Land and lagoon resource tenure issues will not provide negative motivation discouraging active participation in R2R process.</p> <p>Clearly defined roles/interests and recognition of stakeholder (atoll community) groups.</p> <p>Full community support formalized management systems over LMMA establishment</p> <p>Different perspectives of community stakeholders may delay establishment of formalized management system (e.g. why have formal system in place if there traditional management systems have worked effectively for many years)</p>
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Activities

- 1.1.3 a) Review the current management system and traditional Kaupule conservation area management plans through community consultations to determine the weaknesses and strengths, as inputs to the LMMA/MPA plans (1.1.3b) in 9 sites.
- 1.1.3 b) Strengthen, formalise and implement Funafuti MPA Plan and other LMMA/MPA management plans for each of the 9 sites
- 1.1.3 c) Community-based monitoring and enforcement system for LMMA/MPA management plans developed and implemented by community members and R2R Island Officers
- 1.1.3 d) Host annual community management and monitoring event

COMPONENT 2 – INTEGRATED LAND AND WATER MANAGEMENT

<p>Number of new sustainable land management (SLM) interventions introduced on Funafuti, Nanumea and Nukufetau that positively contribute to food security development on those islands.</p> <p><i>(Supports delivery of GEF5 Indicator 3.2 (LD-3))</i></p>	<p>Current adoption / promotion of composting and production of organic fertilizers is seeking to remedy the current challenge of having to promote food security on soils that are becoming saline or devoid of nutrients through inappropriate land use (tree planting) or pollution from human land usage. NAPA 1 introduced simple composting techniques with the assistance of the SWAT Department utilizing compost wastes.</p>	<p>Introduction of at least 3 new sustainable land management (SLM) interventions (focusing on improved opportunities for underutilized local crop species) and agroforestry interventions in Nanumea, Funafuti and Nukufetau that (if improved upon) will positively contribute to food security development on the 3 islands, for over 300 community members (or 30% of island population; 30% or over should be female) by the end of the project.</p>	<p>Climate resilient SLM technique guide</p> <p>National Report (NR) to CBD using spatial and biodiversity data gathered through the project.</p> <p>Quarterly and annual M&E reports from R2R Island Officer.</p> <p>Review of ISPs</p>	<p>Willingness of local Falekaupule to participate in planting new species of tree or new crops based on the findings of the new soil surveys undertaken.</p> <p>Risk that the SLM strategy is not implemented with clear actions and roles for all community members.</p>
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Outcome 2.1 Outputs

<p>Output 2.1.1 Resource inventory performed, soils characterized and hazards to land and water resources identified and incorporated into GIS area mapping, complementing Output 1.1.1 towards improving decision making in the management of production landscapes and maintenance of ecosystem services</p>	<p>Number of new detailed ground truth soil, geological, topographic and land resource characterisation field surveys completed. (Shared indicator with Outcome 2.1)</p> <p>Number of clear and measurable bio-indicators set to maintain ecosystem services for all pilot islands identified and reported; number of people trained to monitor and update bio-indicators.</p> <p><i>(Supports delivery of GEF5 Indicator 3.2 (LD-3))</i></p>	<p>Land resources surveys were undertaken by FAO in 1986. SPC under NAPA has completed soil survey in Nukufetau and Funafuti.</p> <p>Soils and terrain have altered since 1986 and new options for agriculture and coastal adaptation are now required.</p>	<p>Up to 3 (1 for each pilot islands) new or updated land and geotechnical surveys undertaken on Nanumea, Nukufetau and Funafuti and information stored within the GIS by the end of Y2.</p> <p>All new resource information (soils etc) collated and stored within GIS (maps etc) and used to inform land use strategies for SLM delivery on Nanumea and Nukufetau by the end of the project.</p>	<p>Geotechnical survey report</p> <p>GIS-based information management system incorporates updated soil survey information</p> <p>National Report (NR) to CBD using spatial and biodiversity data gathered through the project.</p> <p>Quarterly and annual M&E reports from R2R Island Officer.</p> <p>Review of legislation, policies, and ISPs.</p>	<p>Storage capability of GIS and ability to train (capacity) to upload, maintain and disseminate the new data in a usable format for decision makers in Tuvalu.</p> <p>Commitment and availability of USP and SPC to outer island missions as per proposed Annual Work Plans</p>
<p>Activities</p> <p>2.1.1 a) In line with bio-indicators developed under 1.1.1, develop resource indicators for land and water through community-based and scientific process.</p> <p>2.1.1 b) Train R2R Island Officers, island leaders and community members on the significance of land and water resource monitoring and management</p> <p>2.1.1c) Through a community-based and scientific approach, carry out an inventory to determine the quality and quantity of natural resources in the 3 selected islands (Nanumea, Nukufetau, and Funafuti)</p> <p>2.1.1d) Building on existing data (produced by FAO and NAPA II project), produce detailed ground truth soil, geological, topographic and land resource characterisation field surveys in the 3 selected islands</p> <p>2.1.1e) Incorporate all new soil and land resource characterisation field survey data into a GIS-based management information system.</p> <p>2.1.1 f) Identify information gaps/datasets needed for future surveys to help better deliver NBSAP principles</p> <p>2.1.1 g) Update information on resource-indicators annually within local and national GIS-based management information system.</p>					
<p>Output 2.1.2 Re-vegetated degraded areas with indigenous hardwood tree species (including mangroves, coconuts and local crop species) in selected sites in 3 islands (Funafuti, Nanumea and Nukufetau), towards improving hydrological functions, coastal resilience against climate impacts, and improving livelihoods and securing food production with involvement of Department of Agriculture, Department of Rural Development, Kaupule, NGOs and women's</p>	<p>Number of new sustainable land management (SLM) interventions introduced on Funafuti, Nanumea and Nukufetau that positively contribute to food security development on those islands. (shared indicator with Outcome 2.1)</p> <p><i>(Supports delivery of GEF5 Indicator 3.2 (LD-3))</i></p>	<p>From a soft coastal adaptation perspective, there are significant areas of large salt tolerant trees on many of the Tuvaluan islands, though the engineering science surrounding their role in preventing coastal erosion is uncertain.</p> <p>New schemes are proposed for Nanumea (pandanus groynes construction to help develop the "green buffer" concept and a novel "spur and groove" reef rehabilitation project to help reduce wave energy impacting on the coast of Savave island are proposed on Nukufetau as part of NAPA1.</p>	<p>Introduction of at least 3 new sustainable land management (SLM) (focusing on improved opportunities for underutilized local crop species) and agroforestry interventions in Nanumea, Funafuti and Nukufetau that (if improved upon) will positively contribute to food security development on the 3 islands, for over 300 community members (or 30% of island population; 30% of which should be female) by the end of the project.</p>	<p>Climate resilient SLM technique guide</p> <p>National Report (NR) to CBD using spatial and biodiversity data gathered through the project.</p> <p>Quarterly and annual M&E reports from R2R Island Officer.</p> <p>Review of ISPs</p>	<p>Willingness of local Kaupule to accept soft coastal adaptation measures ahead of hard coastal engineering schemes.</p> <p>Sufficient networking among regional, national and local experts for exchange of technical information, knowledge and experience across disciplines.</p> <p>Land and resource tenure issues will not provide negative motivation discouraging adoption of improved practices.</p> <p>Sufficient interested, receptive individuals and organizations available for training/capacity.</p> <p>Willingness of local Kaupule to participate in planting new species of tree or new crops based on the findings of the new soil surveys undertaken and experiences with previous projects.</p>

<p>organizations (Tuvalu National Council of Women)</p>		<p>Current adoption / promotion of composting and production of organic fertilizers is seeking to remedy the current challenge of having to promote food security on soils that are becoming saline or devoid of nutrients through inappropriate land use (tree planting) or pollution from human land usage</p> <p>Plants of Tuvalu book produced in 2012 reference material for the identification of plants, grasses, as it has scientific, common English names and local names.</p>	<p>At least 1 knowledge product on climate-resilient SLM techniques developed and 2 suitable awareness programs to educate people (gender sensitive) on "climate resilient" replanting of arable crops (i.e. Happy Garden initiative), benefiting over 200 vulnerable community members (30% at least being female) by the end of the project.</p> <p>Planting of over 500 suitable hardwood (coconut/mahogany etc), fruit tree species and underutilized local crop species over at least two islands by the end of Y4.</p> <p>At least 3 agricultural interventions (1 each in Nanumea and Nukufetau) implemented (with number of beneficiaries (at least 30% women and/or youth) and value of investments recorded).</p> <p>Trainees to visit / learn from the GCCA agroforestry sites in Funafuti.</p>		<p>Risk that the SLM strategy is not implemented with clear actions and roles for all community members.</p> <p>Willingness of community members to maintain activities following completion of project life as by then the cash for work approach will no longer be in existence</p> <p>Motivation of Happy Garden Trainees to facilitate training /technical support in their island communities upon completion of training in Funafuti..</p>
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Activities

- 2.1.2a) Building on past and ongoing efforts (i.e. SLM project, etc), develop the "Tuvalu Climate Resilient SLM Techniques Guide" covering agroforestry, agro-biodiversity, and agriculture interventions that would improve hydrological functions, coastal resilience against climate change, and improve livelihoods and food security in coordination and cooperation with Department of Agriculture
- 2.1.2b) Implement priority SLM interventions in accordance with the Guide (2.1.2a) including the replanting of over 500 suitable hardwood (coconut / mahogany, etc) fruit tree species and underutilized local crop species.
- 2.1.2c) Create community training and involvement plans to aid in local engagement (including sponsoring organize community-based tree planting restoration programs involving local youth and women in raising mangrove saplings and maintaining the mangrove and coconut plantation nurseries).
- 2.1.2d) In order to enhance community capacities to manage and sustain SLM interventions, support participation (2 participant per island per year) of island representatives to trainings in partnership with the "Happy Garden" Initiative and agroforestry demonstrations of the Department of Agriculture with involvement of Kaupule, NGOs and womens' organizations on Nanumea, Nukufetau, and Funafuti.

Output 2.1.3

<p>Review of completed algal bloom assessment in Funafuti; Implement remedial measures to</p>	<p>Number of actions implemented to understand and enhance water quality of Funafuti lagoon.</p>	<p>Water quality in the lagoon has decreased and the amount of floating debris has increased over the years, potentially from agriculture, domestic sources, and</p>	<p>At least 1 reports (i.e. report by USP), surveys and data collection programmes reviewed / updated/ disseminated to determine</p>	<p>Reports on water quality testing that provides baseline information and updated recommended actions (testing to take place in intervention</p>	<p>Collaboration among all sectors who may be contributing to eutrophication levels within Funafuti lagoon.</p>
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<p>reduce occurrences and severity</p>	<p>(Shared indicator with Outcome 2.1) (Supports delivery of GEF5 Indicator 3.2 (LD-3))</p>	<p>other development activities in the surrounding lagoon catchment. Pollution within Funafuti Lagoon is deemed as being in a chronic state. Invasive alien species (IAS) <i>Sargassum polycystu</i> are present only near the coasts of Fongafale and the Conservation Area. Its distribution and density is believed to be correlated to the levels of toxins recorded within the water.</p> <p>There is also a high concentration of nitrate in particular this is very high close to the densely populated sites. There is ongoing direct disposal of human and animal feces into the waters of Funafuti lagoon. The resulting high nutrient loading resulted in algal blooms as has been recorded in lagoons in Funafuti.</p> <p>USP and SPC have undertaken studies together with Fisheries Department on the causes and impacts of the issue. People of Funafuti were advised through the Kaupule to harvest the seaweeds and use them manure in their home garden as a short term solution to reduce or decrease sea ground cover.</p> <p>PACCC Project conducted 2 studies with support of SPC on the demand and use of compost toilet on Funafuti in 2009 and then in 2013.</p>	<p>status of algal blooms in Funafuti Lagoon to better understand causes and appropriate remedial measures.</p> <p>At least 1 remedial measure implemented to reduce point and non-point sources of pollution causing algal bloom in Funafuti Lagoon.</p> <p>Water quality and extent of algal bloom recorded and effectiveness of remedial measures measured at least 3 times (baseline, midterm, and final) during the lifetime of the project.</p>	<p>sites, and non-intervention sites to assess the effectiveness of the intervention)</p> <p>National IWRM policy</p> <p>Quarterly and annual M&E reports from R2R Island Officer.</p>	<p>Authorities, politicians, and land owners committed to support land-use planning/zoning methods as assumed.</p> <p>Sufficient interested, receptive individuals and organizations available for training/capacity building.</p> <p>Community support for composting dependent upon previous experiences under IWRM Project</p>
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Activities

- 2.1.3a) Review existing algal bloom assessment by USP PACE-SD to analyze the baseline condition and identify effective remedial measures and indicators for monitoring/evaluating the impacts of remedial measures
- 2.1.3b) With community support and participation, implement remedial measures such as, but not limited to, composting toilets in hot spots, waterless pig waste management, composting of algae, reducing point and non-point sources for pollution
- 2.1.3 c) Conduct awareness raising efforts regarding the causes and impacts of algal bloom in the Funafuti Lagoon
- 2.1.3d) Monitor water quality of Funafuti Lagoon (baseline, midterm, and final) and assess the effectiveness of remedial measure

COMPONENT 3 – GOVERNANCE AND INSTITUTIONS

<p>Outcome 3.1 Integrated approaches mainstreamed in policy and regulatory frameworks</p>	<p>Number of revised policies, updated sector plans or reviewed environmental regulations that help towards providing a functional enabling environment for conservation and integrated management of islands ICM, MSP, IWRM.</p>	<p>Currently, there is no established assessment and evaluation framework to integrate land and sea management issues for all atolls. Tuvalu is currently in the process of drafting an Integrated Water Resources Management (IWRM) Plan though has no endorsed ICM policy or planning principles in place.</p> <p>Existing Environment Act is not clear and specific to cater for the current environment and the level of mainstreaming climate change, biodiversity conservation, SLM, ICM and IWRM into ISP remains extremely limited in sector policies and work plans</p>	<p>Creation of 1 nationally recognized Policy Framework that integrates R2R principles</p>	<p>Report/ toolkit on mainstreaming R2R into national and island planning</p> <p>National Report (NR) to CBD using spatial and biodiversity data gathered through the project.</p> <p>Quarterly and annual M&E reports from PIU</p> <p>Review of legislation, policies, and ISPs.</p>	<p>Continued political support and commitment for engaging communities into the planning and implementation processes.</p> <p>Land and lagoon resource tenure issues will not providing negative motivation discouraging active participation in ISP process.</p> <p>Sufficient interested, receptive individuals available for capacity building activities.</p>
<p>Outcome 3.1 Outputs</p>					
<p>Output 3.1.1 Kaupule conservation area management plans examined and documented in conjunction with various departments (Environment, Fisheries, Rural Development, and Budget and Planning) and communities, and used to inform national planning and development of regulations and legislation at the national level in support of integrated approaches (ensuring that documents are also translated into local language).</p>	<p>Number of knowledge products and policy instruments developed to facilitate integration of R2R into national policies and Island Strategic Plans (ISP) that adopts (Integrated Coastal Management (ICM), Marine Spatial Planning (MSP) and Integrated Water Resource Management (IWRM) principles to address all land and sea related issues.</p> <p>Percent of ISP budget allocated for kaupule conservation area management plans (with R2R integrated).</p>	<p>Department of Environment has been designated by the Cabinet to implement the NBSAP but no clear provision on financial and other commitments required for plan implementation.</p> <p>Only one legislated CA and that is the Funafuti CA. The other nine CA/ LMMA have no formal legal and institutional arrangement, hence the technical support from relevant sectors is minimal. The nine CA also don't possess proper published management plans.</p> <p>NAPA 2 is also doing an activity on ISPs. In that project activity there is minimal emphasis on Conservation Management Plans.</p> <p>There is a high need for a draftsman or consultation for the implementation of ISP and even other government sectors' legal needs.</p>	<p>At least one report/toolkit on on mainstreaming "ridge to reef" principles into national and island planning (ISP) by end of Year 1 which is developed and disseminated to all stakeholders in at least 2 different formats, and translated into local language.</p> <p>10 percent of ISP budget allocated for Kaupule conservation area management plans (with R2R integrated).</p>	<p>Report/ toolkit on mainstreaming R2R into national and island planning</p> <p>National Report (NR) to CBD using spatial and biodiversity data gathered through the project.</p> <p>Quarterly and annual M&E reports from PIU</p> <p>Review of legislation, policies, and ISPs.</p>	<p>Clearly defined sets of key stakeholders and their engagement.</p> <p>Political commitment to designate support, and promote multi-stakeholder management systems.</p> <p>Potential local and international donors will engage in project implementation and provide necessary support to ensure long-term achievements.</p>

		Other projects like the CLGF under the Commonwealth is also doing similar work.			
Activities					
3.1.1a) Coordinating with past and ongoing projects (i.e. NAPA II, EU-GCCA, CLFG and C-CAP (USAID) Project) develop a toolkit to mainstream R2R (ICM and IWRM) into national and island planning processes.					
3.1.1 b) Formalise the integration of R2R principles into the Island Strategic Plans (ISPs) and budgets in close coordination with other relevant projects (i.e. NAPA II, EU-GCCA, CLFG and C-CAP (USAID) Project,etc)					
3.1.1 c) Mainstream R2R principles into national legislation, policies, plans, and budgets					
3.1.1 d) Examine, document, and formalize Kaupule conservation area management plans/ agreements/ protocols with relevant national and island level authorities					
Outcome 3.2 Capacity on integrated approaches enhanced at the national and community levels	Number of staff in Govt of Tuvalu (GoT) and communities who are able to identify environmental risks and prioritize, plan, and implement effective conservation and integrated measures.	NGOs like TANGO, DoE and DoF are responsible for MPA Management Plans. Concerned departments, ministries, partners and stakeholders have all set up contact points to implement the Planning Framework for ISP (integrating land and sea) and have adopted ecosystem services consideration in key development policies and legislation.	75% of 2014 staffing numbers (30% of which being female or more) are trained to be able to identify environmental risk and help towards implementing the R2R components of the ISP by the end of the project. As a result of the training, at least 50 GoT staff and 200 community members are able to identify environmental risks and prioritize, plan, and implement effective conservation and integrated measures.	Production of Tuvaluan awareness raising materials, undertake "train the trainer" exercises and work with the Department of Education to include SLM, ICM and IWRM principles (topics) into a number communication related media, including inclusion within school activities where possible. Quarterly and annual M&E reports from PIU Review of national Tuvalu newsletter, radio programs, and other major media outlets	Regular accessibility to outer islands is limited and transport costs are often prohibitive and economies of scale need to be identified by working with other ongoing projects. There is the dearth for qualified nationals to implement any project and the small bureaucracy is characterized by fast staff turnover. Appropriate staff members need to be selected for training by their host agencies and staff turnover does not negate training benefits. No legal and regulatory framework is in place as basis for ICM or marine protection, including biodiversity conservation, sustainable land and water management.
Outcome 3.2 Outputs					
Output 3.2.1 Training packages including manuals, guides and modules on LMMAs, MPAs, SLM, ICM and IWRM, to advanced and basic levels, that include biodiversity status and assessments developed and implemented in collaboration with the regional R2R program support project	Number of training materials produced and trainings conducted on R2R (LMMAs, MPAs, SLM, ICM and IWRM) in collaboration with regional R2R program. Number of participants in island specific training events (including schools) and ToT training events held to focus on R2R measures that are island specific (gender disaggregated data)	Some existing training and materials developed related to LMMAs, MPAs, SLM and ICM. However, no training modules or workshops have taken place that addresses these issues holistically as R2R. Ad hoc training events are carried out on various topics linked to environmental protection, though few are integrated to cover a range of inter-disciplined topics that help deliver ISP at an island/atoll scale. Due to staffing constraints, MFATTEL is unable to conduct sufficient training in the outer island. DOE is under	More than 30 trainers trained by end of project. At least 30% of participants (if possible) are from vulnerable groups of society (women, children, adolescents, elderly). 4 national trainings conducted. At least 2 training modules in English and Tuvaluan developed. By the middle of Y3, at least 50% of 3 island schools are involved and over 75% of	Train the Trainer Manual Guides produced to help ensure that the R2R Island Officers of target islands have the knowledge and tools to produce their own management plans which will be one of their future key performance indicators (KPIs.) Report/ toolkit on mainstreaming R2R into national and island planning National Report (NR) to CBD using spatial and biodiversity data gathered through the project.	Sufficient interested, receptive individuals available for capacity building activities. Continued political support and commitment for engaging atoll communities into the planning and implementation processes. Land and lagoon resource tenure issues will not provide negative motivation discouraging active participation in R2R or ISP development process. Clearly defined and recognition of stakeholder groups. Sufficient interested, receptive individuals available for capacity building activities.

		capacity/budget etc (to implement the Planning Framework for ISP (integrating land and sea) and has clear provision on financial requirements and other requirements for plan implementation.) MHA is directly involved with the implementations of ISPs as the funds from the FTF is remitted through the Ministry to Kaupule. In a year an island Kaupule receives approximately AUD 200,000 for activities and implementation of ISP.	women's groups (adolescent groups) involved in all atoll community training events. By the end of the project, 100% of kaupule members of the 3 islands are participating in R2R training events that help to update and provide the actions for future implementation of ISP/R2R activities	Quarterly and annual M&E reports from PIU Review of legislation, policies, and ISPs. Stakeholder survey demonstrates that island communities are fully engaged in the updating and implementation processes. Mid-term and Final project evaluation reports	
Activities					
3.2.1a) Develop training manuals and modules on LMMAs, MPAs, climate resilient SLM Technique Guides, and Integrated Coastal Management (ICM) and Integrated Water Resources Management (IWRM) by building on existing information and approaches in coordination with regional R2R project;					
3.2.1b) Organize annual training on 3 islands targeting key Tuvaluan communities and Kaupule Organize on ICM and IWRM principles including "Train the Trainer" events focusing on delivering effective marine conservation SLM, ICM and IWRM techniques.					
3.2.1c) Implementation of the training using manuals and modules developed in 3.2.1 a) for 10% of the population (including women, children and youth) by trainers from 3.2.1b)					
3.2.1d) Organize capacity building activities (for year 3, 4, and 5) for Tuvaluan development policy makers on R2R (ICM and IWRM) mainstreaming.					
3.2.1e) Support participation of Tuvalu representatives to trainings on the "best practices" from the Regional R2R projects on ICM and IWRM specific topics, including setting national bio-indicators to better monitor health and stressors on terrestrial and marine fauna and flora (biodiversity);					
3.2.1f) Develop training materials for community based biodiversity monitoring					
COMPONENT 4 – KNOWLEDGE MANAGEMENT					
Outcome 4.1: Improved data and information systems on biodiversity, forests land management adaptation best practice	Number of improved or new data and information system on biodiversity, agroforestry, land management, and adaptation best practices. Number / percentage of men, women, children, youth and vulnerable groups engaged by the R2R project	Development projects currently do not systematically benefit from learning practices and project lessons on community-based biodiversity and land / marine management.	At least 1 improved or new integrated data and information system (fed by components 1, 2, and 3) established and accessed At least 30 percent of project participants are female	Project reports from project annual M&E activities R2R Pacific website. GEF TWs Tracking Tool reports.	Delays in delivering products due to limited stock of knowledge management materials and delays in shipment; irregular internet service; non-participation in global/regional events due to unavailability of required visas; and loss of skills due to staff turn-over. Systematic planning for procurement of knowledge management materials; subscription to regular internet options; advance planning of travel and associated requirements; and include transfer of skills as part of staff hand-over notes.
Outcome 4.1 Outputs					
Output 4.1.1 Improved GIS-based management information system installed for biodiversity, forests and climate change, land & coastal management and best practices that includes an electronic library to access past	Creation of a suitable and implementable digital metadata platform to accommodate new biodiversity, agroforestry, land management, water management and climate change datasets with appropriately trained staff to Dept of Lands and Survey.	Tuvalu currently lacks the resources and capacity to fully develop a biodiversity component within the existing national GIS system that resides at the Department of Lands and Survey. The current database on biodiversity parameters and natural resource data in general is very	A GIS-based information management system/portal is established and managed within a host that participates within a regionally sustainable network plus in a way that uses the Tuvaluan language where possible	GIS-based information management system is established and housed in DoLS / Tuvalu National Library Project reports from project annual M&E activities R2R Pacific website.	Political, technical and community support to continue to advocate for marine biodiversity conservation and land/water management database management requirements and practices. Technical information, knowledge and experiences available from Outcomes 1.1 and Outcome 2.1.

<p>knowledge, including reports, data etc. in parallel with ongoing projects, e.g., NAPA 2 project. Years 1 & 2 focus on collection of information and assessments with years 3 & 4 to focus more on applications.</p>	<p>Effective and consistent use of the "multi- donor project" electronic library at national level (to produce necessary information for a "National Report to CBD" bi-annual report) or local community level.</p>	<p>much lacking. There is current work being undertaken by a knowledge management specialist on information management (work sponsored by GIZ) which needs to be built on regarding any future knowledge management system underway in Tuvalu.</p>	<p>By the end of Y4, production and at least 2 GIS maps (i.e: community mapping or database update etc) for all 9 islands and are tailored to the capacity and hardware / software capabilities of the island.</p> <p>Local counterparts from the DoLS are trained to enhance their capacity on data management and to support the R2R process on data collection and management.</p>	<p>GEF TWs Tracking Tool reports.</p>	<p>Relevant staff have necessary capacity to manage GIS mapping programs</p> <p>Maps stored in central deposit and made available to stakeholders</p>
<p>Activities</p> <p>4.1.1a) Establish/enhance integrated GIS information management system and database that includes all terrestrial, coastal and marine biodiversity data captured through the R2R project, as well as other past, ongoing, and future projects</p> <p>4.1.1 b) Host a multi-stakeholder/ donor forum to gather information and agree upon an effective data management system that can be effective and sustained</p> <p>4.1.1c) Support and coordinate with ongoing efforts to develop an electronic library where past and ongoing data, knowledge, and information, including reports, data etc. are collected and hosted by the Government including the Tuvalu National Library</p> <p>4.1.1d) Support from regional agencies such as SPC /SPC –SOPAC (capacities in GIS mapping) to train local counterparts such as Department of Lands and Survey to enhance their GIS and data management capacities</p> <p>4.1.1 e) Standard Operating Procedure (SOP) on knowledge management developed and disseminated to ensure that data management systems will be maintained and updated after the project lifetime</p>					
<p>Output 4.1.2</p> <p>Knowledge products (videos, photo stories, flyers, brochures) on all focal areas and best practices developed and disseminated through print, broadcast and through Kaupule, schools, NGOs, women's and youth groups. All translated into Tuvaluan.</p>	<p>Number of brochures, media releases, video documentary in local dialect, feature press article, and website produced , and percent of population who have received/consumed R2R knowledge products</p> <p>Number of reporters/ media trained on R2R related issues. Number of male and female officers trained.</p>	<p>Limited formal communication materials in existence on ISP and ICM/IWRM for each Pilot Island.</p> <p>There is a need to involve stakeholder groups in all stages of the R2R process.</p> <p>Limited channels to educate people on benefits of improving biodiversity and wider environmental conditions.</p>	<p>50% of all Tuvaluans (30% of which are women, youth, and/or vulnerable groups) have received R2R knowledge projects by the end of the project</p> <p>Bu end of the project, at least 5 separate types of innovative and effective awareness and communication materials developed and disseminated</p> <p>50% of reporters/media in Tuvalu trained on R2R related issues. At least 30%of trained communication officers are female</p>	<p>Publication of an array of knowledge techniques (both in English and Tuvaluan) that disseminate the ICM and IWRM approaches adopted within the R2R programme on all outer islands.</p> <p>Reports from project annual M&E activities.</p> <p>GEF TWs Tracking Tool reports.</p> <p>Technical awareness documents and communication materials (video documentaries/web based products) produced and disseminated.</p>	<p>Technical information, knowledge and experiences available from Outcome 1.1 and Outcome 2.1.</p> <p>Commitment of stakeholders in sharing lessons learnt and best practices</p>
<p>Activities</p> <p>4.1.2a) Develop and disseminate an array of knowledge techniques that disseminate the R2R (ICM and IWRM) approaches</p> <p>4.1.2b) Establish, update and improve web based products</p> <p>4.1.2c) Create innovative public awareness and education campaigns</p>					

4.1.2d) Support from regional agencies such as USP/SPC/SPREP/SOPAC (capacities in video documentary) to train key stakeholders in Tuvalu on innovative communication and knowledge product development					
4.1.2e) Training of local reporters/radio station on R2R related issues					
Output 4.1.3: Systematic monitoring system established, with data sharing and joint training and survey activities for terrestrial and marine areas and integrated approaches; monitoring and evaluation results are fed to the R2R program through the regional program support project to facilitate lessons sharing and cross-country fertilization	Number of inputs provided by staff and government towards the design of a regional/ international agency donor conference to help solicit R2R lessons learned.	No formal mechanisms in place to relay or disseminate best practice information or shared knowledge on R2R related topics.	At least 5 delegates from Tuvalu participate and provide inputs to the design of a regional/international agency donor conference for R2R lessons learned (at least 2 female candidates) by the end of the project.	Initiation and implementation of a major agency-donor conference to discuss the final draft of the Tuvalu R2R outputs and solicit support for implementation and “lessons learnt” at regional level Reports from project annual M&E activities. GEF TWs Tracking Tool reports.	Technical information, knowledge and experiences available from Outcome 1.1 and Outcome 2.1.
Activities					
4.1.3a) Initiate and implement a major agency-donor meetings to discuss proposals from unfunded priorities identified in the project and solicit support for implementation and “lessons learnt” at regional level.					
4.1.3b) Participation, knowledge sharing, and application of information and tools from the Regional R2R program to enhance cross-country fertilization of R2R efforts nationally, and regionally.					

TOTAL BUDGET AND WORKPLAN

Award ID:	00086015	Project ID(s):	00093437
Award Title:	Implementing a "Ridge to Reef approach to protect biodiversity and ecosystems functions in Tuvalu (R2R Tuvalu)		
Business Unit:	FJI10		
Project Title:	Implementing a "Ridge to Reef approach to protect biodiversity and ecosystems functions in Tuvalu		
PIMS no.	5220		
Implementing Partner (Executing Agency)	Ministry of Foreign Affairs, Trade, Tourism, Environment and Labour (MFATTEL)		

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
Component 1 Conservation of Island and Marine Biodiversity	DoE - MFATTEL with Dept of Fisheries as responsible party	62000	GEF	71200	International consultants	36,767	36,767	36,766	4,500	4,500	119,300	1A
				71300	Local consultants	8,320	8,320	8,320	8,320	8,320	41,600	1B
				74200	Audiovisual & Print Production Costs	-	2,750	2,750	2,750	2,750	11,000	1C
				71400	Contractual Services-Individual	125,250	125,250	125,250	125,250	125,250	626,250	1D
				72100	Contractual services – Companies	10,000	10,000	10,000	10,000	-	40,000	1E
				75700	Training, Workshops and Conferences	26,200	26,200	26,200	26,200	26,200	131,000	1F
				71600	Travel	26,752	26,752	26,752	26,752	26,752	133,760	1G
				72200	Equipment and furniture	97,060	97,060	97,060	97,060	97,060	485,300	1H
				74500	Miscellaneous Expenses	2,358	2,358	2,358	2,358	2,358	11,790	1I
					sub-total GEF	332,707	335,457	335,456	303,190	293,190	1,600,000	

Component 2 Integrated Land and Water Management	DoE - MFATTEL with Dept of Agriculture	62000	GEF	71200	International consultants	4,500	4,500	23,167	23,167	23,166	78,500	2A
				71300	Local consultants	-	-	6,000	6,000	6,000	18,000	2B
				71400	Contractual Services- Individual	109,000	109,000	109,000	109,000	109,000	545,500	2C
				72100	Contractual services – Companies	-	10,000	10,000	10,000	10,000	40,000	2D
				72300	Materials & Goods	39,930	39,930	39,930	39,930	-	159,720	2E
				74200	Audiovisual & Print Production Costs	-	-	4,000	4,000	4,000	12,000	2F
				71600	Travel	33,192	33,192	33,192	33,192	33,192	165,960	2G
				72200	Equipment and furniture	66,200	66,200	66,200	66,200	66,200	331,000	2H
				74500	Miscellaneous Expenses	2,400	2,400	2,400	2,400	2,400	12,000	2I
				75700	Training, Workshops and Conferences	-	20,940	20,940	20,940	-	62,820	2J
	sub-total GEF	255,222	286,162	314,829	314,829	253,958	1,425,000					
Component 3 Governance and Institutions	DoE - MFATTEL with Dept of Planning and Budget	62000	GEF	71200	International consultants	-	-	8,000	8,000	8,000	24,000	3A
				71300	Local consultants	-	-	9,000	9,000	9,000	27,000	3B
				71400	Contractual Services- Individual	3,750	3,750	3,750	3,750	3,750	18,750	3C
				72100	Contractual services Companies	-	-	3,333	3,333	3,334	10,000	3D
				74200	Audiovisual & Print Production Costs	-	-	2,667	2,667	2,666	8,000	3E
				71600	Travel	-	-	37,261	37,261	37,262	111,784	3F

				72200	Equipment and furniture	5,000	5,000	5,000	5,000	5,000	25,000	3G
				75700	Training Workshops and Conference	-	-	34,975	34,975	34,974	104,924	3H
				74500	Miscellaneous Expenses	108	108	108	108	110	542	3I
					sub-total GEF	8,858	8,858	104,094	104,094	104,096	330,000	
Component 4 Knowledge Management	DoE – MFATTEL MHARD with Dept of Lands and Survey	62000	GEF	71200	International consultants	-	-	13,333	13,333	13,334	40,000	4A
				71300	Local consultants	-	-	4,000	4,000	4,000	12,000	4B
				72100	Contractual services – Companies	6,950	6,950	6,950	6,950	6,950	34,750	4C
				74200	Audiovisual & Printing Costs		-	4,887	4,887	4,887	14,661	4D
				71600	Travel	10,140	10,140	10,140	10,140	10,138	50,698	4E
				75700	Training Workshops and Conference	11,710	11,710	11,710	11,710	11,712	58,552	4F
				72200	Equipment and furniture	3,200	3,200	3,200	3,200	3,200	16,000	4G
				74500	Miscellaneous Expenses	400	400	400	400	400	2,000	4H
					sub-total GEF	32,400	32,400	54,620	54,620	54,621	228,661	
Project Management Costs (PMC)	DoE – MFATTEL/ UNDP			71200	International consultants	9,000	9,000	9,000	9,000	9,000	45,000	PM-A
				71400	Contractual Services-Individual	9,000	9,000	9,000	9,000	9,000	45,000	PM-B
				72500	Supplies	912	912	912	912	910	4,558	PM-C
				71600	Travel Cost	740	740	740	740	742	3,702	PM-D
				74500	Miscellaneous Expenses	300	300	300	300	300	1,500	PM-E
				74500	UNDP cost recovery charges-Bills	15,885	15,885	15,885	15,885	15,883	79,423	PM-F
					sub-total PMC	35,837	35,837	35,837	35,837	35,835	179,183	
PROJECT TOTAL						665,024	698,714	844,836	812,570	741,700	3,762,844	

Summary of Funds: ⁴⁹

	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount Year 5	Total
GEF	665,024	698,714	844,836	812,570	741,700	3,762,844
Co-financing	3,136,119	3,136,118	3,136,118	3,136,118	3,136,118	15,680,591
TOTAL	3,801,143	3,834,832	3,980,954	3,948,688	3,877,818	19,443,435

4.1 Budget Notes

1Ai	International Consultant	IC to review, training CBBS/PICCC, and formalising Conservation Management Plans	119,300	yr1-3
1Aii	International Consultant	IC Graphic/Media/communication specialist, site visit to coincide with project team tour to outer islands		yr 1-3
1Aiii	International Consultant	Audit fees \$6000/year for 3 yrs and 25% of MTR and TE		yr 1-5
1Bi	Local Consultant	Support for training on biodiversity reporting, assist IC on BD baseline community survey	41,600	yr1-5
1C	Audio & Visual	Production of educational material for community and public at large on conservation issues. 1 video clip 30 min on biodiversity baseline survey by community 2 brochures and 2 posters on best monitoring practices and the function of a Conservation Area with a map showing boundaries for each island	11,000	Yr2-5
1Di	Contractual services – Indiv	Project Coordinator 50%	626,250	Yr 1-5
1Dii	Contractual services – Indiv	Deputy Project Coordinator 50%		yr 1-5
1Diii	Contractual services – Indiv	Chief Technical Advisor salary (50%)		Yr1
1Div	Contractual services – Indiv	6 Island R2R Officers (100%) Nanumaga, Niutao, Nui, Vaitupu, Nukulaelae, Niulakita		Yr 1-5
1Dv	Contractual services – Indiv	LMMA Officer salary 100%		Yr 1-5
1Ei	Contractual services – Company	3 marine biologist (from regional organization or NGO) to make assessment, choose site and the best technique probably Alofa Tuvalu. Train R2R Island Officers and a few youths to monitor and enhance progress of coral rehabilitation	40,000	yr1-4
1Fi	Training, Workshops and Conferences	1 workshops per island per year x 9 islands for 4 yrs Inclusive of annual operation budget of \$ 40,000 to implement R2R Island Officers' work plans. \$10,000 annually for year 1-4 each island activities amounting to \$1200 for eight islands and Niulakita will receive \$400. This also includes annual biodiversity survey costing.	131,000	yr 1-4

⁴⁹ Summary table should include all financing of all kinds: GEF financing, co-financing, cash, in-kind, etc...

1Fii	Training, Workshops and Conferences	1 national workshop to inform communities of the project objectives/targets and to establish baseline and reaffirmation of activities per component (6 participants from each island)		yr 1
1Gi	Travel cost	Once per year x 3 officer for 5 yrs to outer island: DSA with a total of 20 days mission to 9 islands	133,760	yr 1-5
1Gii	Travel cost	6 participants x 9 islands x \$60 DSA + 6 participants x 9 x 20 x2		yr 1
1Giii	Travel cost	6 participants x 9 x 100 x 2 boat fares (Kaupule officials travel 1st & 2d Classes)		yr 1
1Giv	Travel cost	2 participants (CBO + Secretary) x 5 islands (excluding Nanumea & Nukufetau, Funafuti) x \$60 x 14 days + boat fares for the EIA/MP/ISP training. To be in coordination with other related projects efforts like CLGF, SLG etc		Yr-1-5
1Hii	Equipment	Computers for the GIS (3: EDS/MFATTEL, library. Lands, plus contingency)	485,300	yr1
1Hiii	Equipment	45 K per year for boat (300K of item 72200 under components 1, 2 & 3 represents contribution towards purchase of vessel. This balance is used to top up any short fall of budget for vessel under NAPA 2 project)		yr 1-5
1Hiv	Equipment	Buoyant devices to mark boundaries for better monitoring (9 Islands)+ monitoring and enforcement equipment (i.e. camera (underwater feature) + binoculars (9) +outboard motors for Nui, Nukulaelae, Funafuti, Nukufetau, Nanumea)		yr 1-2
1Hv	Equipment	Habitat rehabilitation on 2 islands Nukufetau/Nukulaelae as there has been comprehensive studies done by TML in 2010		yr 1-5
1Hvi	Equipment and Furniture	Computers for 3 officers of project		yr 1
1I	Miscellaneous	Miscellaneous expenses		11,790	yr1-5
2Ai	International Consultant	IWRM/SLM twice for yr 2 & yr 5. Develop and evaluate sustainable land management techniques and write two reports i)report of progress based on survey Act 2.1.1 & 2.1.2, ii)Tuvalu Climate Resilient SLM Techniques Guide \$32,000 maximum	78,500	Yr 2-5
2Aii	International Consultant	Graphic/Media and Communication Specialist to produce audio and visuals product as mentioned in		yr3-5
2Aiii	International Consultant	Audit fees \$6000/year for yr4&5 and 25% of MTR & TE		yr 1-5
2B	Local Consultants	Technical/Support for survey for per year	18,000	yr2-4
2Ci	Contractual services – Indiv	Project Coordinator 50%	545,000	yr1-5
2Cii	Contractual services – Indiv	Deputy Project Coordinator 50%		yr1-5
2Ciii	Contractual services – Indiv	3 Island R2R Officers (100%) Nanumea, Funafuti, Nukufetau.		yr1-5
2Civ	Contractual services – Indiv	Chief Technical Advisor salary (50%)		yr1
2Cv	Contractual services – Indiv	Environmental Data specialist salary (100%)		yr1-5
2D	Contractual services – Company	Research and/or production of climate resilient crops by SPC to be incorporated into the Climate Resilient SLM Technique Guide	40,000	yr1-4
2E	Materials and Goods	Purchasing of 500 seedlings for Output 2.1.1 from CE-PAC, SPC. Use the GCCA and Happy Graden sites for growing seeds. Improve on NAPA I nursery OR set up a new green houses on at	159,720	Yr 1-4

		least 2 sites to support the replanting process. This includes facilities to support the planting of these seedlings		
2F	Audio & Visuals	Educational and promotional materials, 1 video clip 30 mins on best farming practices, 2 brochures on SLM/IWRM, 1 poster on causal and effect of algal bloom	12,000	yr3-5
2Gi	Travel cost	2 visit per year x 1 SPC officers & 1 USP officers for yrs 1,2, and 4 to Funafuti/outer islands (total of 6 visits)	165,960	yr1-4
2Gii	Travel cost	1 R2R officer in Nanumea and Nukufetau to travel three times in total to Funafuti for capacity building training on IWRM/SLM and conducting a survey. Yr 2-4		yr2-4
2Giii	Travel cost	2 participants x 3 island x12 months x \$20/day		yr1-5
2Giv	Travel cost	2 participants x 3 island x\$100 boat fare x 2 times travel		yr 1-5
2Hi	Equipment	45 K per year for boat	331,000	yr 1-5
2Hii	Equipment	Composting toilets (awaiting details from PACCC & IWRM Projects & identify possible site for a coral rehabilitation cost \$25,000		yr1-5
2Hiii	Equipment	improve NAPA 1 OR set up a new green houses on the three sites		yr1-5
2Hiv	Equipment and Furniture	Purchase of computers for 3 project officers		yr 1
2I	Miscellaneous	Misc expenses to cover import tariffs etc as required.	12,000	yr1-5
2J	Training, Workshops and Conferences	3 workshop training events in yr 2,3,4 to coincide with workshop in Component 3. The workshops are to build CBO capacity in best farming practices and Land Use Management/IWRM/SLM with regard to implementation of climate resilient crops and land biodiversity measures.	62,820	yr 1-5
3Ai	International Consultant	Planning Framework for R2R (SLM, ICM and IWRM), Mainstreaming Institutional arrangement, produce project profile as per PF for ICM & IWRM. The consultant will have to participate in two workshops . 40 days contract	24,000	yr3-5
3Aii	International Consultant	Communication and Knowledge specialist to compile educational materials like brochures, pamphlets, etc. Translate information into user friendly knowledge, making analysis and briefs about project's targets, outputs.		yr3-5
3B	Local Consultant	Stock take of policies, laws, management plans, action plans. Support the IC in compiling the framework. 90 days contract.	27,000	yr3-5
3C	Contractual Services-Individual	Project Support Officer, 100%	18,750	YR1-5
3D	Contractual Services-Company	Technical support to build project capacity in compiling MPs/ISPs , institutional arrangements. USP or SPREP can provide this technical support. The PC should liaise with relevant organisation.	10,000	yr 3-5
3E	Audio & Visual	Production of educational materials per the consultant's output	8,000	yr3-5
3Fi	Travel Cost	2 participants (R2R Island Officers + Secretary) x 3 islands x \$60 x 14 days + boat fares for the EIA/MP/ISP training. To be in coordination with other related projects efforts like CLGF, SLG etc	111,784	yr 3
3Fii	Travel Cost	National Workshop at year 5 with 6 participants from each island. To evaluate and analyse biodiversity data in the formulation of ISP lay down the future and follow ups of the R2R project and to make an assessment of the project as per the targets and outputs. Output's cost as per the estimates in component 1		yr 5

3Fiii	Travel Cost	Capacity building for PMC officers YR1 PC, DPC, FO, LMMA, ENV Data Officer, PSO; Y2-Y4 Officers based on delivery will be selected by the Tuvalu NACC.		YR1-4
3G	Equipment and Furniture	11 laptops for 9 CBO an 2 for PM + printer for media productions	25,000	yr 1-5
3Hi	Training, Workshops and Conferences	4 workshop over 3 years, including the train the trainer, MP/ISP/ Best Practices/Mainstreaming	104,924	yr3-5
3Hii	Training, Workshops and Conferences	3 Project staff to attend R2R regional trainings on 'best practise'		YR1-5
3Hiii	Training, Workshops and Conferences	ICT maintenance of equipment and training 4 times throughout project life cycle		yr 2-5
3I	Miscellaneous	Miscellaneous expenses	542	yr1-5
4Ai	International Consultant	Compile analysis on information collected through review and compare with report from component 1. These analysis reflect the GIS database. If possible site visits to coincide with e library training workshops	40,000	yr3-5
4Aii	International Consultant	Compile or write up the Research and Information policy with collaboration with GIZ IKM		yr 4
4B	Local Consultant	Support to project, collect all related publication on Tuvalu not restricting to environment. Assist using collected publications to the establishment of information and research policy.	12,000	yr3-5
4Ci	Contractual services – Company	1 IT specialist/SPC /SOPAC Technical support GIS system. Year 1 to establish the system after the capacity training. Visits to coincide with training workshops on e-library	34,750	yr1-5
4Cii	Contractual Services- Company	3 officers SPC/SOPAC Technical support media/ video production and website. To assist in setting up the website, produce 5 video clips of 10mins on R2R		yr2-5
4D	Audio & Visual	Printing and publishing of all R2R educational materials (translated into Tuvaluan as needed).	14,661	yr3-5
4Ei	Travel Cost	To support the four workshops coincide with the workshops and training organised for component 3	50,698	yr3-5
4Eii	Travel Cost	1 Capacity Training for the EnvData Officer in SPC. Yr 1 + Travel DSA 180/day for 21 days and a follow up refreshing course in year 2/3 within a period of 9 days Assurance/Maintenance Plan and annual monitoring of data collection system \$21, 298		yr1
4Fi	Training, Workshops and Conferences	1 workshops per year Training E-library, maintenance of database to involve government & private sector & NGO IT Personals for 4 yrs. In addition on year four workshop , consult stakeholders on the formation of a R&I policy together with GIZ IKM initiative	58,552	yr3-5
4Fii	Training, Workshops and Conferences	2 Agency-Donor Meeting. Initiate meeting in time with donors round table meeting on the year 3 & 4		yr 3-4
4Gi	Equipment and Furniture	Establishment of the elibrary based on the biodiversity database \$10, 000	16,000	yr3-5
4Gii	Equipment and Furniture	2 computers for project officers \$6, 000		yr1-5
4H	Miscellaneous	Misc expenses to cover import tariffs etc as required	2,000	yr1-5
PM-A	International Consultant	MTR and Terminal Evaluation 50%	45,000	yr 1-5
PM-B	Contractual Services- Individual	Finance Officer 100%	45,000	yr 1-5
PM-C	Supplies	Stationeries and office supplies	4,558	yr 1-5

PM-D	Travel Cost	Annual monitoring of data collection system	3,702	yr 1-5
PM-E	Miscellaneous Expenses	Misc expenses to cover project management related costs unaccounted for as required	1,500	yr 1-5
PM-F	Miscellaneous (DPC)	UNDP cost recovery charges, Direct Project Cost (DPC) Draft LOA for UNDP support services will be submitted at DOA stage. There will be number of IP requests due to unfavorable result of capacity assessments of concerned ministries in area of finance and accounting. Requested services shall include recruitment of project staff/consultant, procurement of asset, goods and services, travel arrangement, asset registration and custom clearance, and financial payment	79,423	yr 1-5

5. MANAGEMENT ARRANGEMENTS

5.1 Project Organisation Structure

The information below presents a brief description of the roles and responsibilities of the entities involved in this R2R project for Tuvalu. Figure 5 outlines the proposed management arrangement structure for the project, which is supported with explanatory text for each role within the Project Organisation Structure.

The project will be implemented under the UNDP National Implementation Modality (NIM), which for GEF corresponds to national execution of the project by the Government. Specifically MFATTEL will act as the Implementing Partner (IP) given its formal role as lead institution for the environment and biodiversity sector for Government of Tuvalu. The project is co-financed and as such will also include major participation from MoHARD, Dept of Agriculture (DoA), Dept of Environment (DoE), Dept of Fisheries (DoF), SWAT, DFAT, and UNDP MCO. These agencies, as well as national stakeholder agencies will be involved both in the managerial as well as in the technical implementation of the project. To support these arrangement decisions, the results of the capacity assessment implementing partner is presented in Annex 6.

A close management link is designed to include the management arrangements of the parallel NAPA II project which is currently underway.

Executing Entity/Implementing Partner (IP): At the national level, the Ministry of Foreign Affairs, Trade, Tourism, Environment and Labour (MFATTEL), will act as the Implementing Partner (Project Executive) of the project. MFATTEL has assigned the DoE to undertake day-to-day implementation activities of the proposed project. Based on the standard NIM procedures, the MFATTEL will be responsible for the overall project and reporting to UNDP Fiji Multi-Country Office (MCO). The DoE will establish a Project Implementation Unit (PIU) in Funafuti with a full time National Project Coordinator and other core project staff. This team will link closely with the team already established to implement the NAPA II project. The PIU will liaise with Responsible Parties (RP) to the project and other stakeholders to support the implementation of the three Components of the project. The Project Executive (MFATTEL) will appoint the National Project Director (NPD). The NPD will be supported by the National Project Coordinator within the PIU.

Implementing Entity / Responsible Partners (RP): Four departments under two Ministries are designated as responsible parties (including themselves) to implement project activities as follows:

- Ministry of Natural Resources (Department of Lands and Survey) and Tuvaluan Association of Non- Governmental Organizations for the delivery of Component 1, 2, 3 and 4.
- The Department of Fisheries (DoF) within the Ministry of Natural Resources (MNR) will be the Responsible Party for Outcome 1.1 (*“Improved management effectiveness of system of conservation areas composed of existing and expanded Locally Managed Marine Areas (LMMAs)”*);
- The Dept of Agriculture (DoA) (in partnership with Dept of Environment) will be the Responsible Party for technical delivery of Outcome 2.1 (*“Integrated landscape management practices adopted by local communities”*) building on their recent work on the EU-GCCA Agro-forestry project plus also Component 3..

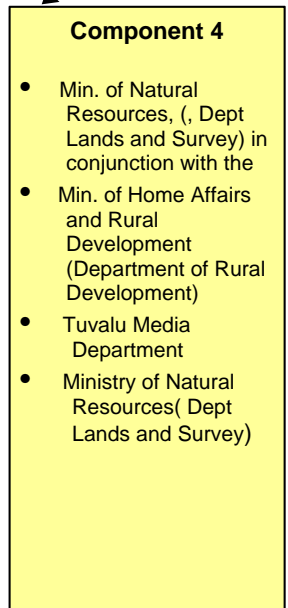
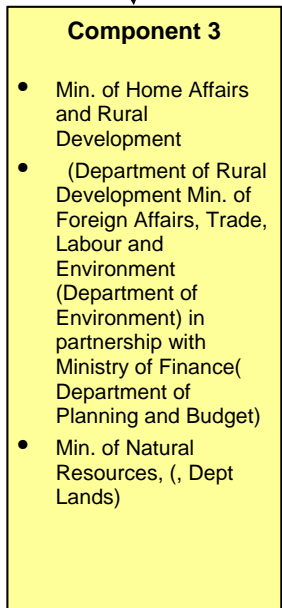
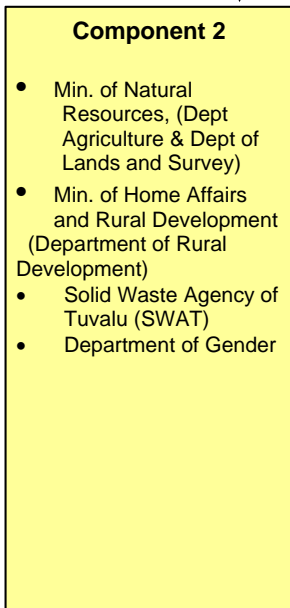
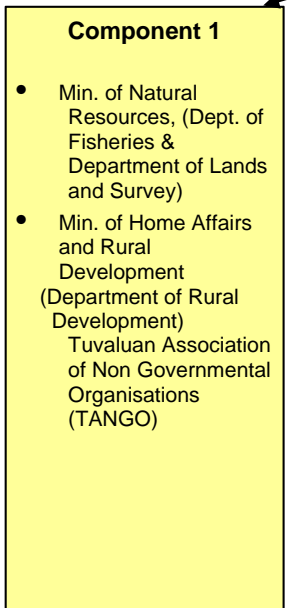
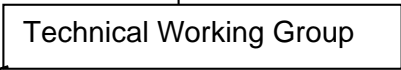
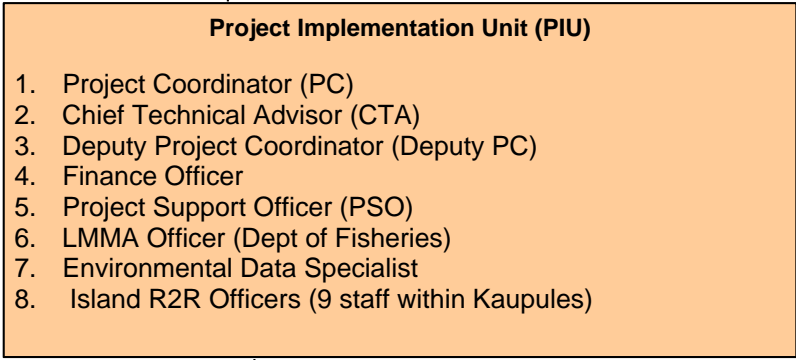
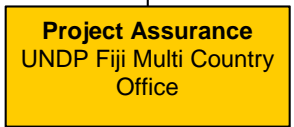
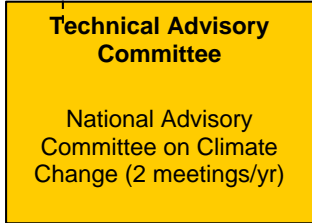
- Dept of Lands and Survey in conjunction with the Department of Rural Development (DRD) (within the Ministry of Home Affairs and Rural Development (MoHARD)) will be the Responsible Party for Outcome 4.1 (*“Improved data and information systems on biodiversity, forests land management adaptation best practice”*).
- Ministry of Home Affairs and Rural Development, Ministry of Natural Resources (Department of Agriculture), Solid Waste Agency of Tuvalu and Department of Gender to help implement Component 2.
- Tuvalu Media Department and DoLS to assist in implementing Component 4.

For any output that requires continuous on-site support throughout the course of activities, the IP agreed that no suitable government agencies have physical presence in outer islands and thus an NGO should be selected as a service provider. Thus, according to the UNDP NIM guideline, an NGO will be selected during the inception phase of the project based on a competitive procurement process undertaken by the IP.

Technical support will be provided from regional agencies including Secretariat of the Pacific Community (SPC), SPC –SOPAC and Secretariat of the Pacific Regional Environmental Program (SPREP).

Figure 5: Project Organisation Structure

Project Organization Structure



5.2 The R2R Project Board

The **R2R Project Board** is responsible for making management decisions for a project in particular when guidance is required by the Project Director (Director of Environment, MFATTEL). The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Director and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that will ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision will rest with the UNDP Project Manager (i.e. UNDP Fiji MCO). Potential members of the Project Board are reviewed and recommended for approval during the PIU meeting. Representatives of other stakeholders can be included in the Board as appropriate. The Board contains three distinct roles, including:

- **An Executive:** individual representing the project ownership to chair the group. This will be a most senior official from the ministerial level MFATTEL, Tuvalu.
- **Senior Supplier:** individual or group representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. This will be a Representative from UNDP that is held accountable for fiduciary oversight of GEF5 resources in this initiative. The UN Country Development Manager based in Tuvalu will represent UNDP.
- **Senior Beneficiary:** individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries. The most important party in this group will be a high level representative of DRD who is the custodian of the outer island

The Board is expected to meet annually and its deliberations will consider recommendations put forward by the PIU. It will meet with the National Advisory Committee on Climate Change (NACCC) twice a year which is established to report to Cabinet via the Secretary to Government. The purpose of the Project Board meeting (with NACCC) is to provide updates and information of project progress. A ToR is established for members of this Council and this will be reviewed with a possible annex update to reflect the needs of the R2R project over its 5 year duration. The role of the NACCC is to provide advice to the Prime Minister on how to effectively coordinate a whole-of-government response to the challenges of climate change. The NACCC also consults with representatives of the private sector, NGOs and the community. They will be informed on all aspects of the R2R project through the appropriate communication channels throughout the duration of the project.

In the event that Board members are not able to be present in-person at annual meetings (or ad hoc exceptional meetings), then other alternatives could be considered such as teleconferences, email and Skype (if internet connections allow) .

Specific Responsibilities of the Project Board (PB)

Defining a project

- Review and approve the Initiation Plan (if such plan was required).
- Initiating a project
- Agree on Project Coordinator's responsibilities, as well as the responsibilities of the other members of the Project Implementation Unit;
- Delegate any Project Assurance function as appropriate;
- Review the Progress Report for the Initiation Stage (if an Initiation Plan was required);
- Review and appraise detailed Project Plan and Annual Work Plan, including Atlas reports covering activity definition, quality criteria, issue log, updated risk log and the monitoring and communication plan.

Running a project

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Address project issues as raised by the Project Coordinator;
- Provide guidance and agree on possible countermeasures/management actions to address specific risks;
- Agree on Project Coordinator's tolerances in the Annual Work Plan and quarterly plans when required;
- Conduct regular meetings to review the Project Quarterly Progress Report and provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans.
- Review Combined Delivery Reports (CDR) prior to certification by the Implementing Partner;
- Appraise the Project Annual Review Report, make recommendations for the next Annual Work Plan, and inform the Outcome Board about the results of the review.
- Review and approve end project report, make recommendations for follow-on actions;
- Provide ad-hoc direction and advice for exception situations when Project Director's tolerances are exceeded;
- Assess and decide on project changes through revisions;

Closing a project

- Assure that all Project deliverables have been produced satisfactorily;
- Review and approve the Final Project Review Report, including Lessons-learned;
- Make recommendations for follow-on actions to be submitted to the Outcome Board;
- Commission project evaluation (only when required by partnership agreement)
- Notify operational completion of the project to the Outcome Board

Specific Responsibilities of Executive (part responsibility for the Project Board)

- Ensure that there is a coherent project organisation structure and logical set of plans;
- Set tolerances in the Annual Work Plan and other plans as required for the Project Coordinator;
- Monitor and control the progress of the project at a strategic level;
- Ensure that risks are being tracked and mitigated as effectively as possible;
- Brief Outcome Board and relevant stakeholders about project progress;

- Organise and chair Project Board meetings;
- The Executive is responsible for overall assurance of the project as described below. If the project warrants it, the Executive may delegate some responsibility for the project assurance functions.

Specific Responsibilities of Senior Supplier (part of the responsibility for the Project Board)

- Make sure that progress towards the outputs remains consistent from the supplier perspective;
- Promote and maintain focus on the expected project output(s) from the point of view of supplier management;
- Ensure that the supplier resources required for the project are made available;
- Contribute supplier opinions on Project Board decisions on whether to implement recommendations on proposed changes;
- Arbitrate on, and ensure resolution of, any supplier priority or resource conflicts.

The supplier assurance role responsibilities are to:

- Advise on the selection of strategy, design and methods to carry out project activities;
- Ensure that any standards defined for the project are met and used to good effect;
- Monitor potential changes and impacts on deliverable quality from a supplier perspective;
- Monitor any risks in the implementation aspects of the project.

Specific Responsibilities of Senior Beneficiary (part responsibility for the Project Board)

- Ensure the expected output(s) and related activities of the project are well defined;
- Make sure that progress towards the outputs, required by the beneficiaries, remains consistent from the beneficiary perspective;
- Promote and maintain focus on the expected project output(s);
- Prioritise and contribute beneficiaries' opinions on Project Board decisions on whether to implement recommendations on proposed changes;
- Resolve priority conflicts.

The assurance responsibilities of the Senior Beneficiary are to check that:

- Specification of the Beneficiary's needs is accurate, complete and unambiguous;
- Implementation of activities at all stages is monitored to ensure that they will meet the beneficiary's needs and are progressing towards that target;
- Impact of potential changes is evaluated from the beneficiary point of view;
- Risks to the beneficiaries are frequently monitored.

5.3 Project Delivery Structure

Project Implementation Unit (PIU): The PIU will be based in Funafuti within DoE. It will consist of a National Project Coordinator and finance/administrative assistant. The PIU provides the Project Assurance role and supports the Board by carrying out objective and independent project oversight and monitoring functions. The PIU is responsible for advising the Board on key management decisions of the project. It plays critical roles in assuring the technical quality, financial transparency and overall development impact of the project, and will be established as soon as this project is approved and meet on a regular basis (quarterly).

The PIU will amongst other tasks;

- i) Develop Standard Operating Procedures for project implementation,
- ii) Develop Quarterly and Annual Work Plans and Budgets,

- iii) Provide financial and administrative management support,
- iv) Prepare Quarterly and Annual Financial and Technical Progress Reports to be submitted to the DoE, and
- v) Ensure compliance with applicable UNDP/GEF/Government rules and regulations. Within the PIU, the Project Coordinator (when appointed by MFATTEL) has the authority to run the project on a day-to-day basis on behalf of the IP within the constraints laid down by the Board.

A **Technical Working Group (TWG)** will be established to support the PIU. The TWG will review and provide support as required during regular intervals of the project (as stated by the PIU). The TWG supports the PMU by providing ad-hoc technical advice on specific activities for project components when needed. Existing technical representatives from local community based organizations (CBOs) will comprise of the R2R project Thematic Working Group. Its distinct role will be to review TORs and technical reports resulting from project activities.

Technical assistance may, for example, also be requested from Regional Agencies e.g. Secretariat of the Pacific Community to provide (for example) technical support for Sustainable Land Management or ICZM related advice/support. Assistance from Secretariat of the Pacific Community - SOPAC is possible with them providing support with regards to mapping assistance. In addition, the Secretariat of the Pacific Regional Environmental Program (SPREP) may be requested to provide support through review/ development of policies.

The Project Director will be the Director for the DoE. His prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

All staff funded through the project will also conduct annual (with midterm updates) evaluations. For the Project Coordinator, the performance will be evaluated by Director of Environment (or A/PS MFATTEL) and UNDP. The PIU staff's performance will be reviewed annually according to the work plan. From the project overall work plan each project staff will have a plan of work laid out for the year's implementation. Performance based rewarding/penalising system will be developed to track staff's performance and to be reviewed by the Project Director with the support of UNDP.

National Project Coordinator: The National Project Coordinator (NPC) has the authority to run the project on a day-to-day basis on behalf of the IP within the constraints laid down by the Board. The NPC's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. A Deputy Project Coordinator will also be engaged throughout the project whose role will be to take charge when the project coordinator is on mission. This is set up to ensure that project continuation prevails when the project coordinator is away. This is usually a time when implementation tasks or any follow up usually halts. Also given the demanding scope of work and logistics of this R2R project, there is justification for another senior officer on the team.

Deputy Project Coordinator: The Deputy Project Coordinator will be responsible for supporting the NPC in the day-to-day management of the project and reports to the MFATTEL and maintains liaison with UNDP. The DPC will support NPC in ensuring that content that the project is being implemented in accordance with the agreed project work plan, timeframe and budget to achieve the objectives outlined in the Project Document.

Environment Data Specialist: the Environmental Data Specialist (EDS) will be responsible for coordinating and providing technical support to the process of upgrading and implementation of the Environmental Management Plans for each Outer Island contributing to implementation of project activities particularly Outcomes 1.1 and 2.1. The EDS will also review of resource assessment and utilization of marine and terrestrial resources in Funafuti, Nanumea and Nukufetau (in close collaboration with the Department of Environment (DoE), MFATTEL and other relevant specialists, including the preparation of a summary of socio-economic conditions at the project Protected Area sites.

Local Marine Management Area (LMMA) officer: a LMMA will be responsible for carrying out technical analysis and assessment tasks and contributing to implementation of project activities particularly Outcomes 1.1, 2.1 and 3.1. This will include preparing/reviewing reports on ecological conditions at all existing and proposed Tuvaluan Protected Area and catchment areas, including maps, assessment of biological and ecosystem services, land and aquatic resource uses, water quality, and threats to biodiversity and ecosystem services;

Chief Technical Advisor (CTA): The project will hire an international Chief Technical Advisor (CTA) to provide technical oversight for the R2R project. Links with the ongoing NAPA II team members (notably the ISP Planner and Community Support Officers) will be developed further to ensure synergy between the two projects.

9 R2R Island Officers: R2R Island Officers located for all 9 islands will work under the Island Kaupules through DRD. They will have the prime oversight responsibility for R2R project work in each respective island. They will be based at the local Kaupule offices. The Project Coordinator will have prime oversight responsibility for R2R Island Officer over the life of the project. Island officers will have annual work plans endorsed by Kaupule's and Project Board. Their work plan progress will be monitored by project coordinator and Kaupule. Their performance evaluation will be done annually (with midterm updates) by Project Coordinator and Kaupule representative. Island secretary endorses quarterly project reports submitted by the Island R2R Officers.

Project Support Officer: The Project Support Officer role provides project administration, reporting, management and technical support to the Project Coordinator as required by the needs of the Project or Project Coordinator.

A Project Finance Officer will be recruited to assist the Project Coordinator in Atlas form budget arrangements and all supporting financing and budgeting tasks throughout the project.

Terms of References of key project staff and experts are provided in Annex 8.

Financial management mechanism: MFATTEL will maintain overall accountability for the proper financial management of inputs. With support from the PIU, MFATTEL will formulate detailed annual and quarterly work plans and financial plan and reports and submit them to the UNDP on the use of project resources as per the NEX guidelines. The PIU will be responsible for ensuring that an annual NEX audit of the project is carried out in line with guidance from UNDP MCO. MFATTEL will be held accountable to follow up on recommendations by auditors (see below).

Audit arrangements: The project will be audited on a yearly basis for financial year January to December as per UNDP national execution (NEX) project requirements and GEF requirements. The audit will be conducted by the National Auditor or an external auditor recognized by GoF and

UNDP Fiji MCO (as recognised by the HACT Micro Assessment). Audits will be conducted in accordance with the UNDP NIM Audit policies and procedures, and based on UN Harmonized Approach to Cash Transfer (HACT) policy framework. Annual audit of the financial statements relating to the status of UNDP (including GEF) funds will be undertaken according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by a special and certified audit firm. UNDP will be responsible for making audit arrangements for the project in communication with the Project Implementing Partner. UNDP and the project IP will provide audit management responses and the Project Coordinator and PIU will address audit recommendations.

UNDP Country Office Support Services: The UNDP MCO located in Suva, Fiji will support project implementation by assisting in the monitoring of project budgets and expenditures, subcontracting project consultancy services and procuring equipment at the request of the MFATTEL. As per standard agreement between UNDP and the Government of Tuvalu, and upon request from the IP, UNDP Fiji MCO may provide the following support services to the IP, and recover the actual direct and indirect costs incurred by the MCO in delivering such services:

- Payments, disbursements and other financial transactions;
- Recruitment of staff, project personnel, and consultants;
- Procurement of services and equipment, including disposals;
- Organization of training activities, conferences, and workshops, including fellowships;
- Travel authorization, Government clearances ticketing, and travel arrangements;
- Shipment, custom clearance, and vehicle registration.

Two UNDP staff members will be assigned with the responsibility for the day-to-day management and control over project finance. The estimate for UNDP Country Office Support Services presented in (see Section 4.1 “Budget Note” for Project Management items) will be validated and recorded in a Letter of Agreement before the inception of the project.

NGOs/CSOs: It is foreseen that NGOs will play an important role in implementation of specific activities. A list of Tuvaluan Association of Non-Governmental Organisations (TANGO) with either a national capacity or presence on specific outer islands is therefore provided in Annex 6. Their role in ensuring “on the ground delivery” will be very important for the R2R project. For example, from consultations with the Island Councils and community members throughout the PPG consultation process (Annex 3), it appears that lesson learnt from other GEF/UNDP supported projects in Tuvalu include the need to support the strengthening of engagement and ownership of island kaupules in demonstration activities. A key lesson learnt from the NAPA 1 project, for example, is that some island councils don’t feel a strong sense of ownership as even though there are island community officers per island, because they report directly to the Department of Environment in Funafuti. Also, some of these community island officers have spent periods of 1 – 3 months off island.

It is therefore proposed that for the pilot islands of Nanumea and Nukufetau, and to facilitate the effective delivery of the proposed community based monitoring work (Output 1.1.3), that two biodiversity officers will be employed under the Nanumea and Nukufetau Kaupule respectively and their commitment will be secured through an agreement/Memorandum of Understanding (MoU) prepared to foster a project specific partnership between the DoE (R2R Project Director) and the two separate Kaupules. This approach will mirror the institutional arrangement example that currently exists between SWAT and the island Kaupule. Staff will be based at the island council office and report to the DoE through the island council. Some resources, such as office

space, laptops and budgets for other expenses such as communications, monitoring and evaluation, will also be shared where possible.

A draft Terms of Reference (and employment) is prepared in Annex 8, which will be later embellished (during the Project Inception Phase and presented for PIU acceptance). Funafuti is in a more unique situation compared to the other sites as there is already an officer employed under the Funafuti Kaupule to undertake monitoring for the Conservation Area.

6. MONITORING FRAMEWORK AND EVALUATION

6.1 Project Monitoring

The project will be monitored through the following M&E activities. The M&E budget is provided in the table in Section 6.2.3 below.

Project Start

Participation of Island Council representatives from the inception stage onwards will be key for project success. For this reason, two (2) separate inception events are planned as follows. The PPG stage has worked effectively to ensure there is project “buy-in” from Island Councils following specific island missions to Nanumea, Nukufetau, Nukulaelae, Niulakita, Vaitupu, and Funafuti.

An Inception Workshop Report will be the key output of this Phase and is proposed to be completed and formally accepted within 3 months from the project start date. This is crucial to building ownership for the project results and to plan the first year annual work plan. The Inception Workshop (and Inception Report) will address and document a number of key issues including:

1. Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
2. Based on the project results framework and the relevant SOF (e.g. GEF) Tracking Tool if appropriate, will be finalized along with the HACT Assurance Plan and the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks. These will all be key items on the Inception Workshop agenda.
3. Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled. One spot check a year (dates) will be agreed upon to assess whether budget costs exceed USD450k/yr
4. Discuss financial reporting procedures and obligations, and arrangements for annual audit.
5. Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held back-to-back with the inception workshop and every year thereafter.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

To sustain momentum on this aspect, a Project Awareness Workshop will be held within 2 months of the Inception Workshop. This is designed for the attendance and involvement of all Kaupule secretaries and island planners as they are the key focal points on each island. This “Awareness Workshop” will be held to help instil clarity of the R2R project in Tuvalu and to improve understanding of the UNDP technical and operational guidelines that must be adhered to, as a precursor to the more formal technical Inception Workshop (see below). This event will be held in Funafuti. It will include a sub event (for the project coordination unit) that includes some initial training and awareness on UNDP/GEF operational and programming components of the project

(financial, operational & monitoring and evaluation). It will also be used to assign roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. This is likely to be held in UNDP MCO offices in Fiji. The event will also be used to plan activities in collaboration with NAPA II Project.

Quarterly

- Progress made will be monitored in the UNDP Enhanced Results Based Management (RBM) Platform.
- Based on the initial risk analysis submitted, the risk log will be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually

1. Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and SOF (e.g. GEF) reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle

The project will undergo an independent Mid-Term Review at the mid-point of project implementation (October 2017). The Mid-Term Review will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as

recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

The relevant SOF (GEF) Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project

An independent Final Terminal Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and SOF (e.g. GEF) guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG.

The Final Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

The relevant SOF (e.g. GEF) Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report, which is a formal output requirement by GEF/UNDP in facilitating financial closure of the project, will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

6.2 Learning and knowledge sharing

6.2.1 Results Dissemination

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. There will be a two-way flow of information between this project and other projects of a similar focus.

6.2.2 Communications and visibility requirements

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these

guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

6.3 M&E Workplan and Budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception and Induction Workshop and Report	<ul style="list-style-type: none"> ▪ Project Coordinator / PIU ▪ UNDP MCO 	Indicative cost: 20,000	Within first two months of project start up
Measurement of Means of Verification of project results.	<ul style="list-style-type: none"> ▪ UNDP MCO / UNDP RTA/Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. 	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	<ul style="list-style-type: none"> ▪ Oversight by Project Director ▪ PIU 	To be determined as part of the Annual Work Plan's preparation. Indicative cost per year: 4,000 (20,000 total)	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	<ul style="list-style-type: none"> ▪ Oversight by Project Director ▪ Project Coordinator / PIU ▪ UNDP MCO ▪ UNDP RTA 	None	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> ▪ Oversight by Project Director ▪ Project Coordinator / PIU ▪ R2R Island Officers 	None	Quarterly
Mid-term Evaluation	<ul style="list-style-type: none"> ▪ Oversight by Project Director ▪ Project Coordinator / PIU ▪ UNDP MCO ▪ UNDP BRH / RTA ▪ External Consultants (i.e. evaluation team) 	Indicative cost: 40,000	At the mid-point of project implementation.
Final Evaluation	<ul style="list-style-type: none"> ▪ Oversight by Project Director ▪ Project Coordinator / PIU ▪ UNDP MCO ▪ UNDP BRH / RTA ▪ External Consultants (i.e. evaluation team) 	Indicative cost : 50,000	At least three months before the end of project implementation
Project Terminal Report	<ul style="list-style-type: none"> ▪ Oversight by Project Director ▪ Project Coordinator / PIU 	0	At least three months before the end of the project
Audit	<ul style="list-style-type: none"> ▪ UNDP MCO ▪ Project Coordinator / PIU ▪ Executing Agency / Implementing Partner 	Indicative cost per year: 6,000 (30,000 total)	Yearly
Assurance Plan and annual monitoring	<ul style="list-style-type: none"> ▪ UNDP MCO ▪ Executing Agency / Implementing Partner 	0	Yearly

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
	<ul style="list-style-type: none"> ▪ Project Coordinator / PIU ▪ Finalisation of HACT assurance plan facilitated during inception period (i.e. during indication and/or inception workshop) ▪ Spot check conducted ¾ into first year ▪ Annual spot check on HACT assurance plan 		
Validation of project progress in pilot sites (outer islands)	<ul style="list-style-type: none"> ▪ UNDP MCO ▪ Project Coordinator / PIU ▪ Executing Agency / Implementing 	For GEF supported projects, paid from UNDP IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP MCO staff and travel expenses		US\$ 160,000 (+/- 5% of total budget)	

7. LEGAL CONTEXT

This document together with the CPAP signed by the Government and UNDP which is incorporated herein by reference, constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA); as such all provisions of the CPAP apply to this document. All references in the SBAA to “Executing Agency” shall be deemed to refer to “Implementing Partner”, as such term is defined and used in the CPAP and this document.

Consistent with the Article III of the Standard Basic Assistance Agreement (SBAA), the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP’s property in the Implementing Partner’s custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the implementing partner’s security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner’s obligations under this Project Document.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml. This provision must be included in all sub-contracts or sub-agreements entered into under/further to this Project Document”.