Project Title: Implementing an integrated "Ridge to Reef" approach to enhance ecosystem services, to conserve globally important biodiversity and to sustain local livelihoods in the FSM

UNDAF Outcome(s): UNDAF for the Pacific Sub-region 2013-2017 – Outcome Area 1: Environmental management, climate change and disaster risk management.

UNDP Strategic Plan Primary Outcome: Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.

Expected SRPD Outcomes(s): Improved resilience of PICTs, with a particular focus on communities, through the integrated implementation of sustainable environmental management, climate change adaptation and/or mitigation and disaster risk

Expected SRPD Output(s):
1. Capacities of local government departments are strengthened for effective, participatory environmental governance.
2. Demonstration projects on natural resources management and biodiversity at the community level that can be scaled up are implemented, and the formulation of evidence-based policies is supported.

Executive Entity/Implementing Partner: Office of Environment and Emergency Management (OEEM)

Implementing Entity/Responsible Partners: National: Department of Resources and Development Division of Resource and Development, Agriculture Program and Marine Program; **Chuuk State:** Department of Agriculture; Environmental Protection Agency; **Pohnpei State:** Department of Land and Natural Resources; Environmental Protection Agency; **Kosrae State:** Kosrae Island Resource Management Authority; **Yap State:** Department of Resources and Development; Environmental Protection Agency, and UNDP

Brief Description

Marine and terrestrial biodiversity and ecosystem services underpin social well-being and the economy of the Federated States of Micronesia, and are vital to food security. These resources and services, however, are currently being undermined by unsustainable natural resource use and practices; spread of invasive alien species; the impacts of climate change; and, the limitations of government to effectively implement its programs and policies.

This project is designed to engineer a paradigm shift in the approach to and management of natural resources from an ad-hoc species/site/problem centric approach to a holistic ecosystem-based management "ridge to reef" approach guided by planning and management process that are informed by actual data. The shift to an ecosystem-base approach within National and State governments will ensure that whole island systems are managed to enhance ecosystem goods and services, to conserve globally important biodiversity and to sustain local livelihoods.

The project will promote an integrated approach towards fostering sustainable land management and biodiversity conservation by seeking greater awareness, knowledge and participation of all stakeholders in achieving a greater balance between environmental management and development needs. In doing so it will reduce conflicting land-uses and land-use practices, and improve the sustainability of terrestrial and marine management so as to maintain the flow of vital ecosystem services and sustain the livelihoods of local communities. Further, the project will demonstrate sustainable land management practices testing new management measures, as needed, to reduce existing environmental stressors and institutional limitations.

The project will also enhance the FSMs capacities to effectively manage its protected area estate as well as increase the coverage of the terrestrial and marine protected area network on the High Islands.

Programme Period:	2015-2020	Total resources required	USD 22,576,213
		Total allocated resources:	
Atlas Award ID:	00086017	• Regular:	
Project ID:	00093439	• Other:	
PIMS #	5179	o GEF	USD 4,689,815
		o Government	USD 11,386,398
Start date:	June 2015	o CSO	USD 6,500,000
End Date	July 2020		
Management Arrangements	NIM		
PAC Meeting Date	_____		

Agreed by Office of Environment and Emergency Management:

MR. ANDREW YATILMAN, Director

Date/Month/Year

Agreed by UNDP:

MS. OSNAT LUBRANI, Resident Representative

Date/Month/Year

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Acronyms

ABS	Area of Biodiversity of Significance
AG	Attorney General
BSAP	Biodiversity Strategic Action Plan
CBO	Community-based organization
CCO	Community Conservation Officer
CCS	Chuuk Conservation Society
CEPF	Critical Ecosystem Partnership Fund
CES	Cooperate Extension Service (FSM COM)
CHM	FSM Clearing-House Mechanism (FSM CHM)
CI	Conservation International
COM	Collage of Micronesia
CSO	Civil Society Organisation
CSP	Conservation Society of Pohnpei
DEM	Digital Terrain Model
DFMC	Pohnpei State Division of Forestry and Marine Conservation
DFW	Pohnpei State Department of Public Safety's Division of Fish and Wildlife
DLNR	Pohnpei State Department of Land and Natural Resources
DLNR-F	Pohnpei State Department of Land and Natural Resources - Forestry Division
DREA	Department of Resources and Economic Affairs
DSAP	Development Sustainable Agriculture in the Pacific
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	Europe Union
FA	Farmer's Association
FIA	Forestry Inventory Assessment
FSM	Federated States of Micronesia
FSP	Full Sized Project
FY	Financial Year
GDP	Gross Domestic Product
GEF-UNEP	Global Environmental Facility – United Nations Environmental Program
GIS	Geographic Information System
GIZ	Gesellschaft für Internationale Zusammenarbeit
GLISPA	Global Island Partnership
IAS	Invasive Alien Species
IEMP	Integrated Environmental Management Plan
IFCP	Island Food Community of Pohnpei
ILMP	Integrated Land Management Plan
IMS	Information Management System
INRM	Integrated Natural Resource Management
IOM	International Organisation for Migration
IPC	International Project Coordinator
IST	Invasive Species Taskforce

iSTOP	Invasive Species Taskforce of Pohnpei
IUCN	International Union Conservation Nature
IWRM	Integrated Water Resource management
JICA	Japan International Cooperation Agency
Ka	"Ka" trees (*Terminalia carolinensis*)
KCSO	Kosrae Conservation and Safety Organization
KIRMA	Kosrae Island Resources Management Authority
KLUP	Kosrae Land-use Plan
LD	Land degradation
LMME	Locally Managed Marine Areas peer learning network
MC	Micronesia Challenge
MCT	Micronesian Conservation Trust
MDG	Millennium Development Goals
METT	Management Effectiveness Tracking Tool
MERIP	Marine and Environmental Institute of Pohnpei
MIC	Micronesians in Island Conservation
MIC	Micronesian Islander Community
MINA	Micronesia (previously Mariana) Islands Nature Alliance
MIS	Management Information System
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MSP	Medium Size Project
MTC	Making the Case
NAP	National Action Plan
NBSAP	National Biodiversity Strategy and Action Plan
NCD	Non-Communicable Diseases
NEMS	National Environmental Management Strategies
NGO	Non-governmental Organization
NRCS	Natural Resources Conservation Service
NSDS	National Sustainable Development Strategies
NTAs	No-take Marine Protected Areas
OEA	Office of Economic Affairs
OEEM	FSM Office of Environment and Emergency Management
OFA	Pohnpei State Office of Fisheries and Aquaculture
PA	Protected Area
PAs	Protected Areas
PAC	Piggery Advisory Council
PACC	Pacific Adaptation to Climate Change
PAN	Protected Area Network
PB	Project Board
PFA	Pohnpei Farmers Association
PICs	Pacific Island Countries
PIF	Pacific Islands Forum
PIF	Project identification form
PIMPAC	Pacific Islands Managed and Protected Areas Community

PIU	Project Implementation Unit
PRC	People's Republic of China
PREL	Pacific Resources for Education and Learning
PRMC	Pohnpei Resource Management Committee
R&D	FSM Department of Resources and Development (FSM R&D)
R2R	Ridge-to-Reef
RARE	Rare
REA	Rapid Ecological Assessment
RMC	Resource Management Committee
RSTC	Regional Scientific and Technical Committee of the Pacific Island Community
Sakau	*Piper methysticum* or "kava"
SALT	Slope Agriculture Land Technology
SAP	Strategic Action Plan
SBOC	Statistics Budget and Economic Management Overseas
SD	Sustainable Development
SDP	Sustainable Development Plan
SEA	Strategic Environmental Assessment
SLM	Sustainable Land Management
SOPAC	Applied Geoscience and Technology Division (SOPAC) of the Secretariat of the Pacific Community (SPC)
SPAGS	Spawning Aggregation Sites
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Program
STAR	GEF System for Transparent Allocation of Resources (STAR) projects
TAC	Technical Advisory Committee
TNC	The Nature Conservancy
UNCCD	United Nations Convention on the Conservation of Biodiversity
UNDP MCO	United Nations Development Programme Multi-Country Office
USFS	United States Forestry Service
WFR	Watershed Forest Reserve
YELA	Yela Environment Landowners Association

SECTION I: ELABORATION OF THE NARRATIVE

PART I: Situation Analysis

INTRODUCTION

1. The Federal States of Micronesia (FSM) is an independent sovereign island nation consisting of four States spread across the Western Pacific Ocean (from west to east): Yap, Chuuk, Pohnpei and Kosrae (Map 1). Together, the States comprise 607 islands that stretch over a longitudinal distance of almost 3,000 km mostly located between 6 and 10 degrees north of the equator. The combined land area the FSM [High Islands and Atolls] is approximately 728 km^2 with 2,700,000 km^2 of EEZ in the Pacific Ocean. The total area of High Island is approximately 658 km^2 (Yap 97 km^2, Chuuk 95 km^2, Pohnpei 358 km^2 and Kosrae 110 km^2).

2. The governance structure in the FSM is such that each State has a high level of autonomy. The legislation and institutional framework of the Federated States of Micronesia is under scribed by National and individual State constitutions. The most recently available population estimates suggest that the population is 103,000. Of this population, 50% live on Chuuk, 33% on Pohnpei, 10% in Yap and the rest in Kosrae. FSM's Human Development Index (HDI) value for 2012 was 0.645 – placing it in the medium human development category –117 out of 187 countries and territories. Micronesia receives guaranteed funds (approximately $130 million annually until 2023) under a compact with the USA, which are invested in education, health, infrastructure, public sector capacity building, private sector development, and environmental management. A Trust Fund has also been established, into which the US and the FSM make annual contributions, and the returns on which are expected to provide for the long-term financial sustainability of the country after 2023. FSM also receives income from the sale of fishing licenses to foreign fleets operating in its EEZ and there is an emerging tourism industry in some of the States. Agriculture forms a major part of the economy, but much of this is subsistence agriculture and is not recorded in the GDP (60% of FSM's population is dependent on subsistence farming and fishing). Breadfruit, banana, taro, yam, sweet potato, cassava, coconut and tropical fruits are the staple foodstuffs, in addition to seafood. Swine production constitutes the primary livestock industry - pigs playing an important part in local culture. The main export commodities are fish, sakau (kava) and betel nuts.

3. The Ridge to Reef Concept: Healthy and well-managed river basins and coastal areas where people and nature thrive, is the vision behind IUCN's initiative, 'Ridge to Reef' (R2R). R2R aims to protect, demonstrate sustainable approaches, and provide better economic understanding of the links between terrestrial, freshwater and marine ecosystems. Well-managed coastal and estuarine ecosystems support livelihoods, income from fisheries, agriculture, tourism, and buffer coasts from the impacts of climate change. Wetland and marine environments (including coral reefs) are less vulnerable to damage and deliver greater ecosystem services when rivers are kept healthy. Coasts and river deltas support the economies of many of the largest cities in the world, and also many isolated countries such as FSM. Solutions to water pollution are found in coordinating the use and management of land and water at the landscape scale from source to sea. By linking action and implementation in river basins and coasts, the aim is to support ecosystem services and improve livelihoods. The R2R approach is a holistic ecosystem-based or landscape-scale approach to land-use management and biodiversity conservation that focuses on the terrestrial, aquatic, estuarine and coastal ecosystems, and the linkages between these ecosystems. In FSM the R2R approach aims to enhance the sustainability of natural resources and conservation of

biodiversity through understanding and promoting sustainable land-use practices and strengthening management capacity.

4. In line with the "ridge to reef" approach; the focus of the project will only be on the main islands ("high islands") of each State that have some elevation, rather than on the atoll islands. These islands harbour the majority of terrestrial biodiversity and area also where the majority of the FSM population lives:

5. Yap State spans some 25,899,881 hectares of ocean. Its land area of about 11,633 ha consists of some 134 islands and atolls, 22 of which are populated. Lying at the western end of FSM, Yap differs from Eastern Micronesia in a number of ways. Climatically, it lies in an area that generally experiences a monsoon climatic pattern with some frequent periods of drought. The 3 High Islands of Yap (Yap proper, Map and Rumung) are small (land area of approximately 9,641 ha) and closely clustered appearing as a single island resulting in condensed natural communities from ridge top (174 m) to reef. The majority of land on Yap, including mangrove forests, is privately owned under a complex traditional tenure system. The general forest-types of mainland Yap includes Upland Forest, Swamp Forest, Mangrove Forest and Agroforests. Agriculture is undertaken mainly for subsistence, the main crops being yam, banana, taro (*Colcasia, Cryptosperma* and *Xanthosoma*), coconut, citrus and cassava. Betel nut (*Areca catechu*) is probably the islands largest cash crop with a vibrant trade conducted with the Mariana Island group. The present vegetation is mainly coconut trees (*Cocus nucifera*), Pandanus trees (*Calophyllum* spp.), breadfruit (*Artoparpus atilis*) and small shrubs. Agroforestry constitutes the dominant farming system.

6. Chuuk State: The State of Chuuk consists of a group of partially sunken volcanic islands (14 in total) surrounded by a barrier reef spanning 63 km in diameter (known as Chuuk Lagoon - the area of focus of the project in Chuuk), and a number of outlying coral atolls and islands. The volcanic islands are characterised by steep uplands, which comprise 73% of the total land area. The maximum elevation on Weno Island is 370 m, Dublon 344 m, Fefan 300 m and Tol 443 m. Chuuk is the most populated state in the FSM. Chuuk Lagoon has a land area of 12,691 ha and a very high population density of 3.72 persons/ha. The lagoon islands of Chuuk State have the highest percent of land under agroforestry of the high islands of Micronesia. The main subsistence crops are banana, breadfruit, coconuts and taro. The small areas of intact forest atop the peaks of some lagoon islands are rich in endemic species and are a repository of some of the most endangered remnant forest patches and species in Micronesia.

7. Pohnpei State includes the high island of Pohnpei and a number of small islets situated within a large lagoon (focus of project), and Outer Atolls. Pohnpei Island is roughly circular, with a land area of about 35,500 ha. It is a steep and mountainous volcanic island. Eleven peaks rise more than 600 m above sea level. The interior vegetation is dominated by upland-forests (2002 figures show only 13% remaining[1]) with sporadic occurrence of sakau (kava) fields that pose the greatest threat to this vegetation unit. Areas of intact native upland forests are of special interest because of the high rate of endemism. The dwarf cloud forests cloaking Pohnpei's peaks are especially unique. The coastal areas and lower slopes are characterised by agroforestry (33%) and secondary vegetation (5%). Agroforestry has been expanding rapidly in recent decades. Agriculture is undertaken mainly for subsistence, the main crops being yam, banana, betel nut, vegetables, taro (*Colcasia*, *Xanthosoma* and *Cryptosperma*), coconut, citrus and cassava. The present agroforest vegetation is mainly base crops (yam, banana and taro), coconut palm (*Cocus nucifera*), betel nut palm (*Areca catechu*), pandanus and breadfruit (*Artoparpus atilis*). In Pohnpei,

[1] Federated States of Micronesia State-wide Assessment and Resource Strategy 2010 – 2015+.

unlike in other States, the State owns much of the lagoon area rather than it being privately or communally owned, thus facilitating the establishment of State-owned marine protected areas.

8. Kosrae State: Kosrae is located at the eastern end of the Caroline Island group. The island is roughly triangular, with an area of about 11,000 ha. The island of Kosrae is characterised by steep mountains covered with dense forest. Several mountain peaks rise to 600 m above sea level, and Mt. Finkol is 629 m high. Deep wet valleys link the basaltic uplands to a wide alluvial plain along the island's perimeter. Most of the island's 6,616 inhabitants (2010 census) live along this perimeter. Mountainous areas make up about 70% of the island, with foot slopes, alluvial fans, and bottomlands comprising another 15% of the area. Approximately 14% of the island is vegetated by mangrove swamps. Other vegetation types include upland forest, Swamp Forest, Mangroves, Cloud Forest, Secondary Forest, Agroforest, Marsh and Savanna Grassland. The island is fertile, though much of it is steep and inaccessible. Agriculture is undertaken mainly for subsistence, the main crops being yam, banana, betel nut, vegetables, taro (*Colcasia, Xanthosoma* and *Cryptosperma*), coconut, citrus and cassava. The present agroforest vegetation is mainly coconut trees (*Cocus nucifera*) and breadfruit (*Artoparpus atilis*).

9. Socio-economic Context: The FSM's vision for the nation, as stated in the 2002 NBSAP, is that *"The FSM will have more extensive, diverse, and higher quality of marine, freshwater, and terrestrial ecosystems, which meet human needs and aspirations fairly, preserve and utilize traditional knowledge and practices, and fulfil the ecosystem functions necessary for all life on Earth."* In support of this vision, the theme for the 2004 – 2023 SDP for the nation is 'Achieving Economic Growth and Self Reliance'. External economic shocks and natural disasters will always threaten the FSM's development efforts and it is the Government's hope that the implementation of the strategies outlined in the SDP will cushion the adverse impact of these shocks against the achievement of the national vision.

10. The agriculture, fisheries, and tourism sectors are recognized as providing the long-term growth potential and competitive advantage for the FSM. However, currently the largest single sector in the FSM economy is government services. Current commercial and business activity is dominated by informal and formal small- and medium-sized enterprises. Apart from the government, telecommunications, and utilities corporations, few large businesses exist that can create major employment or single markets for other businesses. As such, most small businesses in the FSM can be characterized as having a small market share, and personalized owner operator or family management.

11. The economy of the FSM is relatively small with a current GDP at a purchase price in 2012 is US $ 326.2 million[2], implying a per capita income of US$ 3,142.[3] Out of 31,789 employed persons 16,658 persons (52.4%) were engaged in home production and 8,558 (26.9%) were involved in 'subsistence' (household consumption only) activities, not selling or intending to sell any of their produce. 6,130 (19.3%) were classified as 'market-oriented' farmers and fishermen. These numbers illustrate the importance of the subsistence sector in the FSM and reflect their contribution to domestic production in the country[4]. It can be assumed by these numbers also that much of the economic activity is not properly captured and goes unreported.

12. Agriculture is the most important primary activity in the nation because of its contribution to employment, wage income, export earnings, and subsistence production. In-country agricultural activities form the foundation of the nation's food security by providing over 60% of the food consumed, and

[2] Source: Statistics Budget and Economic Management Overseas (SBOC)
[3] Financial year 2012, SBOC
[4] FSM 2010, SBOC

employ almost 50% of the labour force on a full-time or seasonal basis. Women make up a large proportion of this percentage, and there will be a continual focus upon this stakeholder group throughout. While FSM's climate is well suited for year-round agriculture, farmland is in short supply because of the mountainous terrain on FSM's larger islands[5].

13. The FSM, in the socio-economic context, has also made strides to include Gender as a cross cutting issue in the areas of development and sustainable livelihoods. Recognizing that women are the cornerstones of the communities, the FSM has undertaken several recent projects related to SLM and gender. The Development of Sustainable Agriculture in the Pacific (DSAP) program that was implemented up to 2012 by the SPC and as well as the current EU renewable energy program specifically seeks to include and develop the role of the women as leaders in the process. Further, current efforts to meet the challenge of the global Millennium Development Goals (Goal #3 of the MDG – "Promote Gender Equality and Empower Women") also clearly make it an objective for the FSM to aim for a greater role and representation of women in the echelon of politics, and for a more equal rate of pay in the workplace[6].

14. Fisheries. The ocean is arguably the country's most significant resource. Living marine resources are of great importance since they are a major source of subsistence, recreation, and commerce. The Micronesian culture is heavily influenced by the marine environment and resources. FSM's EEZ covers the world's major equatorial tuna migratory paths. This makes offshore tuna a primary fishery resource. The approximate market value of tuna harvested within the nation is about $200 million per year. FSM has in recent years earned $26.0 million annually in licensing fees paid by foreign vessels for tuna fishing within its EEZ. The total fish catch in FY 2012 was reported at 164,195 metric tons[7].

15. Inshore reef resources are largely consumed locally and are an essential source of nutrition in the traditional Micronesian diet. All waters located within 12 nautical miles of the barrier reef falls under the jurisdiction of the respective state governments. Within these waters all forms of foreign commercial fishing are excluded. These inshore resources are managed, conserved and developed by the respective state governments, in association with resource owners. Recent Rapid Ecological Assessments (REAs) conducted in Pohnpei (2005)[8], Yap (2007)[9], Kosrae (2006)[10] and Chuuk (2008) indicate that fish populations in reefs close to the larger, more urbanized areas are severely depleted. In some areas, reef destruction from over fishing, road-building, dynamiting (especially Chuuk), and dredging is extensive.

[5] FSM 2000 Census
[6] FSM National Millennium Development Goals Report 2007
[7] Source SBOC
[8] Allen, G. R. (2005). Final Report: Reef Fishes of Pohnpei, Federated States of Micronesia. The Conservation Society of Pohnpei. AND Turak, E., & De Vantier, L. (2005). Reef-building corals and coral communities of Pohnpei, Federated States of Micronesia: Rapid ecological assessment of biodiversity and status. Conservation Society of Pohnpei.
[9] Allen, G. R. (2007). Final Report: Reef Fishes of Yap, Federated States of Micronesia.
[10] Donaldson, T.J., J. M. Maragos, M Luckymis, S. Palik, and O. Nedlic., 2007. Coral and fish surveys at Kosrae Island, July-August 2006, Federated States of Micronesia: a Preliminary Report prepared for the Kosrae Rapid Ecological Assessment. Prepared for Kosrae Conservation and Safety Organization and The Nature Conservancy. Pohnpei, Federated States of Micronesia. 36 pp.

CONTEXT AND GLOBAL SIGNIFICANCE

Global and National Biodiversity Context

16. The oceanic islands of the FSM are critical storehouses of biodiversity. The country forms part of two Global 200 WWF ecoregions[11], namely the Yap Tropical Dry Forest and the Caroline Tropical Moist Forest Ecoregion, and forms part of the Polynesia/Micronesia Hotspot[12]. The Yap Tropical Dry Forest contains the westernmost islands of Yap State. Yap's Forests and savannas support a number of endemic plant species, including *Drypetes yapensis*, *Drypetes carolenesis*, *Trichospermum kutai*, *Hedyotis yapensis*, *Timonius albus*, *Myrtella bennigseniana*, *Casearia cauliflora*, and *Dentaphalangium volkensii*. The large tree *Serianthes kanehirae* and the distinctive tree *Garcinia rumiyo* are endemic to Yap and Palau. The Carolines Tropical Moist Forest Ecoregion contains the islands in Kosrae, Pohnpei, Chuuk and the easternmost islets of Yap State. The dominant vegetation is mixed broadleaf forest with lowland vegetation dominated by mangrove and swamp forests. Located above 450 meters above mean sea level, dwarf cloud forests thrives on the unique combination of relatively high rainfall and volcanic soils. These cloud forests are a global rarity as they are some of the lowest elevation cloud forests in the world. Pohnpei's Nanmeir en Salapwuk Valley holds what is considered to be the largest intact lowland tropical forest in the Pacific outside of Hawaii, and the Yela valley in Kosrae holds the largest remaining ka (*Terminalia carolinensis*) forest in the Pacific. Loss and degradation of these forest ecosystems continues due to development and other factors. For example, illegal cultivation of sakau (kava) in Pohnpei's watershed forest because of the rich soil and unique climate results in forest loss and loosening of the soil, which also leads to landslides during heavy rainfalls.

17. The FSM has in general high levels of species diversity and endemism considering its small size[13] - the 607 islands of FSM cover only 4,840km^2. Over 1,239 species of ferns and flowering plants have been described in the FSM. Approximately 782 species are native, including about 145 species of ferns, 267 species of monocots and 370 species of dicots. Approximately 175 of these plants are considered endemic to the FSM. Micronesia as a bioregion is considered to have amongst the highest density of endemic plants in the world with each State in the FSM characterized by its own suite of endemic plant species (Yap 9, Chuuk 16, Pohnpei 47 and Kosrae 18 endemic plant species)[14].

18. Terrestrial ecosystems are also home to many unique avian, mammalian, reptilian and other species, including owls, flying foxes, parrots, giant geckos, skinks, dragonflies, freshwater gobys and land snails: 27 species of reptiles and amphibians (four endemic); four species of fruit bats (flying foxes) of the genus Pteropus (*P. molosinnus, P. insularis, P. phaeocephalus,* and *P. ualnus*) and a single endemic sheath-tailed bat of the genus *Emballonura*; and, 234 species of birds including 19 endemics, 20 threatened, 2 extinct and 13 introduced[15]. Endemic species include 2 monarchs (Truk *Metabolus rugensis* and Yap *Monarcha godeffroyi*), 2 flycatchers (Pohnpei *Myiagra pluto* and Oceanic *Myiagra oceanica),* Pohnpei fantail (*Rhipidura kubaryi*), Pohnpei flycatcher (*Myiagra pluto*), long-billed white-eye (*Rukia*

[11] Olson, D.M. & Dinerstein, E. 2002. *The Global 200: Priority Ecoregions for Global Conservation*. Ann. Missouri Bot. Gard. 89:199 – 224.
[12] Mittermeier, R.A., Myers, N. & Mittermeier, C.G. 2000. *Hotspots: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions.* Conservation International.
[13] Worte, O. L. 2010. Fourth Country Report from the Federated States of Micronesia to the United Nations Convention on Biological Diversity. United Nations Support to GEF Eligible CBD Parties (GFL/2328-2716-4A82).
[14] Costion. C.M. and D.H. Lorence. 2012. The Endemic Plants of Micronesia: A Geographical Checklist and Commentary. Micronesica 43(1): 51–100
[15] http://avibase.bsc-eoc.org

longirostra), Pohnpei lorry (*Trichoglossus rubiginosus*), Caroline Islands Ground-Dove (*Gallicolumba kubaryi*), Mariana Fruit-Dove (*Ptilinopus roseicapilla*), and the Critically Endangered Pohnpei mountain starling (*Aplonis pelzeni*). The current status of most of these species is unknown due to lack of ongoing or systemic monitoring, and lack of understanding of species habitat and ecological requirements. For example, in Pohnpei occasional attempts to find Pohnpei Starling in recent years have been unsuccessful. In the absence of a dedicated program to monitor such species their fate of the causes of their demise or success will remain unknown.

19. FSMs coastline is about 6,100 km with reefs covering an estimated 14,517 km^2, providing coastal protection and the source of livelihood for a majority of FSM citizens. These marine ecosystems are home to more than 1,000 species of fish, more than 350 species of hard coral, and 1,200 species of molluscs. The FSM's High Islands are unique in Micronesia having a greater diversity of marine ecosystems arising from of combination of lagoon, fringing and barrier reefs around the high volcanic islands.

20. The biodiversity of FSM is relatively well documented, however, much of this information is housed in publications of foreign institutions and is not readily available locally. Moreover, very little quantitative information on the current distribution and status of this biodiversity is available to or used in environmental planning processes. General knowledge of FSM's biodiversity is very low amongst managers tasked with conserving this biodiversity. This situation is not surprising given that there are few review documents covering the biodiversity of FSM. Falanruw (2002)[16] is the most current text describing terrestrial biodiversity at the national scale, however, much of the information cited in this text is dated meaning that in practice current planning processes are using information that is sometimes decades old. There are no similar documents for the marine realm. There is a dire need for an up to date synthesis and description of the FSMs terrestrial and marine biodiversity and ecosystems that describes and catalogues this biodiversity as well as assesses its IUCN threatened status.

Ecosystem Services

21. Upland Forests provide critical hydrological services, both in terms of water provisioning and quality regulation. The extensive root systems of the forest trees and underlying plants and shrubs (aided by a ground layer of composting vegetation) serve to capture rainfall by slowing down runoff. This provides time for the water to sink into the ground where it is filtered and slowly released into streams and rivers. Through this process of slowing down rainwater surface runoff, the upland forests act to significantly reduce soil erosion, and thus help protect freshwater wetlands, mangrove areas and coral reefs from sedimentation and excessive nutient loading. Furthermore, by slowing down surface runoff and allowing rainwater to seep into the ground, the upland forests facilitate the slow release of ground water which helps ensure stream flow during relatively dry periods. It also acts to reduce the severity of flooding when it occurs.

22. Mangrove forests have multiple values – as fisheries habitat, for wood production, trapping sediment, and shoreline protection. Mangrove forests dampen the force of waves, including storm surges, and thus protect the coastline from erosion. The "fringe" (seaward) mangrove is especially valuable for this coastal protection function. Agroforests are complex and species-diverse anthropogenic ecosystems that provide food, fiber, medicines and materials needed to support subsistence while at the same time supplying many of the ecosystem services of forests. The ecosystem service values of these forests has

[16] Falanruw, M.C., 2002. Terrestrial Biodiversity of the Federated States of Micronesia. FSM National Biodiversity Strategy and Action Plan Project. FSM Department of Economic Affairs and Global Environment Facility.

not been quantified. These can potentially include provision of habitat for native flora and fauna, and play an ecological service role in, for example, water delivery. Agroforests, wetlands and mangrove forests also play an important role in reducing soil erosion and trapping sediment, releasing water of good quality into the marine environment. Turbidity and sediment has a negative effect on coral reefs from both a near-shore fishing and tourism prespective. Increasing pressure from a growing population is degrading the mangrove ecological functioning such as increased demand of wood and clearing of access routes though mangrove forest to improve to fishing areas.

23. Native forests also provide many non-timber resources to communities including medicinal plants, edible plants and bird species that are hunted. The extent to which these values are captured in the anthropogenic agroforest relative to native forest has not been quantified.

24. Marine ecosystems are a keystone social and economic resource in the FSM. Culturally, local societies are intimately linked with the ocean. Economically, nearshore marine resource are an important economic resource. Approximately 20% of the FSM population are fishers. Fisheries data from Pohnpei as an illustrative example of the number of people that depend on fisheries in and around Pohnpei's marine protected areas has a population of around 35,000 individuals and approximately 6,000 households. Of these, more than 63 percent of households contain at least one fisher (for a total of 7,227 fishers or 20 percent of the total population). Of this population of fishers, 2,976 are commercial/artisanal and 4,251 are subsistence coral reef fishers (source – Micronesia Challenge biological monitoring/Dr. Kevin Rhodes). While this data is for Pohnpei, the other three states have a similar profile for fishers. All marine PAs that have been established by communities in the FSM have been done so to protect local marine living resources. Therefore, the social-economic impact of marine PAs, although not yet quantified, is significant.

Biodiversity Conservation

25. In addition to the conservation concerns, decades of development pressures have done much to influence the economic and political orientations of the country to overexploit its natural resources. As the states of the FSM develop economically, citizens are turning from subsistence fishing and farming to using natural resources for income and capital generation: "*In the FSM, the pressure on the usage of the local terrestrial and marine resource base – bio-resources – is the single greatest threat to diversity, and cause for the decline in both forest cover, habitat for species loss of reef diversity, and nearshore and oceanic fish stocks.*"[17]

26. The commercial fisheries sector provides an apt example of the challenges facing biodiversity conservation efforts in the FSM. In their 2008 report on commercial fisheries in Pohnpei state, Rhodes *et. al* (2008)[18] outlines the community impacts and management challenges brought about by societal change in the FSM: "*Many tropical Pacific communities are dependent on marine resources from coral reef and nearshore environments as a primary source of protein and income, with the loss of these resources substantially impacting food security and socio-economic structure. While the main impact typically attributed to coral reef environments is human disturbance from fishing, sedimentation, pollution, and global climate change are also playing increasing roles. Unfortunately, the pace of our understanding of human effects on coral reef habitats and associated organisms is considerably slower than the rate of*

[17] Worte, O. L. (2010). Fourth Country Report from the Federated States of Micronesia to the United Nations Convention on Biological Diversity. United Nations Support to GEF Eligible CBD Parties (GFL/2328-2716-4A82), p. 79

[18] Rhodes, K., Tupper, M., & Wichilmel, C. (2008). Characterization and management of the commercial sector of the Pohnpei Coral Reef Fishery, Micronesia. Coral Reefs, Vol. 27: 443-454, p.443

disturbance, thereby creating a dilemma for marine resource managers and biologists tasked with offsetting or preventing resource loss. To further complicate matters, most developing Pacific tropical communities are resource limited, thereby reducing their ability to document, monitor, manage or enforce marine resources and the impacts to them, which often occur along substantial expanses of coastline. In many Pacific island communities, including Micronesia, the negative impacts to reefs have also been accelerated by the move from a barter system to a cash economy, greater access and improvements to gear, and a post-colonial shift from traditionally managed to openly accessed reefs. Finally, there are inherent complexities within many tropical communities between state authorities and local clan- or tribal-based communities, and even among clans, for ownership, management, and enforcement rights. To effectively protect the vital marine resources that these communities depend upon, there is a need to assist marine resource agencies in documenting and monitoring impacts to coral reef ecosystems and facilitate, through observations and recommendations, workable management solutions."

27. Recognizing these challenges, and as described in Section "Institutional Context", a multitude of actors are working to conserve biodiversity in the FSM. To varying degrees, each of the States of the FSM have established PAs. The management of PAs is a joint effort between local communities, local NGOs, state agencies, the FSM national government and international donor and technical assistance organizations.

28. On the marine side, biodiversity conservation is currently focused on both protected areas and managed areas. The latter refers to areas where exploitation/development is allowable, but controlled by community rules/agreements. Examples of biodiversity conservation include networks of no-take marine protected areas across all jurisdictions, but also include fisheries regulations describing seasonal, size and certain gear/tackle bans, total prohibiting of sales of certain species. No-take protected areas are a common feature of all the FSM jurisdictions, yet they differ with respect to their size, management plan specifications, enforcement, community leadership and support, and thus, efficacy. Despite all the protected areas and partnership enhancement initiatives to manage these areas, unsustainable shoreline development continues to be approved by decision making bodies. In Pohnpei alone, there are over 50 dredged sites across the island. The efficacy of marine conservation areas will be reduced if shoreline habitats continues to be developed.

29. In terms of terrestrial biodiversity conservation efforts, PAs also exist and there is a particular emphasis on watershed management (for further details, refer to the SLM situational report). However, as described in the Institutional Context below, land and aquatic area ownership regimes vary from State affecting the nature of PAs. In fact, regulations and legislation are less standardized across FSM, and certain jurisdictions such as Pohnpei currently have the most stringent management policies pertaining to water quality and fisheries harvesting policies.

30. In order to strengthen and expand protected areas, FSM stakeholders are engaged in a variety of programming. For example, the Micronesian Challenge (MC)[19] represents an influential movement that is currently addressing both protected and managed areas across FSM. The Micronesia Challenge is a commitment by the Federated States of Micronesia, the Republic of the Marshall Islands, the Republic of Palau, Guam, and the Commonwealth of the Northern Marianas Islands to preserve the natural resources that are crucial to the survival of Pacific traditions, cultures and livelihoods. The overall goal of the Challenge is to effectively conserve at least 30% of the near-shore marine resources and 20% of the terrestrial resources across Micronesia by 2020. Since its inception in 2006, the partnerships around the

[19] www.micronesiachallenge.org

MC have supported work in over 150 sites/over 600,000 hectares, and have leveraged more than $30M to the region, of which $17M now sits in an endowment overseen by the Micronesia Conservation Trust. Earnings from the Micronesia Challenge Endowment will be distributed after successful establishment of Country Program Strategies in the Micronesia Challenge Jurisdictions. It is envisaged that the earnings will start flowing to community programs/projects by early 2015. Additionally, the Micronesia Challenge Initiative focuses on development of local and national sustainable financing mechanisms (e.g. the Yela Conservation Easement Endowment).

31. The MC will support the long-term protection of areas of highest biodiversity significance within the MC geographical region - spanning over 6.7 million square kilometers of island and ocean. The project's support to strengthen and sustain the MC sub-region's Protected Areas Networks, comprised mainly of community-managed conservation areas, will enable specific protection measures for at least 66 globally Red-listed species ranked 'Vulnerable' status or above, as well as make a significant contribution to the protection and management of approximately 300 endemic species of flora and fauna. The extent of protection envisaged by the five States is expected to exceed their commitments to global targets under the CBD of 10% coverage by 2010[20].

32. Through the MC, jurisdictions have improved resources to engage communities in establishing protected areas, creating acceptable management plans, instituting enforcement policies, and participating in regional coral, fisheries, forests/terrestrial and socio-economic monitoring efforts that serve to advise managers and decision makers on progress and trends towards their goals. In addition to the MC, which is a regional effort, local FSM NGOs are also engaged in PA management and support activities with support from international development and conservation organizations such as The Nature Conservancy, GEF-UNEP, Conservation International, RARE and numerous other organizations.

33. There is increasing awareness of the interconnectivity of land and water and the transition to an ecosystem-based approach to biodiversity conservation efforts in the FSM, embodied in the 'ridge to reef' concept. However, there is an urgent need to institutionalize and provide increased resources to allow these efforts to fully materialize. This proposed 'Integrated Ecosystems Management' project is therefore timely and very much needed in the FSM.

Protected Area Network

34. There are 35 existing terrestrial and marine PAs in the High Islands of the FSM covering 8,542 ha (Table 1 and Appendix 6). The PAN covers approximately 7% of the land area and 2% of the lagoon area of the High Islands. The FSM does not have a National PAN or State PA registers. These figures for the PAN are based on the stakeholder verification of the High Island PAN status conducted during the PPG process. An additional 17 candidate new or proposed PA sites covering 18,781 ha were also identified during the stakeholder engagement process (Table 1).

35. For the purposes of this process, existing PAs are defined as those with legal status or declared and managed by a community and are in the process of being legally recognized by the States. New PAs are defined as those that were recommended by stakeholders during the PPG process. New PA sites for the R2R project were identified solely on expert inputs from the stakeholder group. Identified sites relate

[20] Micronesia Conservation Trust. (2014). Draft: Micronesia Challenge: Sustainable Finance Systems for Protected Area Management in 'Micronesia Challenge' States. UNEP Global Environment Facility Project Implementation Review for Fiscal Year 13.

strongly to Areas of Biological Significance (ABS) identified during the 2002 TNC Blueprint process and where community willing to create protected areas is high.

Table 1. Summary of the total number and extent of PAs in the high islands of FSM.

PA Status		Chuuk		Kosrae		Pohnpei		Yap		Total Area (ha)	Total Number of PAs
		Area (ha)	Number of PAs	Area (ha)	Number of PAs	Area (ha)	Number of PAs	Area (ha)	Number of PAs		
Existing	Terrestrial	160	1	830	2	3415	3	69	6	4474	12
	Marine	72	1	599	4	1568	9	1829	9	4068	23
Existing Total		**232**	**2**	**1429**	**6**	**4983**	**12**	**1898**	**15**	**8542**	**35**
Proposed	Terrestrial	575	5	351	2	4812	2			5738	9
	Marine	14045	4	170	2	340	2			14555	8
Proposed Total		**14620**	**9**	**521**	**4**	**5152**	**4**			**20293**	**17**
Grand Total		**14852**	**11**	**1950**	**10**	**10135**	**16**	**1898**	**15**	**28835**	**52**

36. In 2002 TNC and the National and State governments, with support from the US Forest Service, UNDP-GEF, and the US Department of the Interior, collected biological knowledge from regional scientists and local experts and mapped focus areas for biodiversity protection in "A Blueprint for Biodiversity Conservation in the Federated States of Micronesia". This Blueprint identified 130 ABS sites, 24 of which were designated priority action areas. This work was intended to inform the creation of new PAs throughout the FSM. The identification of ABS through the Blueprint process was essentially an expert-driven process and not a quantitative systematic conservation assessment.

37. In 2009, TNC again worked with stakeholders throughout the country to conduct a Gap analysis of the FSM PAN to determine the extent to which coarse-scale terrestrial and marine biodiversity features (e.g. habitats) are represented in the PAN. Idealy a PAN should contain representative examples of all biodiversity features within a country. The analysis shows that in 2009 only 15% of biodiversity features assessed have their MC target achieved within the existing PAN. Notably, 46% of biodiversity features assessed do not occur in the PAN at all (Appendix 8 and Figure 1).

38. TNC, in partnership with CSP and other state agencies, is continuing to collect data about the effectiveness of the country's protected areas. For example, TNC conducted a review of 18 marine reserves in Pohnpei in 2014. Of these 8 are sites recommended for inclusion in the R2R project. This activity resulted in recommendations to increase the size of some PAs to better protect fish species. From the draft Review of Existing marine PAs based on movement patterns of key species in Pohnpei, TNC note the following key considerations for the PAN:

- No-take marine reserves (NTAs) should be designed to take movement patterns of the key species they are aiming to protect into account. In particular, NTAs should be larger than the home range of key species.

- Only 3 of the existing 18 MPAs are considered ecologically viable PAs, i.e. large enough (>5km maximum diameter) to protect most of the key fish and invertebrate species. In other words the current PAN is doing a poor job at conserving ecological processes.
- The other 15 MPAs are currently too small to protect most key fish species. However they are likely to have benefits for other species that do not move as far e.g. small grouper, surgeon fishes and parrotfish species, and most key species of invertebrates (e.g. sea cucumbers, trochus, giant clams that do not move or move very far, except mangrove crabs and lobsters that may move further).

39. The current PAN is not effectively conserving biodiversity patterns and ecological processes in the FSM. In the last decade the number of protected areas within FSM has grown. While PAs are growing in number, less has been done at the local and State level to ensure their ecological sustainability (i.e. building a representative PAN that can effectively conserve both biodiversity pattern and the ecological processes responsible for maintaining those patterns). The Micronesia Challenge project supports the creation of a regional PAN. The MC project document includes a succinct summary as to why this is important: "*This strategy recognizes that in Micronesia, grassroots engagement, spearheaded through the PAN Networks, must bring institutional strengthening, help develop finance and project management skills including granting and reporting procedures, and must encourage and coordinate conservation efforts over time*"[21]. TNC with its partners has been working since the early 2000's to gather biodiversity data to inform PA development decision-making processes. The R2R project should work with TNC to support these continual efforts. There is a need for a comprehensive terrestrial-ecosystems conservation assessment of the high islands to determine where best to fill the gaps in the PAN. This assessment should:

- Be spatial and be based on the best available scientific knowledge including data from thorough rapid biodiversity inventory of all the High Islands.
- Verify the contribution of the current PAN and the new sites selected for the R2R project towards achieving MC targets (GAP analysis).
- Identify additional PA sites necessary to achieve the R2R PA outcomes that are analytically independent of the ABS identified in 2002 and based on a systematic spatial biodiversity assessment methodology.

40. From the pool of 52 existing and proposed new PA sites, 40 were selected by stakeholders during the PPG process as Focus Sites for the R2R project to best achieve the PA targets specified in the PIF (Table 2 and Appendix 7). All sites selected represent sites already identified through the MC and which have some level of community/municipal/state commitment. R2R Focus Sites were selected through a stakeholder participatory process based (1) on known biodiversity attributes, i.e. a known ABS; (2) the presence of an existing PA development iniative at the site; and, (3) landowner willingness at the site is favourable for PA development. The selection of sites was not based on a systematic conservation assessment as no new bioidiversity information was available in addition to the ABS analyses. The PPG has not calculated how well the selected sites contribute to achieving the MC conservation targets, however, given the major gaps in the PAN it is highly likely that the selected sites make valuable contributions towards achieving conservation targets.

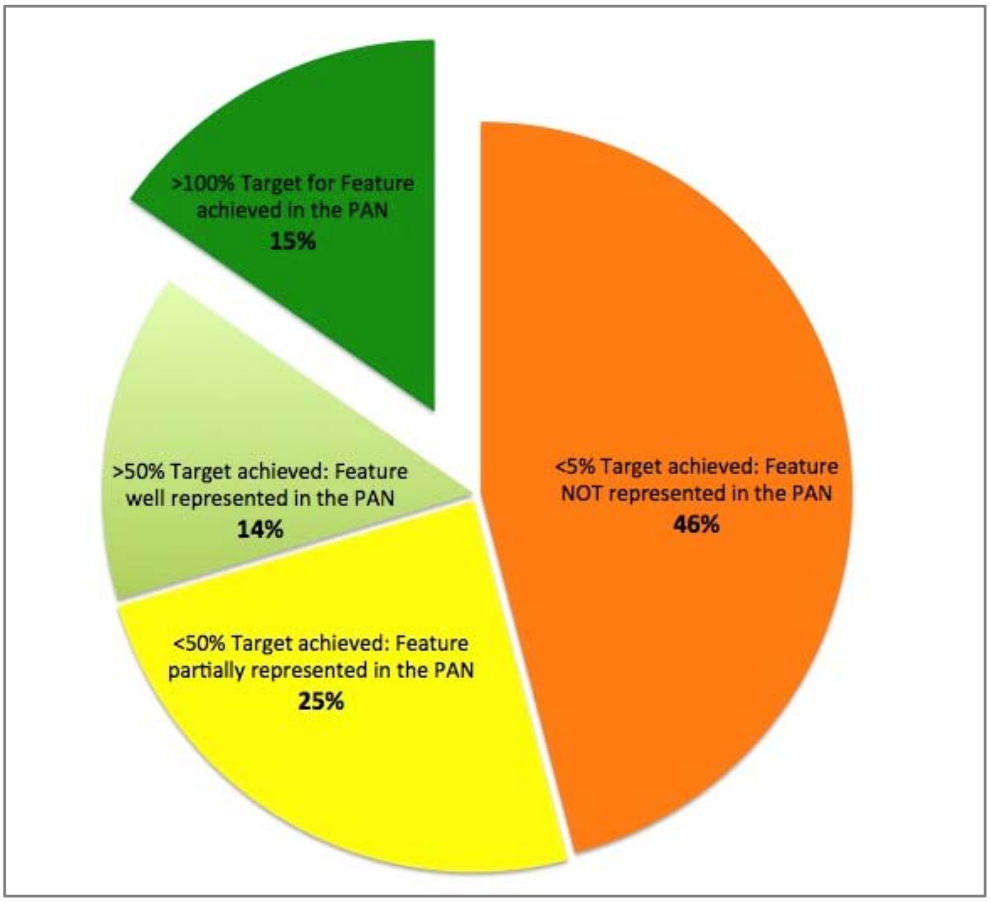
Table 2. A summary of the area and number PAs selected as PA Focus Sites for the R2R Project.

PA Status	Terrestrial or Marine	Area (ha)	Number of Sites

[21] Micronesia Challenge: Sustainable Finance Systems for Island Protected Area Management Project Document, 2010, p. 28

Existing	Marine	3154	18
	Terrestrial	4444	9
Existing Total		**7598**	**27**
New	Marine	11799	6
	Terrestrial	5589	7
New Total		**17388**	**13**
Grand Total		**24986**	**40**

Figure 1. The extent to which MC conservation targets for biodiversity features in FSM are achieved by the current PAN.



Sustainable Land Management

41. Currently SLM is active in all four States through both government and NGO driven initiatives. These focus on agriculture (soil conservation, dry litter piggery, sakau cultivation); waste management; environmental impact assessment; integrated water resource management; grassland, forest and mangrove rehabilitation; and, climate change mitigation planning. Government and NGO capacity constraints (both human resources and budget) limit the scale at which SLM programs can be sustainably implemented and

managed. So whilst core capacity exists, and the policy framework for SLM is well developed (e.g. NBSAP 2002, National Environmental Management Strategy (NEMS) and Strategic Development Plan 2004-2023) currently the funding for on the ground activities is derived primarily through donor projects. Current donor-funded SLM initiatives in the FSM include:

- SPREP and SPC assistance with implementing EIA processes;
- JICA assistance with sustainable waste management planning and recycling;
- Venezuelan Government (Venezuela Fund) co-financing of GEF SLM pilot projects such as vegetable production and compost making;
- SPC/SOPAC (GEF-funded) assistance with IWRM in Pohnpei including watershed demarcation, dry litter piggery, composting, compost toilets and biogas;
- USDA NRCS working on soil conservation and providing spatial data;
- FAO assistance with sustainable agriculture and organic farming;
- EU-funded Development of Sustainable Agriculture in the Pacific (DSAP) providing seed and implements to farmers implemented locally by the SPC;
- GEF-SGP financing of a dry-litter piggery revolving fund on Pohnpei; and
- USFS technical assistance in for example vegetation mapping and land rehabilitation.

42. GEF intervention in SLM in the FSM has provided a major boost for implementing on the ground SLM. The GEF SLM Medium Size Project (MSP) for "Capacity Building, Policy Development and Mainstreaming of Sustainable Land Management in the FSM" was a 3-year project executed through the OEEM. This project that terminated in 2013 was the major vehicle for SLM implementation over the project period. The project was implemented around seven thematic activity areas: waste management and recycling, community-level plant and tree nursery development, composting and gardening, environmental impact assessment, rehabilitation of degraded forest ecosystems, and environmental awareness and SLM scholarship opportunities. One of the major legacy outcomes of this project is a National Action Plan (NAP) to address SLM issues within the FSM by providing a national framework for SLM implementation. Currently there is a draft NAP that will be completed during the course of 2015.

43. ***Rehabilitation:*** Rehabilitation of degraded forest and mangroves is conducted on a limited-scale mainly by State agriculture departments. In 2013 CSP started a restoration project in U Municipality where some 150 trees were planted. There is a recognised need to plant more trees in the degraded land in the Pohnpei watershed. However, CSP has limited funds and limited human recourses. Yap has planted large areas of degraded forest (now grassland/savanna) with leguminous trees. Unfortunately, the tree species most commonly used for rehabilitation, *Acacia confusa,* is an alien invasive species to Yap. This illustrates a problem common to all of the FSM – the lack of ecologically acceptable rehabilitation protocols. Whilst there has been some vegetation description and analysis in the past, this information is not generally available to or interpreted for current SLM and PA managers. Related to this is the need to accurately map areas in need to rehabilitation for the purposes of planning and costing of rehabilitation.

44. Chuuk had implemented rehabilitation projects in three watershed on Weno and one on Fefan. In the Nefounimas watershed (Weno/Moen) rehabilitation was conducted 2 years ago together with a monitoring of the replanting. This initiative objectives were to collect and plant out 1000 native plants throughout the watershed, involve youth and women's groups in replanting activity, and GPS plot and monitor on-going work. Chuuk has also conducted mangroves as part of the States climate change adaptation response. In addition to replanting of degraded areas, particularly within mangroves, rehabilitation in Kosrae has also become a key strategy for promoting co-operation between government agencies and community groups.

45. Through partnerships between USFS and State Forestry departments, tree nurseries have been established in all States for the purpose of propagating native species for rehabilitation purposes.

46. ***Agriculture:*** Two aspects of agriculture present major threats to the environment and human health. Cultivation of *sakau* in the water catchments is resulting in the loss of native forest. At lower elevations piggery management practices are having detrimental impacts on water quality particularly with regards the spread of the zoonotic disease Leptospirosis. This is a debilitating though generally non-lethal bacterial disease that affects humans and animals (pigs, dogs and rats). In the FSM, the cleaning of piggeries directly into freshwater streams has resulted in the severe contamination of nearly all tested streams in the FSM (see Threats, Root Causes and Impacts). The conversion of piggeries to dry litter systems is promoted as a means of eradicating this disease as well as improving the quality and quantity of freshwater ecosystem. Since the mid-1990s the US Department of Agriculture NRCS has been promoting this technology in the FSM. With the use of dry litter technology, water use is greatly reduced, limiting contamination of local water resources. Composting the dry litter and pig manure results in high-value compost and the hot-composting process (>80^{o}C) also kills the Leptospirosis bacteria.

47. A Piggery Advisory Council (PAC) in Pohnpei was started in December 2011 to address the water quality issues from piggeries on Pohnpei. A Strategic Planning Statement was developed in March 2012. In 2012, the Japanese Embassy donated two wood chippers (value US $ 63,000) to Pohnpei, one is based at Pohnpei Agriculture and can be rented for US$ 25 per hour, and the other one is at the COM FSM to be used for dry litter demonstrations. In addition to the dry litter demonstration at COM FSM there are two other dry litter demonstrations in Nett Municipality (funded by the EU through the CSP) and one at Sei Farm also in Nett Municipality. The goals and objectives of the PAC are to provide demonstration sites for dry litter composting, increase public awareness and help address the issue with project funding. The following projects were initiated with the help and support of the PAC:

- AusAid funded one dry litter piggery at Sei Farm;
- SPC/ GEF IWRM project funded a small wood chipper and a small dry litter piggery in Nett;
- Embassy of Japan funded two medium-sized wood chippers stationed at the College of Micronesia and Pohnpei Agriculture; farmers can rent a chipper for $25 per hour;
- A USDA-designed piggery was constructed at the COM with US Compact funds and is being used as a demonstration and sells compost locally;
- PAC assisted with selection criteria for biogas systems that funded by the Embassy of the People's Republic of China; and,
- The PRC has funded in 2013, 15 small biogas units and is planning to fund 13 more in 2015.

48. The PAC and others have made the following recommendations:

- Install warning signs in highly contaminated streams in populated areas;
- Continue quarterly sampling on key sites;
- Screen additional stream systems for human safety;
- Increase outreach to all school children, NGPs, newspaper, legislators and traditional leaders through coordinated efforts of PAC partners and members; and,
- Implement alternative piggery waste/nutrient management systems.

49. To date demonstration projects have only been implemented in Pohnpei. All other States have expressed a strong interesting in implementing water quality monitoring and dry litter piggery technology.

50. Despite a well-established dry litter piggery advancement program in Pohnpei there has been no uptake of this technology amongst farmers. The reasons for this are not well understood although this

needs to be addressed if widespread uptake of dry litter piggeries is to be effected. Contributing factors include:

- Current land use laws prescribing the location of piggeries in relation to water bodies are not enforced;
- Pigs are kept for multiple value purposes including commercial and cultural. Regular mark-driven approaches to influencing farmer management of their piggeries are less-likely to succeed in the FSM;
- Level of awareness within communities around water quality issues especially *E. coli*, Leptospirosis and human health is low; and,
- The cultural transition from a traditional agrarian society to a commercial western-style society means that pig owners invest less in their overall agricultural activities (piggeries, vegetable plots and agro-forest) and rely more on income from remittances and salaries.

51. All States have farmer associations, although these are not active due to lack of incentives promoting participation. In 2015 it is planned that the FAO will fund the farmers associations in Pohnpei and Yap to improve quality and quantity of domestic food production and facilitate market access. There is also a possibility that the FAO will fund an agricultural census project in 2015. Farmer associations do present a potential vehicle for mainstreaming SLM concepts and practices to the broader farming community.

52. ***Invasive Alien Species:*** All the four states of the FSM has recognized the importance of invasive species, some states are more active than others. Lack of funding limits States implementation of invasive species programs. With the assistance of SPC and SPREP, all four states have Invasive Species Action Plans in place. In Pohnpei, iSTOP (Invasive Species Taskforce of Pohnpei) started in 2000 and some species have been successfully eradicated. This is a very active group and already has their third Strategic Action Plan 2013-2017 in place. In Yap, *Imperata cylindrica* (Imperata or cogon grass) has been under eradication since 2000 with an estimated 95% being eradicated to date. In Pohnpei Octopus tree has been eradicated and some other selected species - Ivy gourd, Chain of love, Bengal trumpet vine, False Sakau and Feral Pigeons are almost eradicated. In Kosrae and Chuuk, invasive programs are planned but are dormant due to funding constraints.

53. In 1999 the "Grow Low" programme was started by TNC with co-funding from SPREP and UNDP, and it aimed at protecting the Pohnpei watershed. In 2002 the CSP inherited and continued this program. Through awareness programs people are encouraged to move out of the watershed and grow sakau at lower elevations outside of the watershed. Each year CSP targets 20 individuals farming in the upland forest to move to lower elevations in exchange for receiving sakau seedlings. In 2009, lack of funding resulted in a hiatus in the project, but in 2014 the "grow low" activities started again.

54. ***SLM Monitoring***: Monitoring of landscape change in the FSM is that component of SLM that is currently most limited in extent and application, and where local skills to perform this function are most scarce. One important contributor to this situation is that knowledge of and the application of GIS in SLM and PA monitoring and management planning is not widespread or actively mainstreamed. Lack of trained practitioners, lack of software and capable computers; poor access to spatial information and poor quality of existing spatial data; and, the lack of an overarching national policy framework and data standard for spatial data collection and management, all contribute to the status quo. A spatial context or framework for the implementation of SLM does not exist, which limits the ability of National and State governments to asses the scale and extent of SLM problems, plan strategic interventions, and to monitor the impact of interventions.

55. Pohnpei State DEA and CSP (through SOPAC) have conducted training courses and raised awareness around GIS and remote sensing with relevant stakeholders. The skills and knowledge acquired

from this training together with additional training specific to addressing land degradation is expected to complement efforts to promote SLM. This includes the capacity to map degraded areas from the effects of clearing, fire, invasive species, soil and coastal erosion, landslides, water storage and others. Emerging from this initiative was the creation of a national GIS forum aimed at promoting communication and co-operation between GIS practitioners in the FSM. This forum had one national meeting in 2013 but since then lack of secretariat and funding have limited formal activity of this forum.

56. Spatial information with which to plan strategic interventions and monitor outcomes is massively constraining for SLM. Prior to 2008, the USFS, NRSC and TNC generated important baseline datasets (e.g. vegetation, reef and soil maps) and have conducted some landscape change analysis (e.g. mapping of landslides or fires, forest clearing on Pohnpei from 1975-2002). More recently the CSP and Pohnpei DEA Division of Forestry have monitored clearing for sakau cultivation in the Pohnpei watershed between 2008-2012. Elsewhere there are no change detection or monitoring programs. NOAA and the USGS through the NRCS have made available 2014 high-resolution satellite imagery for the whole of the FSM, however, few have computers or software able to view this imagery, and there are no plans for interpreting this imagery for the purposes of SLM or INRM.

57. ***Sustainable SLM Finance:*** Several novel mechanisms for sustainable SLM financing are currently being piloted in the FSM. In the first project, the MCT is supporting the development of a sustainable financing mechanism at the State and community level for SLM through a Payment for Ecosystem Services (PES) scheme around water in Pohnpei. This scheme plan to introduce a source of sustainable funding for SLM implementation at the R2R-scale through the creation of the Nett Watershed Fund. A recent feasibility study demonstrated stakeholder support for the establishment of a water fund to collect revenue for use by landowners to improve watershed management on private land. TNC and CSP surveyed 445 water providers and 305 downstream water users within the Nett Watershed, finding that 99.5% of all respondents would like a PES program to be established[22]. The willingness of upstream providers to implement SLM practices is high and this scheme could fund long-term watershed management. The PES scheme proposes that water beneficiaries pay at least $0.005 per gallon of water, which would generate in excess of $400,000 per year to support improved watershed management. A key partner in this PES is the Office of Fisheries and Aquaculture that will use a levy from the supply of fresh water to fishing vessels to capitalise the fund. Other suggested sources of SLM and PA funding related to the PES or “Green Fees” that have been successfully implemented in its neighbouring Palau and that are supported by the majority of stakeholders locally include an airport departure fee, Pohnpei Utilities Corporation tariff, tourism levy, and government tax.

58. Another promising financing initiative started in 2014 involving the Awak Youth Organization supported by the MCT and the Conservation Society of Pohnpei established the Piggery Waste Management Revolving Fund. The first of its kind in the FSM, the fund will be used to renovate piggeries to a dry litter system and producing compostable material for sale. Some of the proceeds from these sales will return to the fund. The aim of the revolving fund is to provide accessible finance to enable reduction or elimination contaminants from piggeries into local streams and shoreline.

[22] Kastl, B., Joseph, E., Obisop, F., & Andreas, R. (n.d.). Payment for Ecosystem Services Feasibility Study: Stakeholder Interest Survey Results and Recommendations. The Nature Conservancy and the Conservation Society of Pohnpei.

Institutional Context

59. Ownership of land and aquatic areas (up to the outside of the barrier reef) varies between the States. In Kosrae and Pohnpei, land is both privately and State owned, while aquatic areas are managed by the State as public trusts. In Chuuk, most land and aquatic areas are privately owned and acquired through inheritance, gift, or more recently, by purchase. In Yap almost all land and aquatic areas are owned or managed by individual estates and usage is subject to traditional control. These land and aquatic tenure systems have a critical bearing on the strategies and actions required to sustainably manage the biodiversity and ecosystems of the islands. The responsibility for environmental issues is shared between the FSM National government and the individual State government departments. The sharing of responsibility has at times resulted in the duplication of legislation at the State and National levels. It also resulted in gaps in legislation and areas in which the location of responsibility between National and State governments has been less than clear.

60. Each State has made efforts to manage development and natural resources through the creation of land use plans, coastal zone plans, legislation and regulations. The National Government provides guidance and technical assistance to the States when needed and requested on matters related to planning, development, natural resources, fisheries and the environment.

61. Each of the four States enacts their own legislation in line with their powers as provided for in the FSM Constitution. At the national level, the President's Sustainable Development Council (SDC) is an interdepartmental council chaired by the Vice President and comprises representatives from: Fisheries, Agriculture, and Tourism Units of the Department of Resources and Development; the Department of Finance and Administration; the Department of Justice; the Department of Foreign Affairs; the Department of Health, and Social Affairs; the Department of Education, the Department of Transportation, Communication & Infrastructure; the National Oceanic and Resource Management Authority (NORMA) and the Office of Environmental Management. A representative each from The Nature Conservancy (TNC) and the Conservation Society of Pohnpei (CSP) also sit on the advisory council. Unfortunately, the SDC have not been active for several years. The functions of the SDC are amongst other things to advise and make recommendations to the President on matters affecting the environmental management and sustainable development of the FSM, with special reference to overseeing global environmental responsibilities and obligations including the Convention on Biological Diversity, the Convention to Combat Desertification and the Framework Convention on Climate Change. The institutional context in the FSM is summarized in Table 3 below. The national level agencies are mainly responsible for policy making, guidance and providing technical assistance and the State-level institutions are responsible for subsidiary legislation development, and monitoring and enforcement.

Table 3. Summary of the key institutions tasked with protected areas and sustainable land management in FSM.

National	Chuuk State	Pohnpei State	Kosrae State	Yap State
Terrestrial biodiversity and ecosystems				

Department of Resources and Development, Division of Resource Management and Development, Agriculture Program (R&D) Office of Environment and Emergency Management (OEEM)	Department of Agriculture	Department of Land and Natural Resources, Division of Forestry Office of Economic Affairs, Office of Agriculture	Kosrae Island Resource Management Authority, Division of Forestry Department of Resources and Economic Affairs	Department of Resources and Development, Division of Agriculture and Forestry
Marine biodiversity and ecosystems				
Department of Resources and Development, Division of Resource Management and Development, Marine Resources Program (R&D) Office of Environment and Emergency Management (OEEM)	Department of Marine Resources	Department of Public Safety, Division of Fish and Wildlife Office of Fisheries and Aquaculture	Kosrae Island Resource Management Authority, Division of Marine Conservation	Department of Resources and Development, Marine Resources Management Division
Environmental quality				
Office of Environment and Emergency Management (OEEM)	Environmental Protection Agency	Environmental Protection Agency	Kosrae Island Resource Management Authority	Environmental Protection Agency
Non-governmental organizations				
Micronesia Conservation Trust (MCT) The Nature Conservancy (TNC)	Chuuk Conservation Society (CCS)	Conservation Society of Pohnpei (CSP)	Kosrae Conservation and Safety Organization (KCSO) Yela Environment Landowners Association (YELA)	Yap Community Action Program (YapCAP) Yap Institute of Natural Sciences (YINS)

62. Environmental management in FSM is characterized by unclear roles and responsibilities amongst the large group of role-players in the sector (Table 4). There are three levels of government in the FSM sharing legal responsibility for environmental issues - the FSM national government; individual FSM state governments (Pohnpei, Chuuk, Kosrae, and Yap); and, Municipal Governments. NGO's and CBO's (e.g. traditional community leadership structures) are also involved in environmental management, but their level of involvement varies between States and they have no legal mandate to proclaim PAs or environmental ordinances in terms of FSM legislation. Each state, as owner of its surrounding natural resources out to 12 nautical miles, manages these resources through policies and plans (e.g., land use plans, coastal zone plans, legislation and regulations).

63. The national government provides on request guidance and technical assistance to the states, and manages the resources from 12 to 200 nautical miles. The national government also signs the multilateral conservation and environment commitments such as the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC). The national government applies for and receives funding for enabling activities (e.g. development of National Biodiversity Strategies and Action Plans (NBSAPs), National Reports, trainings/seminars, policy and legislation development, leveraging and matching contributions). The national government also works with international development partners to set priorities (e.g. SPREP, SPC, FAO, UNDP)[23].

64. The Municipal governments can be involved in PA creation (e.g. issuing ordinances as in Chuuk) and in PA management, i.e. enforcement and monitoring. The clarity or effectiveness of this governance structure on environmental management has, however, proven questionable. For example, jurisdictional and ownership challenges on natural resources can arise between Municipal and State governments (e.g. the Madolenihmw Municipality in Pohnpei, for instance, formed a recent partnership with a foreign company to harvest sea cucumbers on Madolenihmw reefs without first obtaining the proper permits from the state government). The sharing of stewardship responsibility has at times also resulted in duplicate legislation at the Municipal, State and National levels. Additionally, it has led to gaps in legislation and enforcement/management due to lack of clear delineation of respective roles and responsibilities at all government levels. In other situations the involvement of Municipalities in PA law enforcement has been beneficial especially through enforcement of municipal environmental ordinances and also municipalities have access to additional resources for PA management. Often the national government does not provide tangible (policy/legislative and funding) support to the states for their PA and conservation laws.

65. Recognizing these difficulties, the FSM National and State leaders, as well as customary chiefs/local communities, have made some effort to streamline their work toward meeting their mutual goal of ensuring effective protection of natural resources. For example, in Pohnpei, CBOs, local NGOs, and State and Municipal officials come together annually to review, discuss, and revise PA management plans throughout the State in a process called the *Protected Areas Cross-Site Visit*. In addition to government agencies and NGOs, local communities and community organisations are active role-players in managing most of the FSMs PAs thereby creating a diverse web of interrelated actors.

Table 4. Summary of unclear roles and responsibilities of role-players in SLM and PA management.

Role and Responsibility	Capacity	Description of Unclear Roles/Responsibilities
National		
Limited by the Constitution to a coordination and facilitation role in support of State efforts, through the R&D. Provides technical assistance and financial funds as requested by State agencies. Also responsible for coordinating all State activities related to or initiated through foreign assistance. E.g. National Level PAN	R&D is staffed with trained professionals. However limited budget and staff spread thin limits engagement with State agencies and PAs. Organizes and leads trainings, but in the absence of a comprehensive framework for PA management training sometimes overlap with other offerings or are not matched to specific needs. Many	Shared responsibility for legal and policy frameworks with States; duplicate legislation at the State and National levels as well as gaps in legislation and enforcement/ management due to lack of clear delineation of respective roles and responsibilities. National government does not always provide tangible

[23] Rose, J. (2004). Pohnpei Watershed Management: A Case Study of Legal and Institutional Reform for Co-Management in the Pacific.

Role and Responsibility	Capacity	Description of Unclear Roles/Responsibilities
Coordinator (currently R&D) collects information on PA management from State agencies and reports to MC Chief Executives. Signs international conventions committing the FSM to biodiversity conservation efforts.	commitments at the National level dilutes staff time and activities, for example staff frequently traveling to conferences, meetings related to FSM involvement in international conventions.	(policy/legislative and funding) support to the states for their PA and conservation laws. Supposed to be primary coordinator with international organizations, however sometimes international groups work directly with State agencies.
State		
Responsible for the process of legally gazetting PAs and demarcation of PAs through State legislatures. Set policy and draft legislation related to PA management. Provide assistance for PA management, specifically: serve on GIS data collection; interface between the communities, Municipalities, and local NGOs and the National government; as well as other development and conservation assistance organizations. Attends capacity building trainings with universities, local and international NGOs and community members on socioeconomic, management, and biological assessments and then works with teams to conduct monitoring. State Focal Point PAN coordinators responsible for reporting on PA management to National PAN coordinator. SLM activities, e.g. food production and processing, dry litter, composting, coconut replanting, invasive species control are conducted by several Departments and NGOs (Collage, Agriculture Office, NRCS.	Varies per State, in general R&D State agencies lack adequate staff to perform all required duties for PA management (number of staff, presence of qualified and trained staff); budget (money for equipment, travel); and in some cases lack of leadership to fulfil their mandate. Consequence is sporadic and inefficient engagement with PA management teams on the local level, limited capacity for enforcement, monitoring and evaluations, and public education and other awareness campaigns. In some States, (Pohnpei, Chuuk) local NGOs and development and conservation groups such as RARE step in to varying degrees to take on activities that would have been conducted by the State. All of the Departments and NGOs have limited capacity and funding, which allows only for limited activities.	Shared responsibility for legal and policy frameworks with the National government; duplicate legislation at the State and National levels as well as gaps in legislation. Also responsible for budget allocations for PA management, monitoring and enforcement activities. As shown in table 7.a below many State agencies involved, creating an unclear delineation of respective roles and responsibilities between State agencies, communities, and NGOs. For example one State agency may be responsible for enforcement, while another for conducting monitoring. Unclear responsibility for enforcement between State and municipalities; local NGOs sometimes draft PA-related legislation/regulation on behalf of State agencies. There is a need for better sharing and coordination of activities amongst the different Departments and NGOs
Municipality		
Lack of a clearly defined consistent role for Municipalities across the FSM. Municipalities can introduce legislation to create new PAs or modify existing ones, but the process does not have to always involve them since various other State agencies can champion PA creating modifications or legislation. Invited by communities/NGOs/State agencies to be involved in PA management, but involvement is not mandated. Can support PA	In general, Municipalities have competing priorities that can lead to little interest / support in PA management. This can be due to a lack of consistent leadership in conservation efforts, a lack of general awareness of the value of conservation, and/or an emphasis on economic development that may conflict in the short-term with the goals of PAs. As a consequence, municipalities may not fully buy into PAs. Not all people have a good understanding of the need to protect the	Municipal structures overlap to varying degrees with traditional community governance structures. In some cases Municipal officials are involved in PA management as they are also active members of the communities surrounding PAs. In other cases Municipal officials may be less involved. Municipalities have economic and development stakes in natural resource management that may conflict with the long-term goals of PAs. Can provide a challenge to State

Role and Responsibility	Capacity	Description of Unclear Roles/Responsibilities
enforcement for example in watershed demarcation and enforcement.	watershed or conservation generally and therefore not all Municipalities agree on, for example, watershed demarcation.	authority such as the case of the Madolenimw Municipal government mentioned earlier. In some Municipalities leaders are not clear about their roles and responsibilities
Community		
In the FSM, many PAs are community led/managed. NGOs and State agencies work with community members to start PAs in areas with of identified biological significance. Community leaders involved in generating community buy-in. Work with local NGOs/State agencies to monitor and enforce existing PAs. Continue to be the traditional stewards of the PAs and surrounding areas. Participate in the drafting of community-driven PA management plans, with input from local NGOs/State. Community and Community leaders play a major role in the implementation of SLM activities, for example they provide land and participate in demonstrations	Has limited knowledge and capacity to manage PAs, but in some cases lack incentives and awareness to protect and conserve resources. Leadership capacity and commitment is key to PA creation and long-term management. PA management by community members is mostly unpaid or volunteer. Due to limited capacity and other priorities, long-term commitment can be lacking.	As most PAs are Community-managed, work with NGOs, municipalities, and State agencies on biological, socioeconomic, and PA management practices monitoring. Can either be formally involved in enforcement as members of state-led enforcement staff or informally, such as in creating community pressure to deter violators. Share responsibility with NGOs/State to raise capacity and awareness among own members. The overlaps in responsibilities and initiatives can create confusion as to which group (Community, NGO or State) is responsible for a given task. The community must be aware and agree to their role and responsibility.
Local NGOs		
In the absence of strong State engagement (excepting Kosrae), NGOs are the main implementing partners for PA management. Partners with communities and State agencies for management and planning. Partners with State, international/regional development and conservation organizations to deliver technical assistance and secure funding for PA activities including monitoring and enforcement. Key role in progressing the establishment of new PAs and legal status, where applicable. In some cases NGOs draft legislation on behalf of State and reviews / analyses monitoring data and provides management recommendations. They also do invasive species control such as in Pohnpei CSP has been actively involved in invasive species eradication and control for the last 12 years. Island Food Community of Pohnpei (IFCP) is providing information on local food production, consumption, preservation and health benefits with the aim to	Highly committed to their mission. In general, underfunded, understaffed and overextended. Lack of quality training and qualification of staff are questionable in some organizations. Issues securing consistent funding for PA management. Lack of necessary equipment and resources to fulfil mission, but overall functional. Due to limited and unsecured funding some of the NGOs have had to down size staff and activities. People working on invasive species have been trained on the job although a background in botany or agriculture is missing. IFCP as with all NGOs has only limited human and financial resources to contact their activities	Shares responsibility for PA creation with community leaders and State agencies, can take a lead role in generating community support for PAs (meeting with leadership, building buy-in) instead of the relevant State agency. Provides training/support to both community and State agencies (i.e. workshops on data collection and/or effective PA management strategies). This can create confusion between its role and that of the State. In Pohnpei there is a lack of coordination between NGO's and Forestry Division and others. There is a definite need for better communication, cooperation and support with Government.

Role and Responsibility	Capacity	Description of Unclear Roles/Responsibilities
reduce Non-communicable diseases like diabetes.		
International and Regional Conservation, Research or Development NGOs and organizations		
Work with National government to set priorities and action plans for protecting biodiversity and the environment, provides technical assistance (i.e. UNFCCC; UNEP, UNDP; SPREP; SPC, FAO) administers financing for PA management (MCT); organize regional forums/efforts for conservation (MC Office). Conduct scientific research, biodiversity inventory and monitoring, provide training, organize workshops, and facilitate learning networks. Provide assistance with Development of Sustainable Land Management by improving soil management and agricultural practices. Some of the International or Regional Organisation can provide assistance in specialized areas, e.g. pest survey or training. Provide assistance with improvement of animal and human health by introducing dry litter piggery.	High levels of technical knowledge and PA management expertise. Provides financial resources to the National level, State level, and to local NGOs depending on program/context.	While the National government is responsible for taking the lead in working with these groups, they can and do work directly with States and local NGOs, which can lead to confusion and overlap. The financial and technical support that comes through these groups can involve complicated contracts, requiring multi-year commitments and reporting that can stretch the capacity of recipients.

66. Currently regional co-operation and learning networks are facilitated through two important and active networks - PIMPAC and MIC. These networks will play an important role in realising the regional goals of the R2R project.

67. The **Pacific Islands Managed and Protected Areas Community (PIMPAC)** is a network of site based managers, non-governmental organizations, local communities, federal, state, and territorial agencies, and other stakeholders working together to collectively enhance the effective use and management of managed and protected areas in the U.S. Pacific Islands and Freely Associated States. PIMPAC includes the State of Hawaii; the three U.S. Territories of American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands (CNMI); the Freely Associated States of the Republic of Palau, the Federated States of Micronesia (FSM), and the Republic of the Marshall Islands (RMI).

68. PIMPAC targets capacity building for effective site-based and ecosystem-based management through: 1) Training and Technical Support, 2) Learning Exchanges, 3) Partnership Building, 4) Communications/ Information Sharing, and 5) Coordination and Funding. As a social network, PIMPAC aims to build partnerships among Pacific Island site based practitioners and to bring support to the region in order to strengthen planning, implementation, and monitoring efforts and conserving the marine and terrestrial resources of the Pacific Islands.

69. Administration of the PIMPAC-Micronesia program is facilitated by the MCT, with focused assistance to RMI, the FSM, Palau, Guam, and CNMI. The NOAA Fisheries Service – Pacific Island Regional Office facilitates and coordinates PIMPAC activities in Hawaii and American Samoa.

70. The **Micronesians in Island Conservation (MIC)** is a peer-learning network created for conservation leaders in government agencies, non-governmental organizations (NGOs), and local/regional initiatives. The purpose of MIC is to strengthen the collaborative, organizational, technical, and policy skills of leaders and organizations to leverage financial and human resources to ensure effective management of local conservation organizations and initiatives for greater conservation impact across Micronesia. MIC contributes to advancing major local, national, and regional conservation initiatives - protection of priority conservation areas, development of Protected Area Networks (PANs), and implementation of the MC. The MIC Network includes heads of government agencies, non-government organizations, and academia leading work focused on natural resource management. Annual retreats rotationally held in the island jurisdictions provide MIC members the opportunity to share and learn about conservation programs, activities, and tools in Micronesia; learn about the status of regional conservation efforts and discuss best ways to progress those efforts; develop or re-assess individual professional and organizational goals, explore and participate in leadership development exercises, and rejuvenate interest, ability, and commitment in conservation work in the company of fellow conservationists and leaders.

Capacity Constraints

71. Capacity constraints compounds the challenge of effectively managing PAs, including monitoring, enforcing, and communications to PA stakeholders. They include limited human capacity such as project management and financial management skills; technical knowledge; inadequate financial and readily available resources to respond to both immediate and long-term needs; and a lack of a comprehensive institutional framework for PA management. For example, one of the challenges shared by the states is the bottleneck created by government procurement processes – grants coming through the national and state governments at times do not arrive in a timely manner, holding up activities.

72. Throughout the FSM at the State-level, regulatory agencies have limited capacity to implement fully the existing legislation and policy, monitor, conduct enforcement activities, and provide training to community and local-NGO PA management teams. The State level has significant responsibility and the legal mandate to administer PAs, but in general and in practice many agencies lack adequate staff, resources, and time to fulfil their mandate. Research and anecdotal evidence points to chronic low levels of staff, with limited ability, leadership and political will to fulfil job requirements as a common feature of many State agencies. Compounding this problem is a general issue of staff retention and turnover[24]. In addition, as a result of donor and Government initiatives, such as the MC, existing staff is tasked with increasing levels of reporting requirements that further stretch limited resources. As an example, the FSM's State-Wide Assessment and Resource Strategy 2010-2015+ reported "Forestry staff currently finds it difficult to both carry out work under performance based budgets as well as to accommodate these additional programs and visitors."[25]

73. Financial resources also limit the engagement of State agencies in PA management. As an example, the MC project document points to limited financial resources as a main impediment to effective

[24] Micronesia Challenge (2010) Sustainable Finance Systems for Island Protected Area Management Project Document. United Nations Environment Programme, Global Environment Facility

[25] Federated States of Micronesia. (2010). State-Wide Assessment and Resource Strategy 2010-2015+. Federated States of Micronesia and the United States Forest Service.

State-level management and monitoring of marine resources: "*In the islands, the main reason for limited or lack of monitoring is not the lack of policies but the lack of financial resources to obtain and maintain boats, pay for fuel, cover salary and even build the needed skills to effectively carry out monitoring work.*"

74. Given the overall weak capacity of State agencies in PA management, it has been community and local NGO-led initiatives that have facilitated the management of PAs. Local communities are the groups most directly impacted by PAs and therefore have the highest stake in PAs. As described in below (Legislative Framework - PAs), they are responsible for proposing and championing the establishment of PAs. Dahl and Raynor studied Pohnpei's watershed management and provides a succinct summary of the importance of community management, applicable through the FSM: "*Community-based management promises local control over spatially discrete resources that are considered to legitimately "belong" to that community. It is a process of lending the power now vested in juridical-bureaucratic government to much more long-standing socio-political units. Power is not precisely vested in authority; rather, in Pohnpeian fashion, authority—the traditional chiefs—symbolizes the return to communities of autonomous, consensus-based decision-making over things of substance. The approach is in a sense an act of reconciliation—it draws on and reconfirms those aspects of both political systems that are considered legitimate.*"[26]

75. A lack of capacity at the community level therefore has a significant impact on effective PA management. Community members involved in PAs are mostly volunteers, and not necessarily trained in project management, conservation, monitoring or enforcement. Where training is available, it is *ad hoc* and inconsistent, and in some cases there is a lack of clear understanding and commitment to the benefits of PAs, particularly when compared to short-term economic considerations (i.e. building roads or commercial fishing).

76. The lack of financial capacity further inhibits PA management at all levels. As has become apparent in the MC initiative, the most significant barrier facing conservation is the lack of reliable, adequate, and targeted financial resources. As noted in an MC report: "*An increase in protected areas and in ecosystem-based management requires an appropriate match in resources. The cost of management is accompanied by numerous opportunity costs, as well as benefits, that involve more than a simple project-based funding cycle. Mainstreaming costs and responsibilities into National and State budgets is also required. This will require close harmonization of policies, as well as development, investment and financial planning processes. Identifying the real costs of conservation and providing the required responses and incentives, as well as providing means to capitalize on benefits, is the principle issue facing the sustainability of the Micronesia Challenge.*"[27]

77. Data collection, storage and analysis has also proven to be a major constraint to PA management. There is limited capacity within State agencies to develop, implement, analyse and communicate conservation related data[28]. As described above, both the State and the community share responsibility for data collection and monitoring activities with NGOs while academic institutions provide the necessary technical training and database assistance. The MC and others have conducted preliminary work to establish protocols for monitoring freshwater, mangrove, and upland ecosystems. However, data collection teams from each FSM state need adequate training on each existing protocol as well as any new

[26] Dahl, C., & Raynor, B. (1996). Community-Based Watershed Planning and Management on the Island of Pohnpei, Federated States of Micronesia. Asia-Pacific Viewpoint, Vol. 37: 235-253.
[27] Micronesia Challenge (2010) Sustainable Finance Systems for Island Protected Area Management Project Document. United Nations Environment Programme, Global Environment Facility.
[28] (2014). Socioeconomic Monitoring in FSM Concept Paper

ones[29]. In addition to biophysical monitoring, efforts are also initiatives underway to conduct socioeconomic monitoring of PAs. Socioeconomic monitoring involves gathering demographic and economic data from areas surrounding PAs, as well as information about the levels of knowledge within nearby community levels about PAs. Socioeconomic monitoring also gauges the attitudes and perceptions about PAs in the surrounding area. The goal of socioeconomic monitoring is therefore to track social and economic factors, but it too relies on having sufficient and trained personnel to conduct monitoring activities and to interpret the data and develop them into reports and graphics that can be understood at different decision making levels (e.g. community, municipality, state, national and regional).

78. Data should be used to inform policy decisions at the State level, influence the distribution of resources, and be used in PA management in general. For example, a recent monitoring activity conducted by The Nature Conservancy resulted in recommendations to increase the size of some PAs to better protect fish species, noting that 15 of the 18 marine PAs studied in Pohnpei were too small to protect key fish species[30]. However, this lack of general capacity at both the State and community levels to collect and use data remains a significant impediment to implementing effective education and public awareness campaigns, as well as communicating with key policy decision makers to support necessary adaptive management.

79. Capacity constraints affect the Municipal level as well. As there is no clear framework that guides the management of PAs, at times Municipal governments do not enforce PA laws. This can happen because if there is a judgment/fine against a perpetrator and a case is filed at the State level, the state will keep the entire fine and not share some of it with the Municipal government, which spent resources building the case and prosecuting it. There is a need to put in place a PA framework that establishes and delineates responsibilities between all stakeholders in order to improve PA management and ensure equity when fees/fines are assessed to violators.

80. While capacity constraints limit the ability of State and communities to effectively manage PAs, both are crucial for the success of conservation initiatives. The State is responsible for gazetting PAs and setting the legal demarcation of PAs. The State also is responsible for creating policy and drafting legislation related to PA management. The State is tasked with providing assistance for PA management (monitoring and enforcement); serving of GIS data groups and interfacing between the community groups, Municipalities, and local NGOs which oversee daily PA management. The State also serves as the main point of contact with the National government as well as other development and conservation assistance organizations. For example, State Focal Point PAN coordinators are responsible for reporting on PA management and progress to the National PAN Coordinator. These are crucial functions that support the ability of communities and local NGOs to create and manage PAs.

81. At the local level, community involvement in PA management is seen as a key factor to PA effectiveness. Initial top-down approaches to conservation and natural resource management throughout FSM were found to be ineffective. Experience within FSM shows that the input and buy-in from the communities that own and steward the land and marine areas in question, with consistent technical support from NGOs and government agencies, is a prerequisite for conservation programming. For example, following the failure of initial State-led efforts to conserve watersheds in Pohnpei, later efforts in the 1990's: "*Centred on the promotion of community-based management regimes which combine local*

[29] MacKenzie, R. A., Giardina, C. P., Cordell, S., Lehman, A., Friday, K., Smith, S., & Fischer, a. C. (2014). Scope of Work for Terrestrial Monitoring: Designing and implementing effective protocols to monitor conditions in designated terrestrial conservation areas under the Micronesia Challenge. US Forest Service Consultants.
[30] The Nature Conservancy. (2014). Draft: Review of existing MPAs using fish movement in Pohnpei.

community and traditional institutions with municipal and state governments, through local Watershed Area Management Committees. Initial results of this approach are encouraging, and while the process is long and complex, the outcome is anticipated to be more sustainable than regulatory solutions."[31]

82. An additional example of how Micronesian communities are taking an increasingly institutionalized role in resource management comes from the Micronesia Challenge-commissioned study of Piis-Paneu in Chuuk, Advancing the Micronesia Challenge through Community-Based Management of Marine Resources in Piis-Paneu, Chuuk: "*In a place where income opportunities are scarce (91% of fishers report no alternative income opportunities), 80% of households in Piis-Paneu depend on the commercial exploitation of marine resources as their main source of income. The traditional management of these marine resources (associated with reef ownership and temporal closures) has eroded over the last decades. Simultaneously, modern marine resource management at the state level has failed to materialize. Under this scenario, the reefs of Piis-Paneu municipality are today de-facto fully open, with virtually no limitations on exploitation. The community of Piis-Paneu is fully aware of the ongoing depletion of their marine resources, and widely recognizes the need for improved management. Most fishers and reef owners see a return to stronger traditional community-led management (including closures and limits to outside fishers) as the best option forward. With the goal of beginning the development of a comprehensive management plan for the marine resources of the municipality, the community has already formed a management plan committee.*"[32]

83. As described in the above example from Chuuk, economic incentives can run contrary to conservation initiatives. In the face of this reality, the lack of capacity at the community and State levels to conduct community education campaigns is significant. Data collected from PAs that can demonstrate the economic and social benefits of biodiversity conservation should be included in public awareness campaigns and in targeted communications to policy makers at the State and National levels.

84. Finally, compounding the lack of capacity at the State and community levels is the overall absence of a clear and consistent institutional framework for PA management. Specifically, there is not a structure in place that orders and links the work of actors at all levels to clarify the workflow between community management organizations, local and regional NGO partners, state Resource and Development (R&D) agencies, the national R&D department, development partners (e.g. Secretariat of the Pacific Regional Environment Program (SPREP), Secretariat of the Pacific Community (SPC), Pacific Islands Forum (PIF)) and international NGOs and donor organizations.

85. With regards to SLM activities there are several capacity constraints. Both the State Agriculture Departments and the FSM Collage of Micronesia implement agricultural extension services, which are limited by staff and resource (finance and equipment) constraints. For example, in Pohnpei there are four extension agents from the Collage, all of them are at their retirement age, however, there has been no recruitment or training of new extension officers for the last 20 years. State Agriculture has very limited financial resources that are reducing annually. With the development of farming to include traditional crops like taro, yams, banana, and novel crops/cropping methods like cucumbers, beans, tomato, farmers have lack of knowledge on the requirement of soil fertility, crop rotation, pest control and post-harvest management highlighting a clear need for active agricultural extension services. There are few agricultural specialists or experts in the FSM. For example, there are no entomologists, plant pathologist, veterinarian

[31] Worte, O. L. (2010). Fourth Country Report from the Federated States of Micronesia to the United Nations Convention on Biological Diversity. United Nations Support to GEF Eligible CBD Parties (GFL/2328-2716-4A82).

[32] Cuetos-Bueno, J. (2012). Advancing the Micronesia Challenge through Community-Based Management of Marine Resources in Piis-Paneu, Chuuk. Saipan: Pacific Marine Resources Institute.

and agricultural economists. Only the FSM Collage currently has one foreign agronomist in each of the States. Access to agricultural inputs such as seed and fertiliser is very limiting. In Pohnpei the State Agriculture Department is selling a limited variety of seed, fertilizer and animal medicine. In other States farmers have to arrange their own supply either from Pohnpei, Guam or USA. With the changing social-economic dynamic of the FSM resulting in essentially the urbanisation of citizens. Young people are seeking higher education and blue-collar employment rather than following in the family agricultural activities. Consequently, availability of labour to implement SLM activities can be a constraint.

Biodiversity Monitoring

86. There are various monitoring and data collection activities that are on-going in the FSM as part of the country's MC activities, in particular biological monitoring. Additional examples not already cited include fish count studies in the States[33], commercial coral-reef fisheries studies[34], rapid ecological assessments of biodiversity and status covering parts of the overall marine and terrestrial ecosystems[35], and specific studies of certain species[36]. By looking at the individual studies throughout the region, general conclusions can be drawn, as was done in 2009 for the Blueprint for Biodiversity Conservation in the FSM, which identified ABS sites throughout the country. For example, through the standard monitoring datasets there are some data for the humphead or Napoleon wrasse (*Cheilinus undulatus*) with approximately 20 sites across surveyed across the FSM[37]. However, the measurement techniques used in these studies are not geared for sampling rare species, but rather looked at all food/functional fish and an assessment of the ecosystem in general. Thus, while there is some data for a baseline of this particular species, a focused assessment of humphead wrasses would be needed in order to set a scientifically rigorous baseline.

87. In general there is not a comprehensive overall picture of the FSM's biodiversity, including user-friendly information about what it is, where it is located, what is endemic, what is its current status and International Union for Conservation of Nature (IUCN) threat status. Part of this problem is related to the fact that information is not systematically collected and analysed at a state or national level.

Protected Area Finance

88. Financing the management of PAs in the FSM, and throughout the Micronesia region is a challenge. In order to meet this challenge efforts through the MC are already underway, and should be supported by the R2R project for the FSM in particular. For the MC, signatory countries have already developed a Regional Sustainable Finance Plan which includes the projected costs and funding plans to meet the MC target of effectively conserving at least 30% of the near-shore marine and 20% of the terrestrial resources across the region by 2020[38]. The MC Regional Sustainable Finance Plan is derived

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[33] Allen, G. R. (2005). Final Report: Reef Fishes of Pohnpei, Federated States of Micronesia. The Conservation Society of Pohnpei; Allen, G. R. (2007). Final Report: Reef Fishes of Yap, Federated States of Micronesia.

[34] Houk, P., Rhodes, K., Cuetos-Bueno, J., Lindfield, S., Fread, V., & McIlwain, a. J. (2012). Commercial Coral Reef Fisheries Across Micronesia: A Need for Improving Management. Coral Reefs, Vol. 31: 13-26.

[35] Turak, E., & DeVantier, L. (2005). Reef-building corals and coral communities of Pohnpei, Federated States of Micronesia: Rapid ecological assessment of biodiversity and status. Conservation Society of Pohnpei.

[36] Houk, P., Golbuu, Y., Gorong, B., Gorong, T., & Fillmed, C. (2013). Watershed discharge patterns, secondary consumer abundances, and seagrass habitat condition in Yap, Micronesia. Marine Pollution Bulletin, Vol 71, Issues 1-2: 209-215.

[37] Peter Houk pers. comm.

[38] Walsh, S. and Stege, M. 2012. Funding The Micronesia Challenge: A Regional Plan For Sustainable Finance. Part 2 of 3 of The Micronesia Challenge's Sustainable Finance Project. Carried out for the Micronesia Challenge Regional Coordination Office with the financial and technical assistance of Micronesia Conservation Trust and The Nature Conservancy. December 15, 2010 (Updated February 27, 2012)

from the Sustainable Finance Plans of all five MC jurisdictions, including the FSM. It was endorsed by the Micronesia Chief Executives at their March 2012 Summit. In general, the financing plans for the region include funding for activities and endowments from Government budgets as well as international donor and project money gathered through fund raising activities and proposals. In order to ensure sustainability there has been a focus on building endowments, that once fully endowed can perpetually contribute to the funds available to National and State PA management activities.

89. As stated above, each MC jurisdiction is responsible for their specific Sustainable Finance Plan. Individual country plans are required that reflect individual country context and PA management strategies and requirements, and how these are translated into country-specific MC activities. In order to assist the FSM to develop and implement their own Sustainable Finance Plan, the UNEP GEF launched the "Micronesia Challenge: Sustainable Finance Systems for Protected Area Management in 'Micronesia Challenge' States" project in 2011. This project was specifically designed to support the FSM (as well as the Republic of the Marshall Islands and the Republic of Palau) to establish sustainable finance systems and policies by 2015 to ensure sufficient resources required to abate threats to marine and terrestrial biodiversity and effectively manage each protected area.

90. To date, significant progress has been made by the Project, including the creation of a Sustainable Finance Plan for the FSM that details the amount of money anticipated through government budgets, and the amount of government and additional funding needed to create an endowment to cover budget shortfalls. The FSM has begun taking steps to meet its environmental and financial goals for the Micronesia Challenge, but needs to raise at least $3.6M per year over the next seven years to ensure this success. The R2R project should wherever possible support efforts towards meeting the goals of the existing FSM sustainable finance plan. Below is a summary of the FSM's progress towards meeting its financing goals as of June 2014.

91. FSM's estimated annual budget to achieve the MC conservation goals is $4.4 million per year, based on annual budgets estimated by each of FSM's four states – Chuuk ($1.5M), Kosrae ($0.5M), Pohnpei ($1.3M) and Yap ($0.7M) – plus an additional $0.4M per year for national coordination costs. FSM estimates that it has funding for nearly $1.0M of its current expenses. The MC Sustainable Finance Plan identified another $1.0M in potential annual funding, including U.S. Compact Environment Sector Grant Funding ($460K), Visitors Fees or Fishing Licenses ($400K), and grants from Micronesia Conservation Trust ($100K), Sustainable Land Management Projects ($60K), and the U.N. Global Environment Facility's Small Grants Program ($60K). Finally, the project designated an additional $668K in expenses (including the $0.4M per year for national coordination costs) as "non-endowment" funding. Therefore, FSM faces a $1.6M remaining gap per year for the activities it deems necessary to achieve effective conservation under the Micronesia Challenge (Figure 1).

92. The MC Sustainable Finance Plan assumes that this $1.6M funding gap will be met by raising a $33M endowment fund for FSM that can disburse 5% of the fund per year to support FSM's conservation activities. FSM has already begun building this endowment, with pledges of $1M each from The Nature Conservancy (TNC) and Conservation International (CI). TNC contributed $0.5M of its pledge in 2010 to match a $1.68M grant from the UN Global Environment Facility, and another $0.5M in 2013 to match a $250K contribution from the FSM government.

93. Kosrae's Yela Reserve established a $520K endowment in 2014, bringing FSM's total endowment to more than $4.1M. Conservation International is expected to contribute its $1M pledge this year. FSM can reach the endowment's $33M goal by raising $3.6M per year from 2014 to 2020. One way to meet

this fundraising goal would be for FSM to contribute $1.2M per year from fisheries licensing revenues and find matching donations for the additional $2.4M per year.

94. The MC Fundraising Analysis identifies and prioritizes potential funding sources for nearly $100M in funding over the next 10 years. Many of these funding sources would be targeted to fund conservation across multiple MC jurisdictions (Guam, CNMI, FSM, Palau and RMI). This will require planning between the MC jurisdictions to approach these potential donors in a coordinated fashion. Furthermore, many funding opportunities have tight deadlines. The MC Steering Committee should therefore act quickly to review these opportunities, coordinate with the appropriate partners, and begin the necessary actions to take advantage of these funding opportunities.

95. The Micronesia Challenge has already laid impressive groundwork to achieve its conservation and financial goals, and the MC Sustainable Finance project has shown how FSM can build an endowment to support these goals. There are more than enough funds available to build FSM's MC endowment. The next step is to accelerate FSM's efforts to raise these funds, and the R2R project should be a partner in this effort by: (1) Improving the legal status of all sites (ie improving PA law and gazetting); (2) Building capacity of individuals and institutions (state and community) to effectively manage PAs; and, (3) Improving PA enforcement broadly. Once indivudual PAs are able to meet the MC endowments criteria as laid out in the FSM Protected Areas Network Policy Framework[39] they will be able to access funds from the endowment for PA management.

96. Membership into the PAN will require each site management unit (defined as the group of people responsible for implementing the Management Plan of a particular protected area. Management Units, depending on the resource tenure of the site, may include state government representatives, NGOs, community members, municipal officials, and/or private resource owners) to put in place reasonable achievable management plans and then conduct activities in support of those plans. Once management plans are in place and the sites join the PAN, then each site is eligible for funding from the FSM Micronesia Challenge Endowment Fund to offset the cost of implementing work within the site. This Endowment Fund is intended to provide an influx of sustainable financing to each site within the PAN. The draft FSM Protected Areas Network Policy Framework and FSM Country Program Strategy for the use of endowment funds outline the processes summarized above, and are expected to be endorsed by FSM Congress within the next calendar year.

97. PES offers novel mechanisms to raise ring-fenced SLM and PA finance. The nascent Nett watershed PES will provide valuable practical insights into the viability of such schemes in the FSM. The R2R project through The Making the Case component should explore and support additional feasibility studies throughout the FSM, and work with OEEM, R&D and other government agencies to identify and adopt PES schemes for SLM and PAs where appropriate.

Legislative Framework - SLM

98. FSM has extensive National and State legislation dealing to environmental management (summarized in Appendix 4). Due to the government structure of the federation with a National Government and four semi-autonomous State governments, each of the four States have their own constitutions, that mirror a greater or lesser degree the national constitution. This structure makes it a

[39] Anon. 2015. Federated States Of Micronesia: National Protected Areas Network Policy Framework

prerogative of each State to enact their own legislation in line with their powers as mentioned in the FSM constitution in terms of sustainable development, land management, and conservation. This overarching constitution, for example, clarifies the National and State Government's roles in implementing the FSM's obligations under the UNCCD. The primary responsibility for land management, natural resource management, and development planning rests with the four individual States of the FSM. The States take the lead role in ensuring that development is avoided in vulnerable areas and ensuring critical natural systems are protected. Although there is still much to be done, most of the States have made initial efforts to guide sustainable development through the creation of:

- Land Use Plans;
- Coastal Zone Plans;
- National Forest Management
- Agriculture Strategic Action Plans

99. In 1992 the FSM Environmental Management and Sustainable Development Council (SDC) was established. The SDC is an interdepartmental and cross-sectoral advisory board established by the President and chaired by the Vice President of the nation. It is comprised of members from the FSMGO offices of DEA (Fisheries, Agriculture, Tourism and Sustainable Development Units), DEHSA, DFA, DOFA, DOJ, TC&I NORMA, Weather Services, and representatives of the COM-FSM, TNC, and the Conservation Society of Pohnpei (CSP). This highlights FSMs commitment to addressing issues concerning sustainable land management. The SDC, however, has not been active for many years.

100. The National Environmental Management Strategies (NEMS) – the nation's first documented environmental strategy – were formulated and launched in 1993 providing a national framework for the FSM to adopt sustainable approaches in addressing several key environmental issues which pose pressing threats to sustainable land management. It adopted a holistic approach in creating cooperation between government agencies to work together towards managing the priority SLM issues. Political commitment was necessary through the development of these policies which focused on the following 4 major strategies in order to promote sustainable economic growth:

- Integrate environmental considerations in economic development;
- Improve environmental awareness and education;
- Manage and protect natural resources; and
- Improve waste management and pollution control.

101. The institutional structure for environmental and natural resource management, including the supporting legislation and regulations, is complex given the mix of three levels of government as well as traditional systems. NGOs focused on conservation and environmental protection is in all four states and there is a trend toward integration of efforts of these groups with traditional leadership and government agencies dealing with natural resources. There is also a distinct emerging trend of community-based organizations becoming involved in the various aspects of resource management. Over the last few years both national and state governments have made a substantial effort to more fully involve NGOs in policy development and projects. This involvement does not extent to financial support for NGOs who still rely mostly on support from foreign donors.

102. FSM is committed to improving environmental legislation, strengthening institutions and increasing capacity building for those agencies (both governmental and non-governmental) responsible for the environment, natural resources and sustainable development. It is also committed to increased community awareness, gender equality, and overall increased actions and commitments for Agenda 21 implementation.

103. There are several gaps preventing the existing legislation from being effectively enforced[40]:

- Many laws are from the pre-1986 Trust Territory times and some of the laws are not relevant any longer. Decade-old Trust Territory pronouncements may not adequately reflect new FSM environmental concerns."
- Lack of enforcement of legislations due to several reasons, e.g. conflict with traditional Pohnpein resources use and authority, (family, friends, community) lack of resources human and financial, lack of trained enforcement officers.
- Lack of clarity as to the roles and responsibilities of each of the agencies involvement in the implementation and enforcement.
- Lack of communication and cooperation between law enforcement officers and Attorneys General Office.
- Lack of public awareness on resource management, e.g. lack of consequences as a result of miss use of resources.
- Lack of certainty regarding the appropriate legislative location for environmental management controls have created both under and over-regulation. In some instances, two sets of very similar regulatory instruments control the same behaviour, one at the National and one at the State level. In other instances, no law is created, or no jurisdiction enforces the law.
- Lack of Joint Opinion on National-State Environmental Responsibilities between National and State Government under the FSM Constitution.
- Lack of an interdisciplinary advisory body, the former Environment Protection Board has not been active for the last 20 years.
- Lack of regulations, in many cases regulations were never put in place.

104. FSM strengths in favour of implementing SLM and PA legislation are the following:

- FSM has a legal system for National and State Government in place.
- All four states have a Governments, NGOs and CBOs in place which are committed to resource management
- There is also a distinct emerging trend of community-based organizations becoming involved in the various aspects of resource management.
- Over the last few years both national and state governments have made a substantial effort to more fully involve NGOs in policy development and projects.

Legislative Framework - PAs

105. As described in Institutional Context section above, PA management in the FSM involves a complex web of actors at National, State, and Municipal levels, with community actors and local NGOs working directly on PA management. This inter-related web, while involving all stakeholders in PA management, suffers from the lack of a comprehensive institutional framework for PA management. Such a framework would clarify the role of each actor at all levels, delineate responsibility, organize the work of stakeholders, and pave the way for more efficient communication and management. Additionally, an institutional framework would help connect PAs creating greater efficiencies. This is also a requirement for the MC endowment fund earnings disbursement to the states. Without a clear framework that identifies

[40] Rose, J. 2009. Environmental Law in the Federated States of Micronesia: A Review. http://www.sprep.org/att/irc/ecopies/countries/fsm/62.pdf

all the key stakeholders, their responsibilities, and roles, the donors will not agree to the disbursement of their funds.

106. While PAs are growing in number, less has been done at the local and State level to ensure their connectivity. In order to be most effective, PAs should be connected so that each jurisdiction, as well as the FSM, can benefit from a 'network' structure. For example, high connectivity can improve recovery times for coral reefs following disturbances, and best adapt the region for the expected consequences of climate change (i.e. higher disturbance frequencies)[41]. The Micronesia Challenge project supports PANs across the region. The MC project document includes a succinct summary as to why this is important: "*This strategy recognizes that in Micronesia, grassroots engagement, spearheaded through the PAN Networks, must bring institutional strengthening, help develop finance and project management skills including granting and reporting procedures, and must encourage and coordinate conservation efforts over time*"[42].

107. The institutional framework for FSM PA management should also organize and clarify the process for a PA to be established, and for its inclusion in PANs. In order to join a PAN, community and NGO management teams would have to demonstrate that the PA meets the set of minimum standards and criteria before its inclusion in State level PANs. In Palau, where PANs are already established, the criteria incudes[43]:

- Contribution to achieving an explicit and quantitative conservation target or goal for representing one or more biodiversity feature in a PA (e.g. 20% of the terrestrial area of FSM to be included in PAs)
- Ecological process targets or goals such as minimum patch size, association of critical habitats, presence of keystone species or habitats or sites; connectivity of habitats, buffering of core conservation zone;
- Ecological condition/state/integrity of habitats.
- Resilience criteria, resistant communities, bleaching resistant communities, representative habitats, viability, water quality, functional group representation;
- Economic criteria, such as extractive, non-extractive, eco-system services value;
- Social criteria, such as subsistence resource usage, cultural, historical, recreation, aesthetics, research, education;
- Threats, such as invasive species, existing human impacts, potential development impacts, pathogens;
- Feasibility, such as whether the area is an established protected area, has local support, has management capacity, funding, monitoring, enforcement, and partnership; and,
- Biogeographic significance, such as local, national, regional, and global significance.

108. Within the FSM, the individual States are working on codifying their own processes and criteria for PA establishment, which can be expanded to include institutionalizing PANs. Preliminary work has begun in the states to establish PAN standards and criteria, the R2R project should support it by providing technical assistance and reviews of State standards/criteria, and encourage all States to work towards adopting a national set of standards.

109. The institutional framework should also include clear standards for community management. Once these standards are in place, a functioning institutional framework would allow for the development of a

[41] Turak, E., & DeVantier, L. (2005). Reef-building corals and coral communities of Pohnpei, Federated States of Micronesia: Rapid ecological assessment of biodiversity and status. Conservation Society of Pohnpei.
[42] Micronesia Challenge: Sustainable Finance Systems for Island Protected Area Management Project Document, 2010, p. 28
[43] Ministry of Resources and Development. (2007). Protected Areas Network Regulations. The Republic of Palau. p5&6

consistent process for PANs to obtain funding from the Micronesia Challenge endowment for management activities by evaluating PA applications for funding against clear criteria. Palau has already established a PAN institutional framework that includes a PAN Fund, but given the constitutional structure of the FSM and the limited ability of the country to collect Resource/Green Fees, it might make more sense to support the establishment of a modified version to provide access to Micronesia Challenge endowment funding. This can be based on the implementation of the GEF Small Grants Program in the country. This funding framework consists of the following actors and could work as follows:

- The community and NGO management teams for PAs identify needs and develop requests for funding from the endowment. The community, with input from the NGO, develops a funding application and applies for funding to a State PAN coordinator.
- The State PAN coordinator is responsible for reviewing the application and the status of PA management against the established criteria. If the application meets the minimum requirements, the State agent would either provide technical assistance/support to improve the application or management to meet the basic criteria and/or funnel the application to a separate PAN National focal group for the technical and final assessment.
- The PAN National focal group (consisting of a mix of Government, academia and NGO conservation specialists) receives applications from State PAN coordinators and conducts the final review to approve or deny applications for funding. If approved, the PAN National focal group would direct the Micronesia Conservation Trust to release the funding to the community/NGO PA management group.
- The Micronesia Conservation Trust would act as a repository for PA management financing from the Micronesia Challenge endowment fund. When directed by the PAN National focal group, the MCT would release endowment funds for approved community/NGO PA management improvement projects.

110. This financing structure would organize access for PA managers to the Micronesia Challenge endowment funds, which are intended to be in perpetuity. This is not the only source of funding for PAs; there are also National and State budget allocations as well as other international development and conservation organization funding (such as the R2R project itself). A strong institutional framework for PA management would help organize the actions of those involved for financing PA management activities, and clarify for PA management teams the process for gaining access to available funding streams.

111. Currently in the FSM, the National government shares responsibility for biodiversity conservation and other environmental issues with each of the four FSM State governments. Per the constitution of the FSM, each State is responsible for the management of its own natural resources, out to 12 nautical miles. Each State has the authority to govern land and water area ownership. Land ownership regimes also vary within the States, leading to different strategies for the creation, expansion, and monitoring of PAs.

112. In Kosrae and Pohnpei, land is both privately and State owned, while aquatic areas are managed by the State as public trusts. In Chuuk, most land and aquatic areas are privately owned and acquired through inheritance, gift or, recently, by purchase. In Yap, almost all land and aquatic areas are owned or managed by individual estates and usage is subject to traditional control[44].

113. The role of the National government is limited to providing guidance and technical assistance to the States upon request, and manages the resources from 12 to 200 nautical miles. As described above in

[44] Federated States of Micronesia. (2010). State-Wide Assessment and Resource Strategy 2010-2015+. Federated States of Micronesia and the United States Forest Service. p11

Section 4, Municipalities are also involved in natural resource management and in some cases can issue ordinances to recognize new PAs.

114. There is an urgent need for harmonious and comprehensive nationwide PA legislation in the FSM. Work is underway to streamline the complex legal environment. National government is considering drafting either National Protected Areas Network (PAN) Legislation, or a more simplified PAN policy framework to provide clear guidance to the States. At the State level, Kosrae has already passed a protected area network law, on which Yap and Chuuk's State legislatures are formulating and modelling their policies and legislation. Pohnpei State, its Watershed and Wildlife legislation already includes legal elements for the establishment of a PAN. However, the R2R project and the MC should continue supporting this work at all levels to ensure that future legislation mitigates the problems of unclear and overlapping legal frameworks as well as ensuring that all State PA legislation meets a common set of criteria. Most importantly, the legal review of State PA legislation should ensure that traditional PA structures are recognized and supported; that stewardship or conservation easements are included; and, that provision for biodiversity offset contributions to the PAN are enabled.

115. The creation of an institutional framework of PA management should also take into consideration streamlining and clarifying the roles and responsibilities for actors involved in enforcement, monitoring and evaluation, and education/public awareness campaigns. By setting up clear standards for who is involved and at what level for these crucial PA management activities, the institutional framework would clarify much of the opacity that exists.

Policy

116. There are several national planning policy documents relevant to SLM and PA management in the FSM that the R2R Project contributes towards achieving their goals (Table 5). This project is fully aligned with FSM Strategic Development Plan, specifically to "*protect, conserve, and sustainably manage a full and functional representation of marine, freshwater and terrestrial ecosystems*". The NBSAP expresses the nation's commitment to preserve, conserve and sustainably manage the biodiversity of the FSM is real and is of utmost importance for the sustainable development of the nation. This is embodied in the NBSAP vision for the nation:

> *"The FSM will have more extensive, diverse, and higher quality of marine, freshwater, and terrestrial ecosystems, which meet human needs and aspirations fairly, preserve and utilize traditional knowledge and practices, and fulfil the ecosystem functions necessary for all life on Earth"*

117. Strategic Themes 1 of the NBSAP specifically focuses on Ecosystem Management with the Strategic Goal being a full representation of FSMs marine, freshwater, and terrestrial ecosystems are protected, conserved, and sustainably managed, including selected areas designated for total protection. This goal is reflected in the MC PA goals - PA area outcomes from the R2R project contribute towards achieving the MC goals for FSM of conserving 20% terrestrial and 30% marine ecosystems. Strategic Theme 2 of the NBSAP - Species Management – specifies that FSMs native, endemic, threatened, and traditionally important species are protected and used sustainably for the benefit of future generations of the people of the FSM and the global community. Strategic Theme on Agrobiodiversity focuses on the conservation and sustainable use of Agrobiodiversity as it contributes to the nation's development and the future food security of the FSM. Strategic Theme 8 on Human Resources and Institutional Development has to goal that all citizens, residents, and institutions of the nation are aware of the importance of biodiversity and have the technical knowledge, skills, and capability to conserve all biodiversity within

the nation. Strategic Theme covering Resource Owners identifies that traditional resource owners and communities be fully involved in the protection, conservation, preservation, and sustainable use of the nation's biodiversity. Lastly, Strategic Theme 10 on Mainstreaming Biodiversity has the goal that all economic and social activities of the FSM take full account of impacts on and fully consider sustainability of biodiversity.

Table 5. Policy strategic planning documents relevant to SLM and PA management in FSM.

Name of Policy Document
FSM National Biodiversity Strategy and Action Plan (NBSAP) 2002
National Environmental Management Strategy (NEMS)
FSM Agriculture Policy 2012-2016
FSM Strategic Development Plan 2004-2023
FSM Trade Policy, January 2011
FSM Agriculture Policy 2012-2016
Nationwide Integrated Disaster Risk Management and Climate Change Policy 2013.
The National Plan of Action for Nutrition 2007-2012
FSM National Solids Waste Management Strategy (NSWMS) 2010-2014
FSM State-Wide (Forest) Assessment and Resource Strategy 2010 – 2015 +
Climate Change in the FSM 2010

THREATS, ROOT CAUSES AND IMPACTS

118. **Conversion and Degradation of Natural Habitat and Ecosystems**: Deforestation and fragmentation of forests in the form of forest clearance to allow for urbanization, infrastructure development, home building, in-filling, commercial agricultural expansion, and small-scale logging for timber and firewood use has been identified as one of the main forces behind land degradation[45]. The Lowland forests of Pohnpei have been heavily disturbed and transformed in recent decades. Analysis of aerial photography from Pohnpei in 1975, 1995 and 2002 of the island shows a significant loss of intact forest: a reduction from 15,008 ha (42% of island land area) to 4,480 ha (13%) during the 27 year period. No comparable statistics are available for the other High Islands. In the absence of a systematic land-cover change analysis and vegetation survey of the High Islands these figures are estimates and probably underrepresent the true picture on the ground.

119. Unsustainable agriculture practices primarily clearing of large trees that hold soil and regulate water flows, in favour of cash cropping does provide economic relief, but it often leads to large areas of degraded land, particularly in the steep, high elevation and rainfall areas of watersheds. Here soils are particularly sensitive to erosion. Pohnpei, and to a lesser extent Kosrae, face serious ecological damage due to the large scale planting of sakau (Kava) in areas that have been cleared of forest cover. The impact

[45] Christine Ogura, C. (2003). Watershed Management on Pohnpei: Lessons for Enhanced Collaboration. Thesis completed for the School of Natural Resources & Environment, University of Michigan, April 2003. (downloaded from: http://www.snre.umich.edu/ecomgt//pubs/pohnpei.htm)

of human-mediated burning of native grassland or savanna ecosystems in Yap has not been well studied but it is accepted that fire is not part of the original ecology of the island.

120. Today, clearing of native forest is largely to plant sakau (kava or *Piper methysticum*). On Chuuk, the only semi-original forest remaining is scattered in tiny remnants. Landslides followed by invasive alien species have had a catastrophic impact on Chuuk's forests. In all States, swidden farming (shifting slash-and-burn agriculture) of nutrient-demanding crops such as yams by early settlers led to large scale land clearing and nutrient depletion and the consequent spread of savannah. This is exacerbated by the slash-and-burn cultivation currently practiced in the Yap High Islands. The Yap High Islands also experience extensive wildfires during dry periods and extreme wildfires that burn valuable native forest in years with ENSO-related droughts. On two occasions in the last 30 years, at least 22% of Yap has been burnt during dry periods.

121. Mangrove forests have been depleted through expansion of coastal infrastructure; increased settlements in littoral areas; and, the harvest of trees for timber and firewood. Figures are not available for loss of mangroves in FSM due to coastal infrastructure but based on global figures this are significant. Rates of deforestation/conversion of mangroves in FSM are probably lower than elsewhere in SE Asia as there is no industrial-scale targeting of mangrove habitat (e.g. aquaculture) present in FSM. Over the past 20 years the availability of large amounts of funding for infrastructure improvements under the Compact of Free Association with the U.S. has led to increased dredging, road construction and land clearing. For example, in fiscal year 2007, $6.1 million was allocated to the Infrastructure Sector[46]. Around all settlements mangroves are the primary sites for refuse landfills, which are subsequently used as land for development. Sedimentation from land-based activities, as well as agriculture, has contributed to the degradation of near-shore coral reef ecosystems in all four states. The overall harvest rate (for firewood) of mangroves on Kosrae for the past 10 years was 10%, but rates varied widely among the different parts of the island[47]. The harvesting rates of mangroves are thought to be higher of the main islands of Pohnpei and Chuuk, due to their higher human population. The degradation of freshwater wetlands has been severe throughout the federation, due mainly to deforestation and to siltation from unsustainable land use, salinity intrusion, and filling in of wetland areas for home and agricultural development. The traditional practice of converting wetland vegetation in swamp forests for taro cultivation has also affected wetlands in the moist rainforests.

122. **Overexploitation and Unsustainable Harvesting of Biological Resources**: Overfishing and overhunting has been identified as the most urgent and critical threat across marine and terrestrial areas of interest for conservation in all the states[48]. This is exacerbated by destructive and unsustainable fishing methods e.g. dynamite, chlorine, fish poisoning with the plant (Derris elliptica), the use of small mesh gillnets; and the over exploitation of fish aggregation spawning sites. Intense population growth on the main island of Chuuk since the 1960s, destructive fishing practices and a vast export market have placed increasing pressure on Chuuk's natural resources, with roughly 2,000 – 4,000 mt/year of coastal resource harvested. There is currently a very active regional fresh fish trade with most fish being exported to Micronesian communities based in Guam/Saipan and Hawaii. Quantifying the extent, and social and economic benefits of this trade is important for demonstrating the value of this trade to national government and the need to invest in managing the resources. Fish populations in Kosrae are experiencing

[46] http://www.doi.gov/oia/Firstpginfo/compactgrants/index.html
[47] Hauff, R.D., Enel, K.C., and Jack, J. 2006. Tracking Human Disturbance in Mangroves: Estimating Harvest Rates on a Micronesian Island. Wetlands Ecology and Management.
[48] The Nature Conservancy, 2003. A Blueprint for Conserving the Biodiversity of the Federal State of Micronesia. Pohnpei, FSM.

overexploitation and in Yap localized overfishing of certain species and areas occur, especially around the main island. On Pohnpei, due to a substantial local commercial market for coastal marine products and subsistence use, at least 600 mt of fish is caught annually. Based on per capita consumption estimates, Pohnpei is now fishing nearly 1.5 times (150%) of its sustainable productive capacity[49]. Particularly affected by unsustainable fishing and marine/coastal harvesting practices are Green Bumphead Parrotfish (*Bolbometopon muricatum*), Humphead Wrasse (*Cheilinus undulatus*), Giant Clam (*Tridacna gigas*), which has been almost eliminated in some parts of the FSM, Mangrove Crab (*Scylla serrata*), Black-lipped mother-of-pearl oyster (*Pinctada margaritifera*), Lobster (*Panulinus* sp.), Green Turtle (*Chelonia mydas*), Coconut Crab (*Birgus latro*) and Sea Cucumbers. For example, in a 2005 survey undertaken in Kosrae not one commercial valuable grouper of any species was seen in 75 dives[50]. The survey also recorded only three Bumphead Parrotfish and seven Humphead Wrasse. The overall decline in reef fish stocks will have long-term impacts on food security and trade.

123. Several terrestrial bird species are hunted for recreational or home use purposes. Excessive hunting, especially of the Micronesian imperial pigeon (*Ducula oceanica*, Near-threatened) and the Caroline Islands ground dove (*Gallicolumba kubaryi*, Endemic, Vulnerable) has significantly reduced the populations of these species. Flying foxes are not hunted in FSM as they are in some other Pacific States. The extent of hunting and its impact on populations and species survival has not been assessed. Current biodiversity monitoring programs in FSM are generally focused only on the marine environment.

124. **Pollution:** Farm waste is a major cause of land and water pollution, in particular waste from pigs. Most municipalities have instituted regulations requiring pig farmers to confine their animals. It is estimated that on the island of Pohnpei alone there are more than 3,000 piggeries. Raising pigs in pens requires farmers to clean the pens daily. The most common method of cleaning is with water. As the piggeries do not have an associated waste management system, the contaminated water enters fresh water creeks and lagoons. This has made many aquatic habitats unsuitable for human use and has had negative biodiversity impacts on freshwater species, including several endemic species that need clean, clear water. Pollution of lagoons and estuaries has in turn severely affected the fishing industry in several lagoons. Corals are very sensitive and usually grow in waters that are low in nutrients. A major contributor to lagoon pollution is the widespread practice of using garbage as landfill material on the edges of mangrove forests. The impact of toxic leachate from these dumps on lagoon ecology has not been assessed. Solid waste management at the municipal level is a very high priority and there are currently projects funded by JICA, SPREP and ADB addressing these issues.

125. Water pollution primarily from piggeries has significant impacts to water quality, public health and the environment, with a 2013 study in Pohnpei showing 44 of the 63 major streams on the island having greater than 579 ppm of coliform bacteria, a standard set by the Pohnpei Environmental Protection Agency as safe for swimming; no streams were considered safe for drinking. Contaminant such as leptospirosis, *E. coli*, salmonella and cholera are also potential threats in the local streams. In the Awak catchment on Pohnpei, water quality sampling conducted by Fukumoto and Kosta (2012)[51] showed that

[49] Rhodes, K.L., Warren-Rhodes, K., Houk, P., Cuetos-Bueno, J., Fong, Q and Hoot, W. 2011. An Interdisciplinary Study of Market Forces and Nearshore Fisheries Management in Micronesia. A Report of the Marine Program of the Asia Pacific Region, The Nature Conservancy. Report No 6/11. 120 pp.

[50] Hasurmai, M., E. Joseph, S. Palik, and K. Rikim, 2005. The State of Coral Reef Ecosystems of the Federated States of Micronesia. p.387-398 in Waddell, J. (ed.), 2005. The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005. NOAA Technical Memorandum NOS NCCOS 11. NOAA/NCCOS Center for Coastal Monitoring and Assessment's Biogeography Team. Silver Spring, MD. 522 pp.

[51] Fukumoto, G. and Kostka, M. 2012. Piggery Waste Management and Water Quality Impacts. University of Hawaii at Manoa and College of Micronesia-FSM. Pohnpei Summer Workshop, July 17-18, 2012).

just 6 piggeries (66% occupied, containing 67 pigs = 9.01 animal units) produced and discharged 76 tons (or 673 gallons, 1,542 lbs. N, 536 lbs. P, 919 lbs. K) into the Awak River and adjacent marine ecosystem, and used approximately 554,280 gallons of water. The resultant impact on quality exceeded the Pohnpei EPA Recreational Standard for Fresh Water (< 576 most probable number/100 ml E. coli) by between 100-290%.

126. Leptospirosis was first detected in the FSM in Kosrae in 1991. Testing was conducted in Pohnepi and Kosrae in 1995 and 1996 and concluded that prevalence was amongst the highest in the world. A 2012 study in Pohnpei concluded that Leptospirosis is a serious health threat in Pohnpei, with approximately 1 in 4 people with fever and flu-like symptoms as having a probable case of Leptospirosis[52]. Whislt the disease can be benign, in severe cases infected people can die. Pigs, dogs and rats host the bacteria but show no symptons and it is passed through their urine into the river systems where human infections occur. Due to this serious disease and environmental contamination, prevention is most important and reason to keep animal waste runoff away from water sources. Also Chuuk, Yap and Kosrae have Leptospirosis reported but there are no statistics.

127. **Spread of alien invasive species**: Alien animal and plant species that have either been deliberately or accidentally introduced in the country threaten native species by preying on, smothering or out competing them. Past accidental and intentional introduction of alien species have led to the e extinction of some endemic species in the FSM. The small ecosystem nature of the Micronesian islands makes them highly susceptible to the impacts of invasive plants and animals. In the last 150 years, over 457 new plants and animals have been introduced to the islands of the FSM[53]. The percentage of introduced plants varies between the states with introduced species comprising 22% in Kosrae, 40% in Pohnpei, 37% in Chuuk and 39% in Yap of plant species[54]. Many openings in the forests (from sakau, fires, landslides, etc.) provide opportunities for aggressive vines such as the native *Merremia peltata* or alien invasive Mile-a-minute (*Mikania micrantha*) to establish themselves, smothering trees and preventing seedlings and saplings from growing.

128. Institution threats related to alien species are inadequate biosecurity enforcement in FSM to prevent importation of new potential alien invasive species and lack of funding for invasive species eradication and control, especially bio-control research. Initiatives such as the Invasive Species Taskforce of Pohnpei (iSTOP) are an example of a collaborative effort to build awareness and cooperation across sectors in the fight against alien species spread.

129. **Unplanned development** includes the building of seawalls without any clear guidelines, or research into ecologically-based alternatives, the filling in of mangrove forests for construction purposes, for dumping garbage and solid waste, or for commercial piggery development, road construction in steep terrain, watersheds, or through ecologically sensitive wetlands or shore areas, and the activities of mining and dredging. These activities occur to some degree across all of the FSM states. The needs of infrastructure and a more western lifestyle have led to increased exploitation of land-based aggregate materials and/or mining activities of scoria materials for construction purposes. Efforts are needed to help build the capacity to ensure that all developments adhere to quality environmental principles and permitting processes, and that destructive attempts are effectively enforced. Although there are efforts ongoing, there is a need to strengthen the ability of the states to effectively forward plan for land-use and

[52] Susannah Colt 2012. Leptospirosis presentation to the Piggery Advisory Council of Pohnpei, January 2, 2012
[53] Falanruw, M.C., 2002. Terrestrial Biodiversity of the Federated States of Micronesia. FSM National Biodiversity Strategy and Action Plan Project. FSM Department of Economic Affairs and Global Environment Facility.
[54] FSM, 2010. Federated States of Micronesia Fourth National Report. Implementation of Article 6 of the Convention on Biological Diversity.

development, and to mitigate such activities through the EIA process and application of ecologically acceptable norms and standards for most land-use types.

130. **Impacts from Climate Change**: Conservative anticipated impacts of Climate Change are as follow: tendency towards more frequent typhoons during the summer and fall seasons; Gradual increase in the dry season in the western two-thirds of the FSM (Yap and Chuuk), with concomitant fire hazard; Projected accelerated sea level rise of 0.15 (minimum) to 0.95 meters (maximum) by 2100. Sea level rise is likely to have significant impact on turtle nesting beaches and low-lying seabird nesting areas on atolls. On the High Islands climate change will have extensive impacts on terrestrial and marine ecosystems[55]. Ocean acidification will deplete coral-based marine ecosystems. Change in ocean currents and ocean warming will impact fisheries. Drying climate will increase the risk and impacts of fires in Yap and Chuuk on natural vegetation, whilst increasing magnitude and frequency of extreme weather events will increase the incidence of lowland flooding and landslides especially in Chuuk, Pohnpei and Kosrae with characteristically steep topographies. Currently climate change is having tangible impacts for low-lying coastal communities, especially those living on atolls, through seawater inundation of traditional taro pits associated with storm events. This renders these pits useless and seriously undermines food security for these communities[56].

LONG-TERM SOLUTION AND BARRIERS TO ACHIEVING THE SOLUTION

131. The long-term solution sought by the Government of FSM is to implement a ridge-to-reef approach that combines a sustainable land management regime with a functional, representative and sustainable national system of terrestrial and coastal protected areas on the High Islands of the FSM. The main barriers to achieving the long-term solution are outlined below:

Barrier 1: *Lack of an overarching framework for promoting sustainable development in the FSM's High Islands, including systemic capacities and availability of critical information / knowledge and funding*

132. **Institutional arrangements**: The federated political structure operating together with NGOs and in parallel to traditional leadership structures in FSM translates into a diverse and complex institutional context for environmental management - National, State, Municipality, NGO, CSO and communities all play a role in SLM and PA management. The role-players and relationship between them are State-specific determined by the prevalence of traditional leadership structures, the relationship between State agencies and with NGOs, and the demographics of land ownership (state vs. private vs. community).

133. Clear and aligned National policy and State legislation relating to SLM and PA management is missing. National governments' role is to provide a common framework within which States are responsible for executing their legal mandate with respect to SLM and the PAN. However, lack of overarching National policy and guidelines combined with poor alignment between and within State-level legislation mean that the limited financial and human resources earmarked in the baseline programs for

[55] FSM, 2010. Federated States of Micronesia Fourth National Report. Implementation of Article 6 of the Convention on Biological Diversity.
[56] Francis, X. and Hezel, S.J. 2009. High Water in the Low Atolls. Micronesian Counselor #76 (March 2009) (available from: http://www.micsem.org/pubs/counselor/frames/highwaterfr.htm?http&&&www.micsem.org/pubs/counselor/highwater.htm

environmental improvement are deployed and managed by sectoral departments (agriculture, fisheries, forestry) with a general lack of National and State-level co-ordination of activities between sectors.

134. **Co-ordination of effort:** There is a need to align and coordinate efforts across sectors and land and water managers and owners, and spearhead innovative ways and means of enhancing ecosystem functioning and resilience in an integrated and coordinated way that balances socio-economic and environmental objectives. Management roles are duplicated across institutions within States; land-use management plans and policies are outdated or do not exists; and, sustainable mechanisms for on-going communication and co-operation between role-players do not exist.

135. Lack of co-ordination and co-operation is most evident when it comes to environmental law enforcement. There is no or very low levels of co-operation between the State AG Office responsible for prosecuting environmental offences, and the state agencies and NGOs tasked with enforcement. Additionally, because customary law relating to management of traditional proclaimed PAs is not recognized within the State legal systems, environmental offences committed within these PAs cannot be prosecuted within the State legal system.

136. **Monitoring**: Without a proper assessment, monitoring and planning regime for the maintenance of ecosystem services, managers and users will continue to have a difficult time effectively evaluating and integrating biodiversity and environmental information and risk assessments into decision-making processes. The lack of comprehensive and coordinated biodiversity monitoring is a symptomatic of a larger environmental information management barrier (discussed below).

137. **Capacity**: State governments lack the capacity to generate, implement and enforce integrated land and water management plans. Capacity gaps at the fundamental level such as lack of project and financial management skills combined with lack of knowledge, both technical knowhow and foundation scientific information, and the movement of the most skilled individuals away from State governments constrains the effectiveness of these institutions.

138. Financial constraints due to limited baseline budgets as well as institutional structural/capacity constraints present a further barrier to up-scaling SLM to a level required to successfully arrest land degradation. The un-coordinated institutional structure of the FSM impacts on financial sustainability as the five governments each have different financial processes, procedures and systems. Added to this is the lack of capacity with respect to financial management systems that results in projects being unnecessarily delayed by the inability to manage and process funds efficiently.

139. The natural resource management capacity needs of the FSM are not well reflected in curricula offered by training institutions such as schools or the COM, and there is also a lack of post-graduate learning opportunities (e.g. internships) to address these gaps. Therefore, the current capacity gaps experienced by environmental sector nationally are not being adequately or systematically addressed.

140. **Making the case for biodiversity:** There is a general lack of political will to invest in environmental management. As a result there is a disconnect between public expenditure and environmental priorities. This is linked primarily to limited or poor awareness among decision-makers and also among the public and local communities of the importance and value of the goods and services provided by functioning ecosystems. The value proposition of biodiversity to the long-term social well-being and economic sustainability of the FSM is not reflected in institutional capacity and budgets.

141. The development agenda in the FSM is driven overwhelmingly by economic gains without due consideration for social or environmental impacts. There is a need to better integrate consideration of

social and environmental costs/benefits into development planning decision-making processes that promotes a more sustainable future for the FSM (e.g. EIA processes).

142. The lack of political will is perhaps a reflection of the widespread lack of environmental awareness in the FSM society at large. Existing public awareness programs are project-based and focused on specific problems or issues. There is no on-going National strategy for building sustainable biodiversity and environmental awareness programs among all sectors of society especially at school and college levels.

143. **SLM planning and implementation:** The FSM does not have operational examples or implementation frameworks for SLM at a landscape level. Without access to technical skills, proven through demonstration, and supported by scientific observation government decision-makers and resource users do not have the tools or knowledge necessary to holistically manage land-use. There is a need to mainstream new planning and management approaches that embody the ecosystem-based management Ridge to Reef mindset and that focuses on sectors that are driving land degradation.

Barrier 2: *Inadequate PA representation and capacities to effectively conserve biodiversity of the High Islands of the FSM.*

144. **Large stakeholder group**: The decentralized political situation in the FSM and the prevalence of private and/or traditional control of lands and waters throughout the nation necessitates broad public participation to build public understanding of the importance of conservation and the role of protected areas. Commitment to PA objectives is not equal amongst all stakeholders and collaboration and coordination of initiatives can be improved.

145. **Community capacity**: Local communities or private landowners own many of the nation's areas of biodiversity significance, and therefore these owners do play a significant biodiversity management role. PAs need to be initiated at the community-level, where they will be well supported locally and address local resource over-exploitation concerns. Communities have strong cultural and social ties to the environment but with rapid changes in population, consumption and changes in people's lifestyles, the capacity for local communities to manage the areas of biodiversity significance is eroding. Despite the import role communities play in natural resource management there are no systematic programs to build biodiversity/environmental awareness or management capacity within this sector.

146. **Low-levels of State involvement**: Until recently, there has been little national involvement in PA management and establishment. However, without involvement by the State in PA establishment and management, PA regulations imposed by community managers will remain un-aligned or recognized in State legislation, and in most cases customary law is not enforceable against violators from outside the community. The lack of State involvement in traditional PAs means the few financial resources are allocated to the management of these areas.

147. **Gaps in National and State legislation, strategy and guidelines**: PA management will also be more effective and efficient if common functions are standardized and centralized nationally e.g. spatial planning, management planning, finance and legal affairs. A clear barrier in the effective management of PAs is therefore the current unclear roles and responsibilities and capacities among the National, State and local-level agencies (NGOs) and local communities due to lack of clear national policy and guidelines.

148. Many States do not have sufficient biodiversity legislation and there are no national standards or guidelines for the creation and management of PAs, or alignment of policy between States. Related to this

is lack of PA management effectiveness monitoring and lack of effective PA management plan enforcement especially with respect to illegal activities.

149. Tied to the legislative gaps is the lack of recognition in the law for existing traditional forms of conservation management. Communities currently manage many *de facto* PAs through traditional structures but these are not recognized or supported through the current State legislative frameworks. Similarly, National policy and State legislation also needs to make provision for contemporary approaches to creating and managing PAs such as biosphere reserves, stewardship or conservation easements and biodiversity offsets.

150. **PAN not representative:** The current PAN is not representative of the FSMs biodiversity. There is clear need to expand the protected area system in order to establish a representative PAN that effectively conserves examples of all FSMs biodiversity and maintains key ecological processes. Current PA expansion has been opportunistic and not underpinned by a systematic spatial conservation plan.

151. The support from State and National government for strengthening the representation of the PAN has not kept pace with the information needs necessary to design and manage the PAN. Whilst the biodiversity of the FSM is reasonably well documented this information is highly fragmented, dated and generally resides out of state meaning that it is not readily available to or interpreted for planning purposes or for state/community PA managers. There is a dire need to build awareness generally amongst stakeholders around the biodiversity of the FSM, but more importantly biodiversity information from inventory and monitoring needs to be placed into the hands of planners, managers, decision-makers and communities to better inform PAN design and management.

STAKEHOLDER ANALYSIS

152. A characteristic of FSM is the number and diversity of stakeholders that will be involved in supporting implementation of this project. As is detailed in Table 2 below, their roles in terms of implementation have been matched to their official responsibilities. This will ensure alignment of their mandate to their role during implementation. This is critical in terms of ensuring ownership and allocation of internal resources during implementation as well as ensuring long term sustainability after the completion of the GEF sponsored activities.

153. It is important to note in this context that the implementing agency managing the project on behalf of the GEF is the United Nations Development Programme.

Table 6 Current roles of stakeholders in SLM and PA management and their indicative role in this project. Organisations highlighted in BLUE are R2R implementation partners.

Organization	Current role in SLM and PA management	Indicative Project Roles
National		

Organization	Current role in SLM and PA management	Indicative Project Roles
Office of Environment and Emergency Management (OEEM)	National government agency coordinating environmental projects.	Project's implementing agency with overall project management and project development responsibilities. The Department will play collaborate with all the national and state stakeholders in promoting and mainstreaming the project at both the political and community level. *Overall R2R project management and oversight, technical advice and the SLM components of the project will be implemented this this Department.*
Department of Resources and Development (R&D)	National government agency coordinating land and marine resources management under the Convention on Biodiversity. The R&D is in charge of coordinating the country's response to environmental degradation, protection, and if possible, rehabilitation of natural habitats at the National, State and local levels.	Work closely with the Office of Environment and Emergency Management in its coordination of the project. *The PA components of the R2R project will be implemented through this Department.*
Office of Statistics, Budget and Economic Management, Overseas Development and Compact Management (SBOC)	National government agency with oversight and states-national coordination functions relating to strategic use of overseas development assistance funds for the FSM.	Provide coordinating, complementing support between existing and pipeline projects and the R2R project across the FSM States and national government in order to leverage development funds and technical assistance to maximize the project's contribution to the FSM.
Micronesia Conservation Trust	Leading regional non-governmental organization focusing on conservation projects and sustainable financing of the conservation sector in the FSM and other partner governments in the region.	Continue to support the biodiversity efforts under protected areas management under the Micronesia Challenge initiative. Provide financing or project disbursement services to NGO and state government partners if required.
College of Micronesia-FSM: Cooperative Research and Extension Services	College level environmental science, agriculture and extension, forestry and marine research and studies. Host of the U.S Land Grant program.	Provide training and qualification in sustainable land management courses. Provision of agriculture extension services and farmers' training. Conduct relevant agriculture research. Coordinate or take part in community meetings and awareness programs. Source of ethno botanical, biodiversity and other natural resource management. Can provide and house information base.

Organization	Current role in SLM and PA management	Indicative Project Roles
Department of Commerce and Industry	Departments of Commerce and Industry and business councils provide permits for economic development	Permits for economic development can run counter to conservation aims (dredge sites right next to PAs, foreign investment leading to buildings/roads fragmenting/disrupting habitat. This department is included as stakeholders since the project should include them mainly around awareness raising particularly with respect to SLM, ILMP, EIA processes, etc.
Department of Education	Provision of training on environmental studies.	Support curriculum development on environmental studies and educational awareness activities.
Yap State		
Attorney General's Office	Legal review and enforcement of policies and regulations on natural resource management in Yap.	Ensure reviews and enforcement of existing laws. Draft new legislations.
Environmental Protection Agency	Regulatory agency responsible for protection of land, air, and ocean resources and enforcement of regulation.	Enforcement of environmental regulations. Training and monitoring of development in land and marine resources projects. Support community and state environmental projects. *State-level R2R project partner leading implementation of PA activities.*
Governor's Office	Guardian of natural resource use and protection for the state. Can introduce legislation to create new PAs	Endorse and provide support to project implementers and activities.
Office of Planning and Budget	The Office coordinates Yap state agencies to develop and implement state-wide plans for coastal and terrestrial management within the R2R framework e.g. JNAP (Joint National Action Plan) unifies all climate change conventions for each state and for the nation.	Coordination of state agencies to prevent budget duplication and ensure that all state agencies are adhering to agreed or legislated plans, including gender-responsive budget and planning.
Resources and Development	Department overseeing State Divisions responsible for managing land and marine resources	Resources and technical assistance to support development of land and marine use plan *State-level R2R project partner leading implementation of SLM activities.*
Resources and Development: Division of Agriculture and Forestry	Main division that coordinates and implements measures promoting sustainable land management and agricultural practices.	Development and management of land use plan, guidelines, data and records. Training in land management, including surveys. Developing and provision of

Organization	Current role in SLM and PA management	Indicative Project Roles
		training in sustainable agriculture practices. Facilitate increased awareness of sustainable agriculture and land use practices.
Resources and Development: Division of Land Resources	Responsible for management of public lands, including GIS development and management.	
Resources and Development: Marine Resources Management Division	Management of MPAs for the Yap State. Includes community engagement, data collection and monitoring activities in conjunction with other PA stakeholders	Ensure sustainable use of marine resources
Women's Interest Office, Yap Department of Youth and Community Affairs	State government office promoting women's interests in Yap.	Promote key role of women in project implementation and awareness.
Yap CAP (parastatals)	Government organization that provides support to communities to develop and implement Conservation Action Plans and Management Plans including PA monitoring.	Work with relevant partners to continue provision of support to communities in protected area development and management.
Yap Fishing Authority	State authority charged to manage sustainable fish stock for the state.	In collaboration with partners, can assist in enforcement; support and implement sustainable project such as FADs to alleviate poaching.
Yap Institute of Natural Science	An educational institute providing assistance to communities with documentation and research support in sustainable land management, protected areas and biodiversity. Developed the framework for sustainable development (40 years ago) with private and public partners.	Continue to provide support in agro and marine ethno-ecology through documentation and research.
College of Micronesia - Cooperative and Research Extension	Research and Extension training services to communities on sustainable land management practices.	Provision of training and reference information. Integrated approach to training: agriculture, gardening, crops planting, solid waste management/recycling and composting. Work closely with schools and women's groups to promote sustainable land management practices.
Yap Farmers Organization	Community organization for farmers for the state.	Coordinate implementation of SLM projects amongst farmer groups in Yap. Promote sustainable land management usage, food security and marketing of fresh produce.

Organization	Current role in SLM and PA management	Indicative Project Roles
Yap Women's Association	Non-government organization promoting the key role of women in Yap society. Women are central in promoting and maintaining sustainable land management and protected areas and other natural resource management.	Promote and practice sustainable land management at the community level. Work with relevant partners to promote awareness raising activities.
Chuuk State		
Attorney General's Office	Legal review and enforcement of policies and regulations on natural resource management in Chuuk. Reviews draft legislation to create or modify PAs.	Ensure reviews and enforcement of existing laws. Draft new legislations.
Department of Administrative Services	The Department administers Chuuk State budget.	Coordination of state agencies to prevent budget duplication and ensure compliance.
Department of Agriculture and Forestry	Department that coordinates and implements measures promoting sustainable land management and agricultural practices. These activities also support sustainable livelihoods programming, which can have an indirect effect on PA management.	Promote and provide support in sustainable agriculture and forestry practices and training including rehabilitation, invasive species management and climate change adaptation activities. *State-level R2R project partner leading implementation of SLM activities.*
Department of Marine Resources	State government department responsible for the protection, surveillance and sustainable use of marine resources. Conducts enforcement for Chuuk.	Provide technical assistance in standard operating procedures & enforcement training, marine monitoring training, management planning, community education/awareness, marine protected area design & management. Support sustainable marine activities including climate change adaptation activities A key player in policy development for Fisheries and marine resources management.
Environmental Protection Agency	Mandated by CSL 02-94-01 to provide for the protection of land, water and quality of air. Conducts assessments, writes regulations, enforces legislation related to land water and air quality management. Also responsible for climate change adaptation and mitigation which can influence PAs.	Provision of trainings and workshops on EIA, GIS & conservation management. Lead in facilitating and conducting community meetings and public awareness. Follow up on the implementation of management plans by the community. Oversee information management including monitoring information on Protected Area management. Support establishment of

Organization	Current role in SLM and PA management	Indicative Project Roles
		watershed management. Support and partly implement climate change and adaptation activities/projects. *State-level R2R project partner leading implementation of PA activities.*
Governor's Office	Stated goal of guardian of natural resource use and protection for the state. Can also introduce legislation to create new PAs.	Endorse and provide support to project implementers and activities.
Chuuk Conservation Society	NGO working on conservation and protection of terrestrial and marine resources in Chuuk.	Provision of capacity building through trainings and workshops with communities and other relevant partners. Focus areas include development of community action plans and management plans monitoring, protected area design, green livelihoods and income generation for communities. Leverage partner organization efforts.
Chuuk Women's Council	Non-government organization promoting the key role of women in Chuuk society. Women are central in promoting and maintaining sustainable land management and protected areas and other natural resource management.	Work with relevant state agencies and other partners to promote sustainable land management and protected area management at the community level. Represent and promote community priorities.
COM- Cooperative Research and Extension	Research and Extension training services to communities on sustainable land management practices.	Provision of training and reference information. Integrated approach to training: agriculture (gardening, crops planting, solid waste management/recycling and composting). Work closely with schools and women's groups to promote sustainable land management practices.
Pohnpei State		
Attorney General's Office	Legal review and enforcement of policies and regulations on natural resource management in Pohnpei. Also responsible for trying cases when violations occur. However, bottleneck for enforcement at this office, as poaching is currently viewed as a low priority	Ensure reviews and enforcement of existing laws. Draft new legislations.
Department of Lands and Natural Resources	Issue permits, responsible for approving the establishment of PAs. Coordinate with partner agencies on	Take part in community meetings, field boundary survey and maintain records and information. Work with the OFA,

Organization	Current role in SLM and PA management	Indicative Project Roles
(including Forestry Division)	important task relating the watershed land. Department of Lands/Forestry mandated agency for terrestrial management. Engaged by CSP in the process of soliciting community support for the establishment of new PAs, assists in shepherding through the legal registration of new PAs. Also supposed to help with management, but do not have a person assigned. Division of Lands/Forestry in charge of all the mangrove PAs and the Watershed	Fisheries and Aquaculture on enforcement of regulations in terrestrial conservation in Pohnpei. *State-level R2R project partner leading implementation of PA activities.*
Department of Public Safety, Fish and Wildlife	Enforcement agency for protected areas in Pohnpei, and community awareness and outreach activities, partners with CSP and others to conduct campaigns	Ridge to reef enforcement. Work with municipalities for terrestrial/watershed protected area enforcement. Provision of training on enforcement to conservation officers in protected areas.
Environmental Protection Agency	Regulatory agency responsible for protection of land, air, and ocean resources. Also responsible for climate change adaptation and mitigation which can influence PAs	Enforcement of environmental regulations. Training and monitoring of development in land and marine resources projects. Support community and state environmental projects. *State-level R2R project partner leading implementation of SLM activities.*
Governor's Office	Can introduce legislation to create new PAs	
Office of Economic Affairs: Agriculture	Focal state agency for sustainable land management. Current Chief is Chairman of the Island Food Community of Pohnpei (IFCP) as well as the Soil and Water Conservation Board. Encourages sustainable livelihoods, which indirectly support PA objectives. Conducts the current demonstration of dry litter piggery, composting and biogas as well as demonstration farms.	Coordinate and facilitate sustainable land management activities among relevant partners. Work with College of Micronesia in implementing extension services. Coordinate agricultural field days and training programs with partners. Develop, deliver and manage information materials and services.
Office of Economic Affairs: Fisheries and Aquaculture	Lead state government agency in conservation and rehabilitation of marine life and ecosystem. Part of the team for monitoring and responsible for developing sustainable livelihoods in the communities surrounding PAs as part of PA management	Work with Department of Public Safety, Division of Fish and Wildlife, on enforcement and issuance of permits for protected marine areas. Continue to undertake regulation enforcement of terrestrial conservation for the Department of Lands and Natural Resources in Pohnpei.

Organization	Current role in SLM and PA management	Indicative Project Roles
Conservation Society of Pohnpei	NGO working on terrestrial and marine conservation in the state. Manages PAs and actively engaged in monitoring marine species, works on invasive species, monitoring siltation, and monitoring of the watershed.	Work with state and community-based partners to implement project activities; monitoring, development of management plans, implementation and monitoring of plans, eradication and management of invasive species, education and awareness. Identification of plant species. Provide information base for FSM Geospatial Information data.
Council of Traditional Leaders	Community leadership.	Make declarations, endorsement of activities usually at community, island-wide level.
Island Food Community of Pohnpei (IFCP)	Active in promotional work of locally produce foods.	Participate in research, public awareness and community training.
Pohnpei Farmers' Association	Community organization for farmers for the state.	Coordinate implementation of SLM projects amongst farmer groups in Pohnpei. Promote sustainable land management usage, food security and marketing of fresh produce.
Pohnpei Women's Advisory Council	Non-government organization promoting the key role of women in Pohnpein society. Women are central in promoting and maintaining sustainable land management and protected areas and other natural resource management.	Work with relevant state agencies and other partners to promote sustainable land management and protected area management at the community level. Represent and promote community priorities.
Kosrae State		
Attorney General's Office	Legal review and enforcement of policies and regulations on natural resource management in Kosrae. Responsible for prosecuting cases of poaching and other PA violations. The Division of Public Safety is under the AG's office and is privately responsible for enforcement.	Ensure reviews and enforcement of existing laws. Draft new legislations.
Department of Resources and Economic Affairs	Department charged with overseeing marine and land resource management. Responsible for fisheries development in support of sustainable livelihoods and marine surveillance unit. Conducts some invasive species eradication work funded by international development and conservation organizations	Collaboration with partners to undertake marine protected area monitoring as well as invasive species eradication and management. Economic planning for alternative livelihoods development. GIS mapping for protected areas boundaries measurement and land registration.

Organization	Current role in SLM and PA management	Indicative Project Roles
Department of Resources and Economic Affairs, Division of Agriculture	State government division responsible for agriculture, including quarantine services. Does model farming, has export promotion programs. These activities also support sustainable livelihoods programming, which can have an indirect effect on PA effectiveness. Works on invasive species eradication.	Extension services; teach farmers erosion control methods, preparing compost instead of chemical fertilizers and other sustainable land management practices. Provide equipment support services.
Governor's Office	Guardian of natural resource use and protection for the state. Governor signs legislation for the creation of new PAs	Endorse and provide support to project implementers and activities.
Kosrae Conservation and Enforcement Taskforce	Taskforce for the protection of Kosrae state's natural resources for future generations. The taskforce is comprised of representatives of government and non-governmental organizations, including: KIRMA, YELA, Attorney General's office, DREA, KCSO, as well as Municipal conservation officers. New attempt at collaboration to enforce existing legislation and regulation for natural resource management in general, and PAs in particular.	To enforce the laws on protected areas. Composed of representatives from KIRMA, KCSO, DREA, the Police and YELA.
Kosrae Island Resource Management Authority (KIRMA)	State government agency spearheading the implementation of sustainable land management and protected area work in partnership with the other stakeholders. Mandated to manage and monitor state-wide marine areas as well as to enforce protected areas. Sets regulatory framework. Includes a forest conservation unit and a marine conservation unit. Responsible for invasive species eradication work. Conducts biological/ecological monitoring. KIRMA focused on conservation and Pas.	Provision of regulatory services including prescription of buffer zones and water quality legislation, and issuance of permits. Work with relevant state and non-governmental organizations and other partners on sustainable ecosystems management and conservation. Promote education and outreach on environmental issues in Kosrae. *State-level R2R project partner leading implementation of SLM and PA activities.*
Kosrae Visitors Bureau	Promotes ecotourism, builds awareness about Kosrae's protected areas and natural resources	
COM-Cooperative Research Extension	Farmers' training/resource users for sustainable use of the land.	Collaborate with state and non-government partners to deliver sustainable land use activities. Assist in research activities in natural resource management.

Organization	Current role in SLM and PA management	Indicative Project Roles
FSM Pacific Adaptation to Climate Change program	PACC - Coastal Resource Management Plan for Kosrae. Climate proofing project of Okat circumferential road. Mainstreaming CCA policies.	Support in awareness and outreach; collaborate with partners.
Kosrae Conservation and Safety Organization	Leading non-governmental organization working on conservation and protection of terrestrial and marine resources in Kosrae.	Provision of capacity-building through trainings and workshops with communities and other relevant partners. Focus areas include development of community action plans and management plans monitoring, protected area design, green livelihoods and income generation for communities. Leverage partner organization efforts.
Kosrae Women's Association	Women are central in promoting and maintaining SLM and PA and other natural resource management.	Continuing work with NRM organizations; will promote SLM and PA management at the village and community level
YELA (Yela Environment Landowners Authority)	Yela Forest Management and Protection.	Continue working in collaboration with partners to expand the protected area to include upland forests all the way down to the reef (R2R approach). Possible project pilot site.
International Organizations		
GEF SGP	Environmental small grants mechanism to provide extra support to project activities.	Environmental small grants mechanism to provide extra support to project activities.
Marine Environment Research Institute of the Pacific (MERIP)	Non governmental organization working on aquaculture development and management projects.	Research, promotion and implementation of aquaculture activities. Develop and manage sustainable aquaculture products/ alternative livelihoods. Provision of training to communities.
Natural Resource Conservation (USDA)	United States Department providing technical and financial assistance to the FSM on agriculture and other sustainable land management practices.	Take part in community trainings and field visits. Can take part in meetings to provide guidance on natural resource conservation.
Pacific Resources for Education and Learning (PREL)	International independent, non-profit organization with an office in Pohnpei that works with communities to enhance their well-being through partnerships in education.	Potential natural resource educational dissemination mechanism.
RARE	International non-government organization working in protected areas across the FSM states and wider Micronesia pacific region.	Potential partners in capacity development for protected areas management at community level.

Organization	Current role in SLM and PA management	Indicative Project Roles
Secretariat of the Pacific Community (SPC)	Pacific regional organization, of which the FSM is a member. SPC assists member countries with advice, technical assistance and also negotiations on various international agreements on development, natural resource and the environment.	Provision of technical assistance projects contributing to sustainable natural resources management in the FSM. Coordinate current projects with this project. Support regional learning/information exchange.
The Nature Conservancy (TNC)	International non-government organization based in Pohnpei focusing on the Micronesia Challenge initiative.	Continue to provide technical support to the Micronesia Challenge initiative.
UNDP Joint Presence Office	UN agency overseeing the project, based in Pohnpei.	Project progress oversight.
Secretariat of the Pacific Regional Environment Program (SPREP)	Pacific regional organization, of which the FSM is a member. SPREP assist member countries with advice, technical assistance and also negotiations on various international agreements on development and the environment.	Can provide complementing technical and other capacity-building assistance to the R2R project. Support regional learning/information exchange.
International Organization for Migration (IOM)		Learning networks

Table 7. Biodiversity research and information stakeholders relevant to FSM.

Name	Organization / Agency	Expertise	Located in:
Alex Wegmann	Island Conservation	Invasive species eradication programs throughout Micronesia	Hawaii
Andy Walker	Bat Conservation International	Executive Director; BCI will work closely with communities and others to build local capacity for collaborative and proactive site-based conservation, regional planning, and fundraising for the conservation of threatened bats	Virginia
Ann Kitalong	Belau National Museum; The Environment Inc.	Curator; Support activities-inventories, identification biodiversity, planning, policy development	Palau
Brooke Nevitt	PMRI	Socio-economic Monitoring	Saipan
Chris LaFranchi	One Reef	Long-term marine conservation agreements, financing of marine plans including enforcement, monitoring and community engagement, conservation finance	California
Dave Waldien	Bat Conservation International	Director of Global Programs; BCI will work closely with communities and	Virginia

Name	Organization / Agency	Expertise	Located in:
		others to build local capacity for collaborative and proactive site-based conservation, regional planning, and fundraising for the conservation of threatened bats	
Greg Moretti	Pacific Marine Resources Institute	Director, social science technical assistance and dissemination of science to inform decision-making	Saipan
Katie Munkres	Pacific Islands Climate Change Cooperative	Resource management practices adapted to CC, provide trainings and decision making tools – also comms experience and behaviour change campaign advice	Hawaii
Kevin Rhodes	University of Hawaii	Adjunct Faculty, MPA design, science, monitoring support	California
Liz Terk	TNC	Conservation	Pohnpei
Meghan Gombos	Sea Change Consulting	Technical support for CC adaptation, especially through PIMPAC	Rhode Island
Mike Guilbeaux			Hawaii
Peter Houk	University of Guam Marine Laboratory	Assistant Professor, science and monitoring support	Guam
Phil Andreozzi	US National Invasive Species Council	Technical assistance on biosecurity, invasive species (e.g. MC Biosecurity Plan)	Washington, DC
Ray Nias	Island Conservation	Southwest Pacific Regional Director, invasive species technical and logistical support specifically for vertebrate eradication	Sydney, Australia
Sam Sablan	Mariana Islands Nature Alliance	Executive Director, education and outreach to the communities in the CNMI	Saipan
Schannel van Dijken	Conservation International	Pacific Islands Marine Program Manager, protected area planning and design, capacity building, facilitation, research, workshop planning	Samoa
Tim Curruthers	Secretariat of the Pacific Regional Environment Programme	Marine and Coastal Advisor, create stronger linkages with MC, cross-learning to other Pacific Island countries	Samoa
Wayne Andrew	Pacific Islands Managed and Protected Areas Community (PIMPAC)/Locally Managed Marine Areas (LMMA) Network	Community-based resource management planning.	Palau
Wayne Law	New York Botanical Garden	Technical support for botanical inventory, ethno-botanical surveys, terrestrial surveys	New York
Yimnang Golbuu		Biological monitoring, MC regional database	Palau

Name	Organization / Agency	Expertise	Located in:
Katrina Adams	Kosrae Village Ecolodge	Marine ecotourism, Sustainable development, Coral monitoring, Community outreach	Kosrae, FSM
Marjie Falanruw	YINS	Forestry	Yap
Bill Raynor	TNC	Conservation, Endangered Species	FSM
Konrad Englberger	Independent	Invasive Species, Plant Protection, Agriculture	FSM
Javier Cuetos-Bueno	Independent	Fish catch monitoring	Chuuk
Don Buden	COM-FSM	Reptiles and invertebrates	FSM
Brian Lynch	COM-FSM	Freshwater fish	FSM
Carlos Jose Cianchini	Independent	Biodiversity Field Ecologist	Kosrae
David Laurens	Hawaii National Tropical Botanical Gardens	Plant Species	FSM
Floyd Hayes	Department of Biology, Pacific Union College	Birds	USA
Douglas Pratt	North Carolina Museum of Natural Sciences	Birds	USA

BASELINE ANALYSIS

154. The baseline for this project is the "business-as-usual" scenario that would take place over the next five years in the absence of the interventions proposed by the project. The baseline analysis of legislation, budget and institutional capacity for implementing effective PA management and SLM

155. Current annual expenditure on the environment in FSM is summarised in Table 8. Annually approximately US$9.2 million is committed to natural resource management on the High Islands of Micronesia. Domestic funding is largely secured through the annual US Compact (US$3.8 million) and National Congress (US$1.6 million) funds, which is funnelled to six sectors, with the Environment sector being sixth and smallest recipient. These domestic funds have traditionally been allocated to the National government and State Environmental Protection Agencies, Department of Agriculture, Marine Resources, Transportation and Resources & Development, the Tourism Bureaux, and YapCAP.

156. At the national level the funding will support the R&D to provide technical, advisory and support services regarding natural resource management to the States and promote tourism enterprises in all States. The majority of these funds will be used to finance the management of the existing state protected areas or to assist in the management of the existing Community-based protected areas through the various State Departments (Chuuk State: Department of Agriculture, Department of Marine Resources; Pohnpei State: Department of Land and Natural Resources, Department of Public Safety; Kosrae State: Kosrae Island Resource Management Authority; and Yap State: Department of Resources and Development). These departments will also provide an extension service to farmers and together with the NGOs undertake regular monitoring activities of marine resources, including enforcing the law. State agencies (Environmental Protection Agencies of Chuuk, Yap and Pohnpei and the Kosrae Island Resource Management Authority) will undertake Environment Impact Assessments as required and monitor water quality. Research and interviews indicate that the majority of agency budgets are spent on salaries, with a smaller portion on materials and equipment.

157. Other domestic funds available come from fisheries licensing fees and are sometimes allocated as appropriations from the respective state congressional delegations to NGOs and community groups for environmental projects.

158. Donor funds also play a significant role in contributing to natural resource management in the FSM, and are likely to become an even more significant source of funding given the impending decline in Compact funds in 2023. Donor funds are received through competitive or base grant processes are distributed to governmental as well as local, non-governmental organizations, including Community Based Organizations (CBOs) and state-wide NGOs such as the Kosrae Conservation and Safety Organization, the Conservation Society of Chuuk, and the Conservation Society of Pohnpei. These NGOs do a significant amount of PA management and SLM work within the FSM, and therefore Table 8 also includes the estimated budgets of key NGOs in each of the four States. While CBOs can and do receive funding directly from National and State agencies as well as international donors, there is no mechanism for tracking the level of this funding. Therefore CBOs are not included in this Table. The primary sources of funding are US federal grants (considered as a different category of funding than Compact funds) such as USAID, USDA, USFS, NOAA and the USDOI amongst others. The NGOs finance the establishment and management of protected areas, community partnership building and consultations, environmental awareness campaigns, training and workshops through the Micronesia Conservation Trust, from foreign Governments such as Japan, the European Union, Germany, Italy, Australia, New Zealand, Venezuela and other private foundations and donors. This injection of funding into the environment sector (through

financing from the above-mentioned sources) equals US$ 3.7 million per annum. This funding stream from the donors is not guaranteed; donors do not specifically allocate funds towards the environment every year.

159. Conservation Society of Pohnpei will continue its management and support role to Pohnpei State protected areas and Community-based PAs. This includes the surveying, demarcating, management and monitoring of law enforcement of the Watershed Forest Reserve, as well as implementing its "grow low" programme to encourage farmers to grow sakau on the lowlands of Pohnpei. CSP plays a major role in the management of invasive species as well as awareness raising especially in schools. One species, Octopus tree (*Schefflera actinophylla*) has been successfully eradicated, and three other species have been 90% eradicated. It will continue its support to the marine protected areas of Pohnpei, as well as its marine monitoring programme which includes monitoring of Grouper Spawning and Aggregation, fish – focusing on the preferred market fish families – Scaridae (Parrotfish), Lethrinidae (Emperors) and Siganidae (Rabbitfish). CSP also monitors siltation in lagoons. The Chuuk Conservation Society will support and collaborate with the communities that manage the Parem Marine PA and the Epinup Mangrove Reserve. With the mentioned funding Kosrae Conservation and Safety Organisation will support the community in the management of the Awane Marine PA, Tafunsak Marine PA and Olu Watershed PA. The funding received by Yela Environment Landowners Association will assist in the management of the Yela Conservation Easement Tract and specifically for the conservation of "Ka" forest in the Yela Ka Forest PA. The Micronesia Conservation Trust will improve the predictability of funding flows by creating a planned US$ 20 million endowment. MCT currently provides US$200 000 annually to environmental work in the FSM.

160. International and regional development and conservation organizations also have operational budgets that are spent on staff and technical assistance and training activities with the FSM, separate from the money they provide to FSM government and NGOs specializing in environmental management. In order to capture this direct assistance the Table includes the operational budgets for international and regional organizations. For example, grants that are provided by the Micronesia Conservation Trust (MCT) to NGOs are listed in the donor column next to that NGO. Additionally, in the section for international/regional organizations MCT's budget for FSM operations is separate from the grants to NGOs indicated. This separation is intended to prevent double counting and provide the reader with an overview of how money is allocated and spent. Examples of international agency projects include: SPREP and SPC assistance with mainstreaming SLM into EIA processes; JICA assistance with SWM planning and recycling; Venezuela Fund Co-financing SLM for numerous activities; SPC/SOPAC assistance with IWRM project in Pohnpei; USDA NRCS working on soil conservation; FAO assistance with sustainable agriculture and organic farming; and USFS assistance with technical expertise in vegetation mapping, land rehabilitation etc.

161. In 2013 project-based donor contributions towards NGO and government agency annual budgets amounted to US$ 1.8 million: The GEF Small Grants Program provided $151,656 throughout the FSM in financial and technical support to projects that conserve and restore the environment; The US Embassy provided the following in small projects funds for environmental and resource management: $657,641 to Chuuk; $236,501 for Kosrae, $314,716 for Pohnpei and $333,889 for Yap; and, the Japanese Embassy provided $61,000 in funding for piggery projects on dry litter, specifically for purchasing wood chippers; and, the Australian Embassy provided a total of $63,150 in small project grants to programs in the four States. Given that these contributions are project-based and vary annually these contributions are not fully factored into the baseline presented in Table 8.

Table 8. Summary of baseline financing of environmental programs in FSM.

	Entity	Description	Budget Congress	Budget Compact	Donor Funds	Total
I. FSM National Government						
A.	FSM Department of Resources and Development; National Resource Management Program	Coordination of activities with States, attending meetings, organizing meetings	$856,179	$0	$0	$856,179
B.	Office of Environment and Emergency Management	Coordination of activities with States, attending meetings, organizing meetings	$327,421	$0	$0	$327,421
Subtotal, FSM National Government			$1,183,600	$0	$0	$1,183,600
II. Pohnpei State Government and NGOs						
A.	Environmental Protection Agency	Awareness, enforcement, monitoring; Budget used to be $330,000	$0	$205,000	$0	$205,000
B.	Department of Land and Natural Resources; Division of Forestry	Watershed monitoring and alignment, tree nursery, enforcement*$30,000 - $50,0000 from US Dept. Forestry for tree nurseries	$0	$70,000	$40,000	$110,000
C.	Conservation Society of Pohnpei (NGO)	Awareness, training, monitoring of PAs Invasive Species, reporting for law enforcement agencies.	$0	$0	$422,665	$422,665
D.	Division of Fish and Wildlife	Law enforcement.	$0	$117,000	$0	$117,000
E.	Office of Fisheries and Aquaculture	Awareness, regulator, monitoring and evaluation of MPAs	$0	$173,500	$0	$173,500
F.	Office of Economic Affairs; Department of Agriculture	SLM practices, piggery dry litter, food security, invasive species	$0	$173,500	$0	$173,500
G.	Office of Economic Affairs; Office of Administration	Coordination with Governor's Office, organizing and attending meetings	$0	$117,000	$0	$117,000
H.	Island Food Community of Pohnpei (NGO)	Promotion of healthy local food security	$20,000	$0	$70,000	$90,000
I.	Pohnpei Visitor's Bureau	Provides promotional services for tourism activities in Pohnpei	$120,000	$0	$0	$120,000
Subtotal, Pohnpei State and NGOs			$140,000	$856,000	$532,665	$1,528,665
III. Chuuk State Government and NGOs						
A.	Environmental Protection Agency	Law enforcement, awareness, monitoring, solid waste control, control of water and wastewater	$0	$367,214	$0	$367,214
B.	Department of Agriculture and Forestry	Nursery development, endemic plant conservation, food security, SLM, tree planting	$0	$402,358	$0	$402,358

	Entity	Description	Budget Congress	Budget Compact	Donor Funds	Total
C.	Department of Marine Resources	Sea cucumber and coral reef protection, MPA monitoring	$0	$214,787	$0	$214,787
D.	Chuuk Visitor's Bureau	Provides promotional services for tourism activities in Chuuk; of total budget, $19,594 is for natural resource management activities	$0	$119,704	$0	$119,704
E.	Conservation Society of Chuuk	Awareness, training, monitoring of PAs Invasive Species, reporting for law enforcement agencies.	$0	$0	$90,000	$90,000
Subtotal, Chuuk State and NGOs			$0	$1,104,063	$90,000	$1,194,063
IV. Kosrae State Government and NGOs						
A.	Kosrae Conservation and Safety Organization	Law enforcement, public awareness, protection officers	$10,000	$0	$190,000	$200,000
B.	Kosrae Tourism Bureau	Tourism-related natural resource management and international promotions. Of compact budget, $29,000 is for natural resource management activities	$10,000	$90,250	$0	$100,250
C.	Department of Resources and Economic Affairs	Food security, implementation of SLM, invasive species	$85,000	$560,000	$0	$645,000
D.	Kosrae Island Resource Management Agency	Tree nursery and tree planting, law enforcement, awareness, drafting of laws, monitoring of PA's	$20,000	$246,046	$0	$266,046
E.	YELA Environment Landowners' Authority	Awareness, monitoring and evaluation, reporting to law enforcement agencies. Endowment includes $390,000 from US Forest Service, and $160,000 from Packard Foundation. Endowment total is $550,000	$50,000	$0	$0	$50,000
F.	Pacific Adaptation to Climate Change (pilot program in Kosrae)	Piloting climate change adaptation in road infrastructure in the coastal zone in Kosrae. Donor is UNDP GEF, $1 million over three years	$0	$0	$333,400	$333,400
Subtotal, Kosrae State and NGOs			$175,000	$1,086,296	$333,400	$1,594,696
V. Yap State Government and NGOs						
A.	Department of Agriculture and Forestry	Tree nursery and tree planting, invasive species, food security implementation of SLM, watershed monitoring. Australian Government funds approximately $12,500/year	$0	$168,181	$12,398	$180,579
B.	Environmental Protection Agency	Awareness, law enforcement, PA's management and monitoring	$0	$104,435	$0	$104,435

	Entity	Description	Budget Congress	Budget Compact	Donor Funds	Total
C.	Yap Community Action Program (YapCAP)	Awareness, law enforcement, monitoring of PA's	$70,198	$0	$0	$70,198
D.	Yap Visitor's Bureau	Provides promotional services for tourism activities in Yap; of total budget, $15,559 is for natural resource management activities	$0	$278,000	$0	$278,000
E.	Department of Public Works and Transportation	Infrastructure repair, rehabilitates road easements	$0	$49,192	$0	$49,192
F.	Yap Institute of Natural Sciences (Margie Falanruw)	Promotes indigenous integrity through wise, sustainable use of local resources, and the search for a valid ethno-ecological lifestyle in the Yap islands ecosystem. Funding provided by the US Department of Forestry	$0	$0	$1,000	$1,000
Subtotal, Yap State and NGOs			$70,198	$599,808	$13,398	$683,404
VI. International/Regional Organizations						
A.	The Nature Conservancy	TNC is helping the Micronesia Challenge by supplying the scientific know-how and conservation creativity. TNC funds approximately $290,000 of activities directly through local NGOs (captured above), the figure at right is money spent by TNC directly on capacity building support.	$0	$0	$510,000	$510,000
B.	Gesellschaft für Internationale Zusammenarbeit	Funding for climate change adaptation and mitigation activities	$0	$0	$80,000	$80,000
C.	US Department of Agriculture Natural Resources Conservation Service	USDA-NRCS works with landowners, local conservation districts, government agencies and other environmental entities through conservation planning and assistance to benefit the soil, water, air, plants, and animal for productive lands and healthy ecosystems.	$0	$0	$750,000	$750,000
D.	Micronesia Conservation Trust	Provides small grants to local NGOs and CBOs, and that funding is reflected in NGO budgets above. Estimate $200,000 for annual operating and staff expenses for activities in the FSM	$0	$0	$200,000	$200,000

	Entity	Description	Budget Congress	Budget Compact	Donor Funds	Total
E.	European Union	Climate change work administered through the SPC. $334,000 per year for three years total $1 million	$0	$0	$334,000	$334,000
F.	College of Micronesia (Land Grant)	Extension and Research; Donor portion from Smith/Lever and Hatch Research; rest is State level matching. Assistance with sustainable agriculture and organic food production	$0	$210,000	$894,002	$1,104,002
Subtotal, International/Regional Organizations			$0	$210,000	$2,768,002	$2,978,002
Grand Total, (Sum I - VI)			$1,568,798	$3,856,167	$3,737,465	$9,162,430

162. Despite existing investments and activities under the business-as-usual scenario: 1) the natural environment will continue to be degraded and ecosystem services will continue to be degraded due to anthropogenic pressures and poor land management practices; and 2) existing PAs will remain poorly managed and under-funded, without a strong central coordination hub. The long-term solution is, therefore, to implement a ridge-to-reef approach that combines an ecosystem-based framework for sustainable land management regime with a representative, ecologically functional and sustainable national system of terrestrial and coastal PAs on the High Islands of the FSM. The barriers to the attainment of the long term solution are discussed in the **Long-Term Solution and Barriers to Achieving the Solution**

PART II: Strategy

PROJECT RATIONALE AND POLICY CONFORMITY

Fit with the GEF Focal Area Strategy and Strategic Programme

163. Component 1 is aligned to the Land Degradation (Desertification and Deforestation) Strategy – LD Objective 3: "*Reduce Pressures on Natural Resources from Competing Land Uses in the wider Landscape*" – through capacity development to improve decision-making in management of production landscapes to ensure maintenance of ecosystem services important for the global environment and for people's livelihoods, and avoiding deforestation and forest degradation. Component 2 addresses the GEF's Biodiversity Focal Area Objective 1 "*Improve sustainability of PA Systems*" and Outcome 1.1: "Improved management effectiveness of (existing and) new protected areas". The project will also directly contribute to IW Focal Area's Objective 1: "*Catalyze multi-state cooperation to balance conflicting water users in trans-boundary surface and groundwater basins while considering climate variability and change*" under Output 1.3 "Innovative solutions implemented for reduced pollution, improved water use efficiency, sustainable fisheries with right-based management, IWRM, water supply protection in SIDS, and aquifer and catchment protection" through the project's activities under Component 2 on pollution reduction in the streams of selected sites.

Table 9 GEF focal area outcome and indicators

GEF 5 Biodiversity Focal Area Objective	Expected Focal Area Outcomes	Expected Focal Area Indicator (and project contribution to indicator)
BD1 Improve the sustainability of Protected Area Systems.	***Outcome 1.1:*** Improved management effectiveness of existing and new protected areas.	***Indicator 1.1*** Protected area management effectiveness score as recorded by Management Effectiveness Tracking Tool Project contribution to indicator: *Average METT score for 40 PAs increased from 55 to 65*
LD3 Reduce pressures on natural resources from competing land uses in the wider landscape.	***Outcome 3.2:*** Integrated landscape management practices adopted by local communities.	***Indicator 3.2*** Application of integrated natural resource management (INRM) practices in wider landscapes Project contribution to indicator: *ILMP developed covering 62,133 ha of the FSM High Islands.*
IW1 Catalyse multi-state cooperation to balance conflicting water users in trans-boundary surface and groundwater basins while considering climate variability and change	***Outcome 1.3:*** Innovative solutions implemented for reduced pollution, improved water use efficiency, sustainable fisheries with rights-based management, IWRM, water supply protection in SIDS, and aquifer and catchment protection .	***Indicator 1.3:*** Measurable water related results from local demonstrations. Project contribution to indicator: *100% of piggeries using the dry litter piggery system within the Ipwek, Dachangar, Finkol, and Nefounimas catchments resulting in increased water quality.*

RATIONALE AND SUMMARY OF GEF ALTERNATIVE

164. The FSM is still experiencing very high rates of ecosystem degradation and biodiversity loss, particularly in the aquatic environments, despite numerous interventions to improve capacities to manage biodiversity.

165. The drivers of this degradation and biodiversity loss are deforestation and fragmentation of forests in the form of forest clearance to allow for urbanization, infrastructure development, home building, in-filling, commercial agricultural expansion, and small-scale logging for timber and firewood. Mangrove forests have been depleted through expansion of coastal infrastructure, increased settlements in littoral areas, and the harvesting of trees for timber and firewood. Overfishing and overhunting has been identified as the most urgent and critical threat across marine and terrestrial areas of interest for conservation in all the states and this is exacerbated by unsustainable fishing inensities. Pollution in the form of farm waste from piggeries and soil erosion is a major cause of land and water pollution (including freshwater, estuarine and marine). Invasive species have led to the extinction of several endemic species. In addition climate change is predicted to vary widely and this will exacerbate existing natural resource

and sustainable development challenges. The impact of the existing unsustainable agricultural practices and unplanned development will be further compromised by the limitations of government to effectively implement its programs and policies.

166. Biodiversity loss and ecosystem degradation could continue at pace if FSM does not strengthen its capacity for integrated land use planning, implementation of its existing programs and policies, protected area management effectiveness and rehabilitation activities to promote ecosystem resilience.

167. Both government and civil society organizations are playing important roles in biodiversity management and integrated land-use planning, however it is recognized that they require additional tools and capacity building interventions to address the scale of the sustainable development challenges in FSM. Government capacity requires strengthening and support to manage ecosystems, work with landowners and communities, and to facilitate co-ordination between government institutions which regulate land and natural resources use. This project is designed to address these particular challenges.

168. The project will work in four States in global biodiversity hotspots and national priority areas for biodiversity conservation that are under threat, namely: Yap, Chuuk, Pohnpei and Kosrae States.

169. The project is in line with GEF Biodiversity Focal Area, Strategic Objective 1 (Improve the sustainability of Protected Area Systems); Land Degradation Focal Area Strategic Objective 3 (Reduce pressures on natural resources from competing land uses in the wider landscape); and, International Water Strategic Objective 1 (Catalyse multi-state cooperation to balance conflicting water users in trans-boundary surface and groundwater basins while considering climate variability and change. It will specifically contribute to: BD Outcome 1.1 by improving management effectiveness of existing and new protected areas thourgh working in 27 existing PAs and proclaiming 13 new PAs adding 17,388 to the national PAN; LD 3 Outcome 3.2 by developing and implementing 4 ILMPss; and, IW1 Outcome 1.3 by converting 5% of existing piggeries on the High Islands to the innovative dry litter technology.

170. This project is designed to engineer a paradigm shift in the approach to and management of natural resources from an ad-hoc species/site/problem centric approach to a holistic ecosystem-based management “ridge to reef” approach guided by planning and management process that are informed by actual data. The shift to an ecosystem-based approach within National and State government will ensure that whole island systems are managed to enhance ecosystem goods and services, to conserve globally important biodiversity and to sustain local livelihoods.

171. The project will promote an integrated approach towards fostering sustainable land management and biodiversity conservation by seeking greater awareness, knowledge and participation of all stakeholders in achieving a greater balance between environmental management and development needs. In doing so it will reduce conflicting land-uses and land-use practices, and improve the sustainability of terrestrial and marine management so as to maintain the flow of vital ecosystem services and sustain the livelihoods of local communities. Further, the project will demonstrate sustainable land management practices testing new management measures, as needed, to reduce existing environmental stressors and institutional limitations. The project will also enhance the FSM’s capacities to effectively manage its protected areas estate as well as increase the terrestrial and marine coverage of the PA system on the High Islands.

PROJECT GOAL, OBJECTIVE, OUTCOMES AND OUTPUTS/ACTIVITIES

172. The project’s goal is to implement an integrated “Ridge to Reef” approach to enhance ecosystem services, to conserve globally important biodiversity and to sustain local livelihoods in the FSM.

173. The project objective is to strengthen local, State and National capacities and actions to implement an integrated ecosystems management through "ridge to reef" approach on the High Islands of the four States of the FSM.

174. To achieve the above objective, significant barriers, identified in the barrier analysis (see Section I, Part I), will have to be overcome to address the problem and its root causes. With this in mind the project's intervention has been organized in two components (also in line with the concept presented at PIF stage) and will be implemented in the high islands of all four States at multiple spatial scales from the site to municipal or landscape level.

175. The two components are as follows:

Component 1: Integrated Ecosystems Management and Rehabilitation on the High Islands of the FSM to enhance Ridge to Reef Connectivity, or Sustainable Land-use Management (Outcome 1); and

Component 2: Management Effectiveness enhanced within new and existing PAs on the High Islands of FSM as part of R2R approach, or Protected Area Management (Outcome 2).

176. The site interventions will be undertaken by National and State departments, NGOs and community organization, whilst implementation will be undertaken by project implementation partners. Linkages and learning between all stakeholders will be facilitated through the Project Implementation Unit and a shared learning network managed as part of the R2R Project. The principle implementing-agent of this project is the OEEM. The OEEM will be assisted at the National and State level by the 9 partner organizations (Table 10). It is not only feasible to work with multiple partners, but an imperative in the FSM. Each of the four states in the country is mandated the responsibility to manage their natural resources. Thus each state has a constellation of government agencies that support natural resource management (departments of resources/developments, divisions of agriculture/marine, EPAs…) In addition to these state-level agencies, each of the states has a local conservation NGO that is also involved. These local conservation NGOs facilitate work within communities and help to plug gaps in state level capacity to manage resources. Additionally, these groups are very familiar with each other and collaborate routinely on many initiatives, including but not limited to protected area management. It is not uncommon for representatives from multiple agencies and the NGOs to go together into communities and share the workload for pursuing state strategies for resource management. In addition to these state-level actors, the FSM national government also plays an important coordinating role. Particularly the FSM Department of Resources and Development and Office of Environment and Emergency Management. Given the 'federated' system within the FSM and the long history of agencies/NGO collaboration, it is appropriate and feasible to say that 9 partner organizations will be involved.

Table 10. Summary of R2R project government roles.

	Government Agency	
	SLM	**PA**
National:		
	1. Office of Environment and Emergency Management (OEEM)	2. Department of Resources and Development Division of Resource and Development, Agriculture Program and Marine Program (R&D)

State:		
Yap	3. Department of Resources and Development	4. Environmental Protection Agency
Chuuk	5. Department of Agriculture	6. Environmental Protection Agency
Pohnpei	7. Environmental Protection Agency	8. Department of Land and Natural Resources
Kosrae	9. Kosrae Island Resource Management Authority	

177. Activities under these two components will focus on:

- Working with National and State public institutions and agencies (NGOs) to develop systemic, institutional and individual capacity for implementing SLM, and establishing and administering PAs;
- Working with State level public institutions and agencies to develop institutional and individual capacity for site-based and landscape-level SLM and PA planning, implementation, management, enforcement and monitoring; and,
- Engage with local communities and individuals at the site-level to implement SLM practices and improve PA management effectiveness.

178. The outcomes proposed in respect of Components 1 and 2 and the outputs necessary to achieve the outcomes are captured below in table format. This is followed by a description of the high-level activities necessary to support the achievement of each of the outputs and outcomes.

Component 1: Integrated Ecosystems Management and Rehabilitation on the High Islands of the FSM to enhance Ridge to Reef Connectivity (Outcome 1)

179. Integrated Land Management Plans (ILMPs) will be developed at the High Island-scale of the four States providing an ecosystem-based forward planning to promote the optimal allocation of land resources to generate development benefits and critical environmental benefits in tandem. In order to ensure these ILMPs are based on solid and up-to-date information, Strategic Environmental Assessment for the 4 States will be undertaken. The SEA will incorporate previous work undertaken to identify ABS as well as new primary biodiversity research, environmental data collection, and systematic spatial assessment. The SEA will also provide land-use practice recommendations for avoiding and mitigating the land degradation impacts of the main economic sectors based on an explicit quantitative and target-driven analysis combined with detailed description of sustainable land-use guidelines.

180. An open-access information system will support INRM by making key spatial datasets available to decision-makers, NGO's and the wider public. Biodiversity information will be analysed (e.g. IUCN threatened status assessed for all taxa) and collated into baseline popular texts or biodiversity profile for all States to be used as a training, decision support and awareness tool during and after the project. Through this information and the INRM 'spatial decision support systems', any planner, developer or individual will be able to determine what aspects of biodiversity are most threatened and how to identify them; determine where critical habitats are; which threats these habitats are suffering; whether a given site has a PA status or proposed status; what the recommended land-use activities are; and, what the recommended best practice guidelines are for the major land-use types. This framework will create an enabling environment, within which legislation pertaining to the sustainable development of the FSM can be enacted, and EIA procedures and due diligence can be enforced.

181. The creation of a SLM coordination mechanism (multi-stakeholder planning platform) that brings together the different institutions with sectoral responsibilities, for the development and conservation of the High Islands, as well as the CSOs and private sector/local community partners will be explored for each State. This coordination mechanism will look to adapting existing initiatives (e.g. Environmental

Management and Sustainable Development Council) before considering creating a new structure. Work of multi-stakeholder committee will promote a unified approach to SLM across agencies and seek optimal land-use use outcomes of land in terms of biodiversity conservation, ecosystem services and social well-being and economic development. The spatial planning tools and the coordination mechanism will enable the greater participation of local stakeholders in land-use planning and decision-making processes thereby increasing the likelihood of successful implementation of the plans. From the point of view of capacity building for SLM, the project will strengthen the management capabilities of the different management authorities to conduct land-use planning. All of these actions will ensure that the terrestrial and surrounding marine areas are planned as an integral part of the wider land/seascape of the High Islands.

182. To build the business case for increasing the baseline financial resources flows supporting the sector, a "Making the Case" strategy will be developed based on an appraisal of the monetary and intrinsic values of the natural environment to production sectors, the State and the general public good. The harmonized messaging developed through the primary research and associated marketing campaign will be used by all R2R implementing partners to speak with one clear message to foster awareness around the value of ecosystems and leverage greater public and donor investment in environmental management.

183. Rehabilitation of critical ecosystems identified through the SEA/ILMP process will support the management of threatened species and ecosystems to enhance ecological resilience, landscape connectivity, reduce erosion, improve water quantity and quality, and reduce coastal flooding/erosion.

184. Lessons learned from applying and enforcing SLM in cultural landscapes will be shared regionally through the regional R2R program and other regional learning and peer-learning networks.

Table 11 Component 1 outcomes and outputs

OUTCOMES	OUTPUTS
Outcome 1 *Integrated Ecosystems Management and Rehabilitation on the High Islands of the FSM to enhance Ridge to Reef Connectivity*	1.1 Four Integrated Landscape Management Plans (ILMPs) are developed and implemented for the High Islands of the FSM: 1.1.1 Strategic Environmental Assessments (SEA) conducted for the High Islands. 1.1.2 Spatially-based decision support systems for INRM are developed and made available for use in EIA, policy development, multi-sector ecosystem-based planning & management. 1.1.3 Multi-sector planning forum is established to facilitate the development of ILMPs for the High Islands in each state 1.2 Institutions with sectoral responsibilities for the development and conservation of the High Islands, together with relevant CSOs and community partners, are capacitated for coordinated action at the wider landscapes on SLM 1.3 Additional finances for SLM investments (including PA management costs) secured and existing contributions to the environmental sector to support SLM practices aligned. 1.3.1 Making the Case for SLM through valuation of goods and services of natural systems as well as different SLM practices is conducted as a basis for brokering new public and donor finance for BD conservation and SLM

OUTCOMES	OUTPUTS
	1.4 Management and rehabilitation of critical ecosystems implemented to enhance functional connectivity, reduce erosion, improve water quantity and quality and reduce coastal flooding.

185. The following paragraphs expand on each of the four Component 1 outcomes and describe the outputs and high-level activities necessary to achieve these outcomes.

Output 1.1: Four Integrated Landscape Management Plans (ILMPs) developed and implemented for the High Islands of the FSM.

186. The purpose of the ILMP is to translate the guiding ecosystem-based management framework and concepts embodied in the R2R approach into a set of tangible tools recommendations and guidelines that can be used to inform land-use planning and decision making in a way that promotes environmental sustainability.

187. ILMPs will be developed and mainstreamed for each High Island in the FSM (Yap, Pohnpei, Kosrae, and islands of Tol, Moen (Weno) and Fefan in Chuuk, total = 62,133ha). The ILMPs are also referred to as Integrated Environmental Management Plans (IEMPs) in some states. The PIU will outsource the technical components of the SEA/ILMP to a suitably qualified international expert in spatial biodiversity planning. The R2R National Project Steering Committees will guide the high-level activities of the SEA Team and act as the primary stakeholder interface (see Output 1.1.4). At the State-level the project technical committee will support and guide the SEA Team within the State. The ILMP will be implemented at the whole high islands except for Chuuk which will be 3 islands level and therefore building the relationship between the State-level R2R SLM Co-ordinator and the local Municipalities will be central to the success of the intervention. The ILMP is intended as a land-use forward planning and development tool to guide State and Municipal decision makers in, amongst others, the EIA process. It will also be applicable to identifying site-level SLM interventions such as rehabilitation projects (including rehabilitation of mangrove/upland forest, removal of alien invasives). The ILMP will only cover land-use in the terrestrial environment (including mangrove forests). Use guidelines for the marine environment are covered in the protected area management-planning outcome (Outcome 2.9).

188. The ILMP development process will include:

- The multi-sector planning forum (Output 1.1.3) with input from the international consultant leading the development of the SEAs and ILMPs will agree on a national guideline for ILMP development. These guidelines will be revisited during the course of the project to integrate and share lessons learned from the R2R process.
- Communities in each Municipality need to be actively engaged in the ILMP development process at all levels from conceptualization, development to implementation planning and monitoring.
- Where possible existing ILMP/IEMP products or guidelines in each State should be used as the starting-point for this process (e.g. Kosrae Land Use Plan (KLUP)).

- The primary product of the ILMP will be an environmental sensitivity map and associated land-use guidelines indicating recommended land-uses for any given zone.
- The ILMP will include (a) environmental health (biodiversity indicators, stressor indicators [e.g. point pollution sources, piggeries, dumps]) and (b) ILMP implementation monitoring plans with recommendations for key indicators. Baseline surveys of the environmental health indicators will be conducted in partnership with the monitoring component of the R2R (Output 2.11). The monitoring plans will also include recommendations for collection of additional biodiversity and environmental data. (c) Integrate information on climate change/environmental risk and adaptation strategies.
- The ILMP will include a comprehensive section on best practice recommended land-use guidelines (e.g. a standard for burial practice, a standard for sewage disposal/runoff, watershed management through IWRM) and specifications for location of infrastructure and activities in the landscape (e.g. location of piggeries relative to water sources, building setback lines, building and maintaining dumpsites). To develop these guidelines one or more local consultants will be engaged to conduct research on appropriate land-use activities and guidelines that are compatible with the ILMP and R2R environmental sustainability objectives.
- A Biodiversity Profile describing the biodiversity and ecosystems of the FSM will accompany the land-use maps and guidelines to serve as an information tool for raising awareness around biodiversity in the FSM.

Output 1.1.1: Strategic Environmental Assessments (SEA) conducted for the High Islands.

189. Strategic environmental assessment (SEA) is a systematic decision support process, aiming to ensure that environmental and possibly other sustainability aspects are considered effectively in policy, plan and programme making. In the R2R the SEA will be the process whereby biodiversity, environmental and land-use information will be assembled and subjected to a spatial analysis to provide the primary informant in the development of the ILMP.

190. The SEA team will comprise the National SLM Program Manager and an international consultant working with SEA State teams lead by the respective State SLM Program Managers. The multi-sector planning forum (Output 1.1.3) in each State will provide a reference group during the development of the SEA. The SEA will potentially be the largest component of the R2R as a large number of people will contribute to the component particularly scientific experts will be engaged to collect primary data.

191. The SEA will not include a community participation component. The role of the SEA is simply to establish the baseline integrated environmental informants to the ILMP. The ILMP will use the outputs from the SEA to engage with communities around land-use planning and sustainability issues.

192. Given the much of the data available for planning in FSM is dated an important function of the SEA will be to undertake a 1-2 year biodiversity data gathering program aimed at conducting a rapid biodiversity appraisal of each State.

193. The SEA will include:

- The first function of the SEA team, in collaboration with the multi-sector planning forum, will be to conduct a spatial data needs analysis to determine the status quo of data in each state and determine protocols for access existing data and collecting new data. Data that will be collected for the SEA include:
    - Collation of all historic biodiversity data
    - Survey of endemic and particularly endangered terrestrial species (plants, reptiles, molluscs, birds, mammals, fish);

    - Vegetation map based on scientific sampling of vegetation and using the latest satellite imagery;
    - Land-cover map
    - Land-use pressure map or biodiversity threats map
    - Digital terrain model (DEM)
- The SEA team will work closely with the R2R Information Management Officer to ensure that the data collected as part of this project is properly catalogued in an information management system.
- The SEA will use a GIS-based systematic spatial biodiversity planning approach to develop environmental sensitivity maps as the baseline informants for the ILMPs.
- As a R2R legacy product and baseline information tool for land-use planning the biodiversity data assembled as part of the SEA process will be used to produce an electronically available biodiversity profile of the FSM (Output 1.1.2).
- The data-gathering component of the SEA will work closely with the capacity building component (Output 1.2) to exploit training and learning opportunities arising from the biodiversity inventory work. Visiting scientists will be required to use college interns for field sampling and laboratory work. Visiting scientists will be required to give short-courses (half to one day) aimed at SLM and PA managers on identifying species.
- The SEA will use information on the distribution of biodiversity (both biodiversity pattern and ecological processes) as the primary informant.
- In additional the SEA will also explicitly consider climate change and its projected impacts on biodiversity and society in the analysis. The SEA is to ensure that the existing regional (e.g. PACC Adaptation Plan) and national climate change adaptation strategies developed for the FSM are fully integrated into the SEA and ILMPs together with clear spatial assessment/representation of impacts; guidelines for development planning; and, appropriate management response recommendations to different risks.

Output 1.1.2: Spatially-based decision support systems for INRM are developed and made available for use in EIA, policy development, multi-sector ecosystem-based planning & management.

194. Linked to the development of the SEA and ILMP will be the development of a set of land-use planning spatial decision support tools to assist users to implement the ILMP in land-use decision and policy making processes. The role of these guidelines is to provide land-use decision makers and land-users with clear and practical guidelines on how to manage different zones in the landscape in order to achieve the biodiversiy (conserve biodiversity) and environmental (improve water quality) outcomes underpinning the INRM framework.

195. The SEA team will be responsible for developing the tool with input from the multi-sector planning forum. The INRM spatial decision support tool will comprise the following basic components:

- A printed map indicating environmental sensitivity in the landscape.
- A land-use planning guidebook[57] accompanying the map aimed at practitioners providing interpretation of the zones indicated on the map; guidance on interpreting the map and land-use planning and decision making considerations and processes; guidance on appropriate land-uses recommended for each zone; and, detailed best practice land-use guidelines for different land-use types/sectors.

[57] See examples of Bioregional Plans developed in South Africa: http://BGIS.Sanbi.org

- A detailed technical report detailing the input data (biodiversity and physical environment) and methodology used to prepare the SEA and the primary ILMP map. The technical report will also contain record of the stakeholder consultation process.
- A GIS database containing all the spatial and biodiversity data used to develop the SEA and ILMP to be curated by the PIU GIS Technician during the life of project. The long-term information management arrangements for all aspects of the R2R project are addressed under Output 2.4.3.
- An annotated *Biodiversity Profile* briefly describing the biodiversity and ecosystems of the FSM to provide an up-to-date and scientifically accurate baseline source of biodiversity information for land-use practitioners, scholars, decision makers, resource users and teachers. The Biodiversity Profile will be compiled with the assistance of local and international biodiversity experts. It will briefly describe each native and alien species found in FSM together with observation-based distribution data; ethno-botanical/local uses; photograph/illustration where available; and, include sections describing the habitats and vegetation units found in each State. If available, identification keys will also be included to assist with identification of taxa necessary for monitoring of biodiversity indicators. The prospectus will also include an up-to-date IUCN threat assessment for all native plants, terrestrial and freshwater molluscs, fish (particularly freshwater), reptiles, mammals and birds. Where possible vegetation unit descriptions should be based on floristic survey data. Up to date habitat/vegetation and land cover maps produced in the SEA will accompany the descriptions. The Biodiversity Profile will be published as a stand-alone electronic book unless outside funding secured to publish the book in hard copy. Collection of the primary biodiversity data necessary to complete the Biodiversity Profile will be conducted as part of the primary input data gathering process for the SEA (Output 1.1.1), the systematic conservation planning component (Output 2.2); and, biodiversity monitoring components (Output 2.4.3) of this project. Essentially all these components will be contributing to and drawing from the same biodiversity data collection process.

Output 1.1.3: Multi-sector planning forum is established to facilitate the development of ILMPs for the High Islands in each state

196. The National Project Steering Committee and State Project Steering Committees will act as the multi-sector planning forum to facilitate the development of the ILMPs. At the National-level the project-implementing partners listed in Table 10 will form the committee core with other National, regional or State role-players (

197. Table 6) invited to participate specifically around the development of the ILMPs. The mandate of the PSC with respect to facilitating the development of the ILMPs will be to:

- Facilitate communication between State agencies and industry and land managers.
- Advise State legislatures on SLM, ILMP and IEMP matters.
- Cooperate with R2R learning networks to identify natural resource managers within State agencies and production sectors to target for capacity building and awareness training around FSMs biodiversity, SLM, EIA, and the development, use (including GIS training) and interpretation of the SEA, ILMP products developed by the R2R as well as IEMPs.
- Serve as the primary stakeholder focus group informing the development of State-level ILMP and IEMP.
- Promote standardizing of EIAs through adoption of national/regional guidelines and building awareness around using the EIA process in development planning.

- Develop and implement a strategy for sustainably reviving the Natural Resource Advisory Committee in each State.

Output 1.2: Institutions with sectoral responsibilities for the development and conservation of the High Islands, together with relevant CSOs and community partners, are capacitated for coordinated action at the wider landscapes on SLM

198. Long-term sustainability and impact of the R2R intervention is dependent on investment in capacity building of staff and institution to more effectively achieve SLM and PA outcomes now and into the future. Capacity development is a core R2R activity that cuts across all project outputs. All R2R capacity building and regional interaction related activities are grouped here into a single project component given that: there are clear thematic linkages between the different capacity building programs in SLM and PAs; the recipients of capacity building are mostly the same across outcomes; and, it is more efficient to coordinate and deliver all communication, outreach, capacity building, networking related activities through a holistic strategy under a single entity thereby avoiding duplication of activities, lowering costs and promoting harmonization of messaging to stakeholders.

199. The R2R communication and capacity development program will be developed, implemented and co-ordinated by the PIU, specifically the Project Manager with assistance from the National SLM and PA Co-ordinators, and State-level staff. The Project Manager will facilitate the development of a R2R Communication and Capacity Development Strategy in collaboration with the key-implementing partners and regional role-players and which is aligned to existing National and regional initiatives especially the MC and existing learning networks such as PIMPAC, MIC and LMME.

200. The strategy should focus on addressing the shortcomings in the R2R SLM and PA Capacity tracking tools. Low-scoring aspects of these tracking tools are where the R2R capacity building activities will focus interventions. The strategy will include:

- Provision for regional interaction and training with the R2R Regional Project (5395) specifically sharing lessons with the region, and bringing regional science and technology lessons to FSM through participation in the Science, Technology and Resources Network of SOPAC via (1) the Regional Science and Technology Committee (RSTC); (2) the annual regional Scientific Conference; and, (3) postgraduate training.
- Collaboration with the UNDP MCO and UNDP JPO around identifying and harnessing synergies between various GEF regional programs.
- Collaboration with regional NGO role-players (e.g. SOPAC, SPREP, MERIP, PREL, RARE, SPC, IOM, etc.) around identifying synergies, aligning learning networks and building capacity development programs.
- An assessment of capacity needs audit amongst stakeholders related to R2R activates.
- An assessment of training capacity with a strategy for overcoming limitation identified.
- Key implementing partners and what sub-components they will be responsible for;
- Existing capacity building initiatives that can link to the R2R effort and elaborate in what form the synergy will be realized;
- Clear project capacity building indicators based on the UNDP SLM and PA tracking tools with which to monitor and assess outcomes; and,
- Elaborate on capacity building opportunities that the project will make use of: internships for college students and collage leavers; work exchanges between agencies; public media such as radio,

newspapers and TV; mentorship utilizing retired professionals; demonstration sites/projects; and, scholarships for college students.

- Explore opportunities for professional certification or credits arising from trainings.
- Have explicit linkages to the communication, peer-learning and lessons-learning components of the R2R so that there is an active feedback loop between training implementation and lesson learning/sharing.
- During the life of the R2R project, the capacity building strategy will be subject to annual review to allow lessons learned and new strategies to be integrated into the overall strategy.

201. Implementation of the strategy will be via project staff (State SLM and PA Co-ordinators), partners and other stakeholders (e.g. Rare, SPREP, SPC) with the PIU fulfilling a co-ordinating/secretariat role where necessary. The program will be closely linked to the National and regional communication and peer-learning program. All R2R communication, learning and capacity building programs will be coordinated and facilitated through the national program

202. R2R outcomes grouped under the capacity building component include:

- Building capacity at the State, NGO and CBO levels around planning for and implementing SLM
- Building capacity amongst National and State entities to coordinate and perform PAN management functions.
- Building the capacity of PA managers (state and community) to better manage PAs.
- Building capacity of Communities to implement on-the-ground SLM activities.

203. Examples of specific SLM related capacity building topics under already identified by stakeholders include:

- Build local capacity to be able to identify plant diseases and insects (Plant pathologist and entomologist)
- Training for sustainable forest management (Erosion Control Practices)
- Pesticides Certification (Trainers training and certification)
- Training on the use silt defences and oil spill booms
- Crops descriptor and characterization specialty
- Identification and eradication of invasive alien species
- Establishment and management of dry litter piggery as well as other sustainable agricultural practices such as organic and biodynamic farming, sloping agricultural land technology (SALT) farming.

204. Further, the UNDP-GEF Regional R2R Project "Pacific Islands Ridge-to-Reef National Priorities – Integrated Water, Land, Forest and Coastal Management to Preserve Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods" (the executing agency for this project is SPC's Applied Geoscience and Technology Division (SOPAC) based in Suva, Fiji) will support the development of technical capacities and information sharing networks to support national R2R projects, including the proposed project in the FSM. As part of this effort, the regional project will develop and deliver a post-graduate training program in Integrated Water and Coastal Management for project managers of the regional project's pilot activities and national STAR projects through a partnership of internationally recognized educational institutes. The design of this postgraduate training programme enables eligible project managers and R2R stakeholders to progress towards a Master's degree qualification. The course will be delivered remotely (online), with annual face-to-face meetings coinciding with the regional R2R project's steering committee meetings. This will be complemented with a community-based certification programme in R2R planning and CC adaptation for stakeholders at project sites, which will be led and

coordinated nationally by participants of the regional training programme. Supporting activities include: the development of a register of national and regional water, land and coastal management practitioners to facilitate intra-country and multi-lateral sharing of skills and expertise; and the development of an online database of past and present projects relating to land, water, forests, coasts and climate change adaptation to assist in information sharing on available specialist expertise and technical resources and to serve as a repository for lessons learned. The Regional R2R project will fund the course development costs as well as the participation of its national pilot project managers, while the proposed FSM's R2R project will fund the participation of its project staff / key stakeholders (estimated at 2-3 persons) in these activities.

205. In addition, the national project will participate in the activities of the regional project to strengthen the scientific and technical linkages between Pacific Island Countries for Ridge to Reef approaches. Component 2 of the regional project will establish a Regional Scientific and Technical Committee (RSTC) that will serve as a forum for reconciling both sectorial and national interests and priorities, and will foster the incorporation of sound science into decision-making and national and regional planning. The FSM R2R project will participate in the RSTC, and will benefit from the work of that body to develop regionally appropriate knowledge tools to support evidence-based coastal and marine spatial planning in PICS. In addition, national stakeholders from FSM will participate in the Regional Scientific Conference on coastal and marine spatial planning in PICs, which will support the uptake of regionally accumulated scientific knowledge in policy-making and planning and will facilitate exchanges between government and the scientific community.

Output 1.3: Additional finances for SLM investments (including PA management costs) secured and existing contributions to the environmental sector to support SLM practices aligned.

206. This output will be concerned with making clear the rationale, or "Making the Case", for why governments should in the natural environment. This will be achieved through valuing the goods and services of natural systems as well as different SLM practices to provide a basis for brokering new public finance for biodiversity conservation and SLM. Through a clearer understanding of the value of ecosystems to society, the government will be better positioned to make informed and strategic decisions and funding allocations regarding environmental management in the FSM.

207. The MC has already established an endowment to provide a sustainable finance mechanism for PAs in the Micronesia region. This project will address two challenges facing PAs in terms of securing sustainable financing:

- Increasing the baseline Compact and State Congress funding to support baseline PA management functions; and,
- Enabling PAs to access funding from the MC endowment.

208. With respect to the second challenge the R2R Project Component 2 dealing with PA management will increase the management effectiveness of PAs through the planned capacity building and planning, monitoring and enforcement enhancement activities (Component 2 of this project). These actions will improve the METT score of individual PAs and thus enable them to meet the criteria to be eligible to receive MC endowment funds.

209. To address the baseline National and State funding of gaps Output 1.3.1 will (1) conduct a valuation of the FSM ecosystem good and services and (2) develop a communications strategy for "marketing" investment in environmental management and biodiversity conservation to key National and

State stakeholders with the goal being to leverage greater baseline government funding. All aspects of the R2R project will draw on this information and strategy in communicating results of the R2R project to stakeholders. A key responsibility of the R2R Project Manager will be to implement the Making the Case strategy.

Output 1.3.1: Making the Case for SLM and PAs through valuation of goods and services of natural systems as well as different SLM practices is conducted.

210. Securing long-term financial and policy commitment from government for the environment will only happen when the full value of the environment to social well-being and economic sustainability are understood and appreciated by politicians and their constituencies. The objective of the Making the Case (MTC) is to lay the sustainability groundwork for all components of the R2R by rebuilding in the mind of government and the FSM society the connection between a healthy environment and investing in their management.

211. The MTC output has two major activity components: (1) valuation of the monetary and non-monetary values of the FSMs environment's goods and services; and, (2) developing a messaging, communication and marketing strategy to create awareness and influence decision makers into investing greater financial resources into SLM and PAs. The MTC valuation will be lead by an international consultant contracted through the PIU. The valuation will include a review of international current thinking and practice around conceptualizing and assessing the value of the environment to society and economies. Based on this assessment a research program will be developed and implemented to gather primary data to provide quantitative examples in support of valuation concepts. The second component of the MTC activity will be to develop a marketing strategy (MTC Strategy) to promote the findings of the valuation study amongst government and the broader FSM and regional communities. Key elements of the MTC Strategy will be to: (1) develop positive messaging directed at influencing politicians to invest more in SLM and PAs; (2) identify key individuals within governments and the broader stakeholder group to target with the MTC messaging; and, (3) develop consistent MTC messaging and material for all R2R stakeholders to use in their organizational communication.

212. Communication of the MTC findings will be through: (1) direct communication between R2R Project leaders and target individuals; (2) regular R2R communication channels and learning/regional forums; (3) project partners incorporating the messaging into their organizational marketing and communication strategies; and, (4) Incorporating the messaging into fund raising activities specifically to support the MC Endowment sustainable finance plan.

Output 1.4: Management and rehabilitation of critical ecosystems implemented to enhance functional connectivity, reduce erosion, improve water quantity and quality and reduce coastal flooding.

213. The objective of this output is to (1) engineer widespread uptake of SLM agricultural practices in the landscape; and, (b) conduct ecological rehabilitation of environmentally or biologically important degraded ecosystems covering at least 350ha upland and 50ha mangrove forest.

214. *Agricultural SLM*: The project will focus specifically on furthering the uptake of dry litter piggery technology in the High Islands. Other important SLM agricultural activities such as the "Grow Low" sakau program and SALT farming will be support through the projects communication and capacity building activities but will not be the focus of a specific project activity.

215. The dry litter piggery program aims to engineer landscape level uptake of the technology in order to unlock the environment, human health and economic benefits of the farming technology. The project will initially operate in four catchments across the FSM (one catchment per High Islands; see Map 7, Appendix 1) The program will consist of five components:

- Conduct a lesson learning process to determine and understand the social and economic barriers preventing widespread uptake of the technology to date, and identify novel approaches or adaptation of current approaches that will overcome these barriers.
- Build awareness amongst farmers and communities through the R2R communication strategy around (a) the negative impacts of regular piggeries on the environment and human health and (b) the economic/environmental/health benefits of dry litter piggeries, and the opportunities available through the R2R to convert existing piggeries to dry litter piggeries.
- Provide technical extension services to farmers and training opportunities to assist with the conversion to and management of dry litter pigpens.
- Bridge the capital barrier for making the conversion by working with the Awak piggery project and the Piggery Waste Management Revolving Fund to up-scale the revolving fund to operate across the whole of the FSM.
- Scientifically monitor (a) farmers experiences successes/failures; (b) environmental impacts of the program specifically water quality; and, (c) agricultural benefits such as value of compost to farmers or changes in agricultural outputs as a result of compost addition.

216. *Ecological rehabilitation:* The project will physically restore degraded upland forest and mangrove ecosystems that are identified as being important for maintaining critical biodiversity or ecological processes. The ecological rehabilitation activities will comprise four subcomponents:

- Systematic identification of rehabilitation sites that optimise allocation of rehabilitation resources to maximise ecosystem service and biodiversity conservation returns has not been undertaken. This will be conducted as part of the SEA and ILMP processes. Selected sites will be in or adjacent to existing or new PAs, or else other parts of the landscapes identified as being critical ecosystems. At least 350ha of upland forest and 50ha of mangrove across the FSM will be rehabilitated through the R2R project.
- Research and develop guidelines for applied ecological rehabilitation of the FSMs terrestrial ecosystems. There are examples in the FSM of State/donor funded rehabilitation rehabilitation work conducted using alien species to “rehabilitate” areas (e.g. *Acacia confusa* used in Yap). This is absolutely unacceptable in the R2R and biodiversity conservation context. The development of the rehabilitation guidelines will use the best available scientific evidence, and contribute to biodiversity conservation and ecosystem service goals (i.e. using only native species). The guidelines development activity will also identify research gaps and implementation bottleneck that the R2R project will need to address in order for rehabilitation to be successful (e.g. identification knowledge of alien or native species, availability of native species planting material, etc.). Development of these guidelines will contribute to the land-use practice guidelines being developed in the SEA process (Output 1.1.1). The guideline development process will also determine indicators for rehabilitation and establish the baseline that will link with the monitoring components of the project (Outcome 2.4.3) and the outcome indicators of the R2R. The rehabilitation protocols that will be developed under the guidelines will explicitly mention the exclusion of use of AIS or potential AIS in rehabilitation. The protocols will include the requirement to conduct an environmental and social impact assessment if non-indigenous species is considered.
- In partnership with local communities apply the best practice ecological rehabilitation techniques to physically restore habitat in identified sites. If the use of non-indigenous species is considered in the

rehabilitation of habits (not recommended), an environmental and social impact assessment needs to be conducted prior to the start of any rehabilitation. Based on the recommendations of the ESIA, rehabilitation can be considered.

- Scientific monitoring of rehabilitation sites and reporting of results to the PIU.

Component 2: Management Effectiveness enhanced within new and existing PAs on the High Islands of FSM as part of R2R approach (Outcome 2)

217. This component focuses on strengthening the management effectiveness of existing and new PAs. The project will support the strengthening of State legislation concerning biodiversity conservation in order to ensure that a standardized approach to PA management and assistance to State agencies and communities managing PAs is followed. The project will assist each of the 4 States governments to strengthen their institutional arrangements to promote effective PA management, knowledge management, sharing and enforcement.

218. As part of this process of capacity development and standardization, the Department of Resources and Development at the National level as well as the Environmental Protection Agency, Department of Agriculture and the Department of Marine Resources from Chuuk State; Department of Land and Natural Resources and Department of Public Safety from Pohnpei State; Kosrae Island Resource Management Authority from Kosrae State; and Department of Resources and Development from Yap State will be capacitated in centralized cost-effective PA management functions such as planning (especially participatory planning processes and community engagement, systematic conservation planning), finance, legal affairs and enforcement.

219. A standardised PA reporting and performance monitoring system will be introduced across the 4 States and a PA management information system will be established which will host biodiversity, finance and other information. A standardized PA reporting and performance monitoring system has been one of the main outcome areas under the Micronesia Challenge. This will be coupled with conceptual development of a larger biodiversity and spatial information management system (IMS) building on the National government, NGOs and regional partners that are already actively involved with these activities. The end-goal of the IMS will also archive all spatial and biodiversity data gathered as part of the SLM components SEA activities. Capacity building in information management, GIS and spatial analysis will form the focus of a national peer-learning network and R2R project support to the States.

220. To avoid duplication and to continue to support consistent monitoring, the R2R will provide assistance to further develop and refine the tools and procedures already under development through the MC. Three concurrent activity-areas to further strengthen current efforts are proposed by the MC. These are: (1) Further and strengthened implementation of the Protected Area Management Effectiveness Tools (MPAME and GEF METT); (2) Socioeconomic monitoring including economic valuation of PAs and SLM to support the Making the Case strategy; and, (3) Biological/Ecological Monitoring to support selected indicators. The R2R will support implementation of those parts of the total monitoring strategy proposed by the MC that directly relate to the R2R Outcomes and Strategic Framework indicators.

221. New terrestrial and marine protected areas will be established and gazetted covering an area of at least 16,000 ha across the four States of the FSM (Table 12). In total 40 PAs will be targeted by this project. (Table 13 and Appendix 7). New PAs will be equipped and adequately staffed (paid and volunteer staff). PAs will be capacitated in effective PA management especially in PA management planning, boundary demarcation, monitoring (to feed into the centralized information systems) and enforcement.

222. The number of protected areas proposed for support under this project is high. However, it reflects the country's commitment through the Micronesia Challenge to effectively manage and conserve 30% of FSM's near-shore marine resources and 20% of terrestrial resources. Since launching the Micronesia Challenge, the states within the FSM, guided by the national government, have aggressively pursued this goal and are integrating the protected areas within each state into a broader protected areas network (PAN). In a sense, what the project will be supporting are the four states to implement the PAN (viz. meta-PA) not approximately 40 individual sites. The implementation context of PAs in The FSM needs to be considered when evaluating the feasibility of the PA target. Factors to consider include:

- Most sites have community involvement at some level either directly managed by the community or collaboratively with the State/NGO authorities. Of the 40 selected sites 15 are community run, 14 are community/state partnerships and only 11 are state run PAs.
- The institutional context of how PAs are managed in The FSM needs to be considered. Individual PAs do not have their own state-funded management authority. Rather the state and NGO partner tend to manage all PAs within a State as a "Meta-PA" or collection of PAs each with individual management plans and perhaps community management body all under one central state PA management body. In some sense the project is not working with 40 PAs but rather with 4 meta-PAs. By building capacity of the state R2R partner agencies the project will improve the PA effectiveness across all 40 sites.
- During the PPG process all potential implementation sites were assessed and verified in consultation with stakeholders. In order to select the protected areas for this project the ProcDoc team traveled to each state within the FSM and had individual and joint consultations with government agencies responsible for natural resource management, local conservation NGOs, and community levels. The ProcDoc team also held consultations with the national government. Throughout the entire process the ProcDoc team was careful to ensure that sites selected had the support of the neighboring communities/municipalities. Sites with low landowner willingness or no existing PA initiative were excluded from the final selection. In each case the protected areas are already in either an initial or final stage towards states/PAN recognition as protected area sites. The sites selected also reflect the Micronesia Challenge initiative having been identified through the ABS planning work. There are no green-field sites where stakeholders have not previously expressed an interest in creating a PA. Therefore there is an average to good chance that all sites identified will be able to improve or maintain their METT score. In Chuuk there are some uncertainties about implementation success due to the complex social environment, challenging geography and capacity constraints.

Table 12. Summary of number and area of existing and new PAs targeted by this project.

PA Status	Terrestrial or Marine	Area (ha)	Number of PAs
Existing	Marine	3154	18
	Terrestrial	4444	9
Existing Total		**7598**	**27**
New	Marine	11799	6
	Terrestrial	5589	7
New Total		**17388**	**13**
Grand Total		**24986**	**40**

Table 13. A summary List of the Focus PAs the R2R project will be targeting.

STATE	Name of PA	Terrestrial or Marine	Area (ha)	PA Status
Yap	Nimpal Channel	Marine	79	Existing
Yap	Reey	Marine	177	Existing
Yap	Riken	Marine	27	Existing
Yap	Tamil	Marine	632	Existing
Yap	Gargey Village Fat'earcheg Hillside	Terrestrial	2	Existing
Yap	Gargey Village T'olo Mangrove Forest	Terrestrial	2	Existing
Chuuk	Parem	Marine	72	Existing
Chuuk	Oror	Terrestrial	35	Existing
Chuuk	Ununo	Terrestrial	160	Existing
Chuuk	Mwanukun and Neoch	Marine	10583	New
Chuuk	Wichikuno (Tol)	Marine	706	New
Chuuk	Winifurer	Terrestrial	231	New
Chuuk	Winipot (Tol)	Terrestrial	193	New
Chuuk	Witipon	Terrestrial	2	New
Pohnpei	Dehpekh/Takaieu	Marine	212	Existing
Pohnpei	Kehpara	Marine	189	Existing
Pohnpei	Mwand (Dekehos)	Marine	460	Existing
Pohnpei	Nahtik	Marine	75	Existing
Pohnpei	Namwen Na	Marine	71	Existing
Pohnpei	Namwen Naningih	Marine	34	Existing
Pohnpei	Nanwap	Marine	305	Existing
Pohnpei	Pwudoi	Marine	139	Existing
Pohnpei	Sapwitik	Marine	83	Existing
Pohnpei	Enipein Mangrove Reserve	Terrestrial	955	Existing
Pohnpei	Pohnpei Watershed Forest Reserve (Phase I)	Terrestrial	2330	Existing
Pohnpei	Senpehn Mangrove Reserve	Terrestrial	130	Existing
Pohnpei	Palikir Pass	Marine	180	New
Pohnpei	Peniou Island	Marine	160	New
Pohnpei	Awak Watershed Basin	Terrestrial	800	New
Pohnpei	Pohnpei Watershed Forest Reserve (Phase II)	Terrestrial	4012	New
Kosrae	Awane	Marine	131	Existing
Kosrae	Tafunsak	Marine	59	Existing
Kosrae	Tukasungai	Marine	278	Existing
Kosrae	Utwe Biosphere Reserve incl. Utwe-Walung MPA	Marine	131	Existing
Kosrae	Olum Watershed	Terrestrial	310	Existing
Kosrae	Yela Ka Forest	Terrestrial	520	Existing
Kosrae	Pikensukar	Marine	20	New
Kosrae	Tukunsruh Mangrove Forest	Marine	150	New
Kosrae	Kuuplu Mangrove Forest	Terrestrial	45	New
Kosrae	Tofol Watershed Area	Terrestrial	306	New
	Total Area		**24986**	

Table 14 Component 2 outcomes and outputs

OUTCOMES	OUTPUTS
Outcome 2: *Management Effectiveness enhanced within new and existing PAs on the High Islands of FSM as part of R2R approach (both marine and terrestrial)*	2.1 National and State-level Legal and Institutional Frameworks have been established to improve management effectiveness of PAs. 2.1.1. The National Department of Resources and Development and State PA Agencies are actively involved and capacitated to perform centralized PA management functions such as planning, finance and legal affairs cost effectively. 2.1.2. A standardized PA reporting and performance monitoring system has been implemented. And a National biodiversity/ecological monitoring and information system has been established 2.1.3. An integrated and adaptive PA management decision support system is established at State and National levels to facilitate biodiversity, financial and risk (climate change and land-use pressures) adaptive management planning and decision-making. 2.2 The PAN of the High Islands has been expanded, and existing and new PAs of the FSM have been secured through a review and upgrading of legal protection status (gazetting of all PAs). 2.3 Management authorities (state and community) of newly established PAs are equipped and capacitated in managing PAs. 2.4 Effective site and cross-site level PA management practices promoted in new and existing PAs: 2.4.1 Improved PA management planning and boundary demarcation have been implemented 2.4.2 Improved zoning and boundary demarcation based on and aligned to the ILMP, and SEA 2.4.3 Biological/ecological monitoring systems have been implemented. 2.4.4 Enforcement of PAs has been strengthened 2.4.5 Communities have been capacitated to better management of specific land-use pressures at the site-level.

Output 2.1: National and State-level Legal and Institutional Frameworks have been established to improve management effectiveness of PAs.

223. The objective of this outcome is to review National and State PA policy and legislation and to update this where necessary to meet a common set of national PAN standards, and to review and refine roles and responsibilities for stakeholders involved in PA implementation, management, monitoring and enforcement. This outcome will develop the national policy and legislative frameworks that will facilitate streamlined and efficient technical and financial support to State level activities. The national policy will also establish the minimum standards and criteria for individual PAs to qualify as members of the national PAN, and in turn, qualify for endowment funding from the MC.

224. This output will work to address the policy, legal and institutional barriers that exist in the developing FSM PAN policy framework. Activities will include:

- Further develop and implement those components of the national PAN reporting and performance monitoring system established for the MC that directly relate to achieving the Outcomes and Strategic Framework indicators of the R2R project.
- Conduct a comprehensive review of and update the national Protected Areas Framework to address deficiencies, and provide States with guidelines with respect to updating and harmonising State PA legislation to reflect a common national standard. The PAN framework needs to look at organisational arrangements for securing sustainability i.e. dedicated PAN administrative functions at National and State levels.
- Develop national guidelines for developing PA management plans based on adaptive management principles. This process will consider and where appropriate align with existing management planning development tools and guidelines (e.g. SPC, LMMA, PIMPAC). A key component of the guidance on developing management plans will be how to integrate into PA management the concerns and desires of communities that are directly affected by the protected area in order mitigate against any possible restriction to availability, quality of and access to resources or basic services, in particular to marginalised individuals or groups. Management plans will also need to address determining and securing the rights of access of individuals and communities to natural resources. As prescribed in statutory or customary law. Related to the process the unit will lead a consultative process with PA managers and scientist to identify a national set of biodiversity indicators with targets and thresholds that will be used to guide PA management decision-making processes (Output 2.4).
- Review the institutional framework of each State to implement the PAN effectively and provide recommendations for State Legislatures to streamline institutional structure and better define roles and responsibilities of State agencies in PAN management.
- Further improve and streamline the regulations for Protected Areas (PA) at National, State, Municipality, Community and Private levels.
- Establish and maintain a national Protected Areas Registry, and provide States with the necessary resources to populate the registry. Linked to this process each State will implement the standardised PAN reporting and performance-monitoring system developed in Output 2.1.2.
- Provide guidance and recommendations for improved stakeholder engagement in PA management in line with international best practice.
- Procure legal services to draft State-level PA legislation based on the National PAN policy framework and international best practice, and which makes provision for gazetting of PAs on private and state-owned land, and also for the creation of conservation easements or stewardship.

Output 2.1.1*: The National Department of Resources and Development and State Agencies are actively involved and capacitated to perform centralised PA management functions such as planning, finance and legal affairs cost effectively.*

225. This output forms part of the capacity building component of the R2R project.

226. Conduct work-based training of National (Top-tier) and State (Middle-tier) officials to fulfil the PAN administrative and reporting requirements (i.e. State-level PA managers reporting to National government of METT and PAN data and does not necessarily include biological monitoring). Based on lessons learned the training program will be adapted during life of the project to address new capacity needs. For the duration of the project the National PA Co-ordinator in the PIU will assume the role of

National PAN Co-ordinator in R&D. Their role will be to leader and co-ordinate the capacity building process, and establish and manage the National PAN Database with inputs from the States.

Output 2.1.2: *A standardised PA reporting and performance monitoring system has been implemented.*

227. This output implements in each State the standardised PAN reporting and performance-monitoring system linked to the national Portected Area Registry developed in Output 2.1.1. Activities will include:

- During the lifespan of the R2R project, the National PA Project Manager will coordinate an annual lessons learning and sharing workshop to report on and review the PAN performance monitoring systems, and involving CBOs, NGOs, and relevant State agencies. The standardised PA reporting and performance monitoring system will be adapted based on feedback from this meeting.
- The data gathered as part of this output will be used to complete the mid-term and terminal METT evaluations.
- The R2R funded State PA Project Manager will coordinate periodic training for PA managers (State agencies, NGOs and Communities) in the implementation/use of the PAN reporting and performance monitoring system.
- The State PA Project Manager will be responsible for coordinating and submitting State reporting and performance monitoring inputs to the National PAN unit in R&D as well as coordinating monitoring and reporting activities related to the MC.
- The State PA Project Manager will also be responsible for liaising and cooperating with other monitoring programs such as the Micronesia Challenge (MC) Measures Group.

Output 2.1.3: *An integrated and adaptive PA management decision support system is established at State and National levels to facilitate biodiversity, financial and risk (climate change and land-use pressures) adaptive management planning and decision-making.*

228. This output implements in each State the integrated adaptive PA management decision support system (Output 2.1) focused at managing the PAN at the State level. The monitoring component of decision support system will be linked to the monitoring conducted in Output 2.4.3. Individual PA management plan development is covered under Output 2.4. The decision support system will build on and reinforce the existing MC reporting/management.

229. The decision support system will provide each State with a decision support framework for managing their PAN. This decision support system will have a hierarchical structure providing decision support for individual PAs nested within a decision support framework for the State-level management of the PAN. The decision support systems will draw management performance indicators from the PAN reporting and performance monitoring system (Output 2.1.2) and biodiversity conservation indicators from the National biodiversity/ecological monitoring program (Output 2.4.3). In other words the decision support system will provide the management response mechanism as indicated by the performance indicators. The response could be at the State or individual PA level.

230. A first step in the implementation of the decision support system will be a review of any existing decision support frameworks. These will have to be adapted if necessary to be inline with the national guidelines.

231. The R2R National and State PA Co-ordinators will be responsible for the development and implementation of the PA management decision support system.

Output 2.2: The PAN of the High Islands has been expanded, and existing and new PAs of the FSM have been secured through a review and upgrading of legal protection status (gazetting of all PAs).

232. Activities will include:

- All new PA focus sites will be proclaimed and gazetted in terms of each States PA law. This will only result after a consultative process with the affected communities and integrating the communities' concerns in the overall management agreements and rights and restrictions of access in order to mitigate the risk of restricting availability, quality of and access to resources or basic services, in particular to marginalised individuals or groups. Establishing and affirming the rights of access of individuals and communities will form an integral and preliminary part negotiating a new PA and developing the PA management plan.
- Verify the legal status and gazetted boundaries of all existing focus PAs with the purpose of populating the national PAN Register.
- The project will support the TNC to develop a Protected Area Expansion Strategy for the FSM aimed at achieving the MC PA targets and based on a systematic conservation plan using the biodiversity data collected by the SEA process (Output 1.1.1).

Output 2.3: Management authorities (state and community) of newly established PAs are equipped and capacitated in managing PAs.

233. The management authorities of new PAs (Bottom-tier) will be been equipped to perform management functions. Equipment will include GPS's, computers, cameras and budget to procure fuel or rent vehicles. No boats or vehicles will be procured for individual PAs. The R2R project will fund beacons/buoys to mark PA boundary vertices and other infrastructure necessary to demarcate PA boundaries and inform users of the presence and regulations of PAs.

234. Training will be provided on management plan development and implementation, monitoring, biodiversity identification, enforcement and social-ecology skills (e.g. conflict resolution as well as incorporating human rights concerns into the management of protected areas).

Output 2.4: Effective site and cross-site level PA management practices promoted in new and existing PAs.

235. By applying the national standards and guidelines for PA management developed by the R2R project this output will enhance site-level PA management by improving PA management planning, boundary demarcation and zoning; implement an environmental monitoring program and build capacity in relevant communities around PA management.

Output 2.4.1: Improved PA management planning and boundary demarcation have been implemented

236. The R2R project will focus on building capacity around effective management plan development rather than attempting to complete management plans for all 40 focus PA sites.

237. The conceptual foundation for developing and implementing PA management plans is "Adaptive Management". Therefore the management plan will be explicitly and directly linked to the monitoring plan (Outcome 2.4.3). Thresholds for key management effectiveness and biodiversity conservation

indicators will link the management and monitoring components of the PA plan. Depending on context and wishes of stakeholders, other social and economic indicators can also be incorporated.

238. Element that will be included in the management plans:

- Develop biodiversity, environmental and context base maps
- PA management plans will include a complete description/inventory of the biodiversity of each PA.
- Establishing and affirming the rights of access of individuals and communities will form an integral and preliminary part developing the PA management plan.
- Develop a PA zoning scheme using GIS and aligned with ILMP, SEA and CC adaptation strategies, and value inputs from communities (e.g. heritage or scared sites).
- Alien invasive management plans or where they exist integrating existing alien invasive species management plans
- Stakeholder engagement plan and communication strategy aimed to strengthen coordination, collaboration and synergies among relevant stakeholders (e.g. with existing management bodies such as MPA Executive Committee & Watershed Steering Committee). Community forums can also be used to endorse and implement plans through participatory processes.
- Review existing management plans for individual PAs and include Forest Management and other community management plans that may relate to biodiversity management at or around the site.
- Traditional rights and responsibilities will be entrenched in PA management plans where these support sustainable ecosystem management and biodiversity conservation values.
- Promote conservation of traditional land-use practices that support sustainable ecosystem management and biodiversity conservation values. For example, in Yap traditional Yapese knowledge and technology of 'qolung' improves fisheries habitat though physical enhancement of the reef. The PA management plan can document traditional knowledge and technology; map the physical location of the area under such traditional management; set guidelines for use of traditional practices; monitor the conservation effectiveness of the traditional practices; and, use traditional practices as a vehicle for engaging and communicating conservation values with communities.

Output 2.4.2: Improved zoning and boundary demarcation based on and aligned to the ILMP, and SEA.

239. The spatial and land-use guidelines outputs from the SEA and ILMP and the principles underpinning systematic spatial biodiversity planning will be used to inform the conservation/activity/land-use zoning scheme included in PA management plans.

Output 2.4.3: Biological/ecological monitoring systems have been implemented

240. Underpinning the long-term sustainability of the R2R intervention will be the sustainability of the biodiversity monitoring and information management systems implemented and mainstreamed into government functioning during the project. The purpose of this monitoring is to evaluate progress towards achieving strategic objectives and to inform forward planning. Environmental monitoring and information management is a national priority and is already a priority with the MC. The R2R will support the existing monitoring strategy initiated by the Micronesian Challenge (MC) coral-reef monitoring network. The MC effort has currently established an initial database infrastructure to handle one component of benthic ecological surveys for beta-testing the process. Benthic data depict the status and trends in the reef community over time, and specifically track the abundances of corals, algae, and other invertebrate substrates. Most importantly, these data serve to evaluate change in response to both disturbances and management efforts, and provide feedback to site-based project managers. R2R will support the building

of several additional components to the MC database that will capture all data being developed in association with the project, PA and SLM. For marine areas these include coral species abundances, fish size and abundance, and macro invertebrate densities. For forest surveys these include floristic and animal surveys, tree diameters and heights, canopy cover, ground cover data, etc.

241. The Output will continue to foster dialogue around developing and implementing a national environmental monitoring framework. This framework will build on existing monitoring initiatives and information management initiatives (e.g. GeoMicronesia, FSM CHM, MC, SPREP, TNC, etc.); involve all role-players currently involved in environmental monitoring and enables the building of a collaborative partnership between all role-players; makes provision for a national or multi-national data repository; reinforce efforts of the MC to set minimum standards for data collection and management; puts mechanisms in place to build national capacity around environmental monitoring and information management; defines clear roles and responsibilities especially for National and State departments; respects legal ownership of data and drafts an MOU with key partners to protect rights and define roles and responsibilities; and, puts in place mechanisms to allow for data to inform adaptive management and strategic planning processes through use of robust and realistic set of indicators and thresholds linked to the monitoring framework

242. Given the disparate nature of the current biodiversity information and monitoring programs in FSM it was not possible for the PPG process to establish a baseline for all biodiversity indicators selected for this project. A primary activity of the R2R biological monitoring component will be to establish baselines for values for birds on Chuuk and Yap.

243. Recommendations for the national environmental monitoring framework identified by stakeholders during the PPG include as well as comments from the STAP on the PIF:

- Develop and implementing a Risk and Mitigation Strategy to assess the likelihood and impact of risks such as displaced exploitation due to increasing the size of the PAN, and develop potential mitigation strategies;
- Develop standards and indicators for monitoring measures/protocol to be align to the Micronesia Challenge monitoring protocol;
- Further and strengthened implementation of the Protected Area Management Effectiveness Tool (MPAME) by including terrestrial PAs and align the tool with the GEF PA METT;
- A socioeconomic monitoring program for the FSM based on that developed by the MC Measures Working Group;
- Implements a biological/ecological monitoring program based the Final MC Terrestrial Monitoring Indicators and Methods;
- Communicates monitoring and evaluations results by linking with the Making the Case component of the R2R project;
- Training for monitoring protocols (Micronesia Challenge - Terrestrial and Marine Protocols) and training for data collection and reporting of PAs;
- Support data gathering, management and analysis beyond just the R2R project by linking with the regional MC monitoring initiatives;
- Hold annual meetings to review all information/data gathered;
- Adopt Micronesian Challenge terrestrial and marine monitoring effectiveness measures and indicators where they exist and develop additional indicators, especially in the terrestrial environment, for where none exist;

- Promote collection, sharing, management and use of relevant data and information through the clearing house mechanism (www.geomicronesia.fm);
- Establish a provision of overviews of best practices, challenges, experiences and lessons learned;
- Strengthening dialogue, coordination, coherence and synergies among relevant stakeholders by providing leadership and coordination;
- Filling key information gaps (to be partially addressed in the SEA); and,
- Upgrade GIS/Survey and Mapping equipment, software, etc. to enable gathering of better quality data.

Output 2.4.4: Enforcement of PAs has been strengthened

244. Poor enforcement of PA and SLM regulations is acknowledged as possibly the single biggest barrier to effective PA management. This output will improve surveillance and enforcement within PAs. This will be achieved by:

- Identifying examples within FSM and regionally where PA institutional arrangements and enforcement mechanisms are effective at improving surveillance and interception of malfeasances, and up-scaling these lessons learned to the National and regional levels through the learning networks. This should also explore mechanisms for strengthen effective customary or traditional approaches to enforcement. It is important that evidence-based effective enforcement strategies are adopted.
- Foster cooperation and understanding between all law enforcement (State PA and enforcement agencies, communities, police and Attorney General) as well as building capacity of all role-players to better enforce and prosecute environmental crimes relating to both PAs and SLM.
- Promote ownership of the natural environment within communities responsible for co-management of PA through awareness raising (i.e. Making the Case benefits of the environment) and entrenching rights and responsibilities within PA management plans thereby increasing willingness to enforce PA regulations. This output is linked with Output 2.4.5).

Output 2.4.5: Communities have been capacitated to better management of specific land-use pressures at the site-level.

245. This output will develop the capacities of communities to better manage PAs especially management and mitigation of land-use pressures and conflicts that impact on PA management effectiveness. This output will be achieved through two activities:

- Expansion of the RARE Pride Campaign to all States to focus on building greater awareness in communities responsible for managing PAs around PAs and environmental issues generally, as well as fostering greater sense of ownership of PAs by communities; and,
- Targeted training for community PA managers: (1) Organisational, administrative, project management and grant development skills training for community conservation grant management/governance bodies (boards, fiscal staff, etc.); and, (2) Training in conflict resolution and mitigation for communities and PA implementation role players to mediate/mitigate land and water resource conflicts around PAs, planning with customary tenure, and demarcation of PA boundaries. This output is linked to Output 1.2.

KEY INDICATORS, RISKS AND ASSUMPTIONS

246. The project indicators are detailed in the Strategic Results Framework which is include in Section II of this Project Document. Project risks and risk mitigation measures are described in below Table 15:

247 ***Box 1. Risk Assessment Guiding Matrix***

		Impact				
		CRITICAL	**HIGH**	**MEDIUM**	**LOW**	**NEGLIGIBLE**
Likelihood	**CERTAIN / IMMINENT**	Critical	Critical	High	Medium	Low
	VERY LIKELY	Critical	High	High	Medium	Low
	LIKELY	High	High	Medium	Low	Negligible
	MODERATELY LIKELY	Medium	Medium	Low	Low	Negligible
	UNLIKELY	Low	Low	Negligible	Negligible	Considered to pose no determinable risk

Table 15. Risk Analysis

IDENTIFIED RISKS AND CATEGORY	IMPACT	LIKELIHOOD	RISK ASSESSMENT	MITIGATION MEASURES
OPERATIONAL / ORGANIZATIONAL Limited capacity within project partner institutions will affect partners' ability to carry out project activities within the project timeline	**HIGH**	**MODERATELY LIKELY**		The Project has made provision has made to provide additional specialist and/or technical support to the affected partner institutions and to build capacity through a formal training program.
ENVIRONMENTAL Land/Reef owners/users flout planning regulations and new protected area designations leading to extension of agricultural areas, including increase in roads leading to farms, and intensification of fishing (and bad fishing practices).	**MEDIUM**	**LIKELY**		The project supports strengthening of monitoring and enforcement of regulations in the newly formed and existing protected areas. A spatially-based decision-support system based on systematic biodiversity planning principles will also be designed that will be used for decisions on land allocation and when inappropriate, these farm extensions will not be permitted. Establishment of island-level management fora and island-level management planning through participatory processes, as well as robust implementation of monitoring mechanisms for biodiversity and ecosystem resilience will work towards minimizing the risk. A dialogue with local communities, industry and farmers will be undertaken as part of the process of developing community-led integrated land management plans – to obtain community ownership.

IDENTIFIED RISKS AND CATEGORY	IMPACT	LIKELIHOOD	RISK ASSESSMENT	MITIGATION MEASURES
INSTITUTIONAL Weak coordination within and between State and National government and other stakeholder institutions responsible for land/coastal management; limited capacity (especially at lower levels) to interact with land users	**MEDIUM**	**LIKELY**		The project will support and facilitate activities to ensure improved institutional coordination, capacity building and awareness raising at the National, State and municipal levels. Where possible, formal agreements will be used to define roles and responsibilities. Training will be provided to stakeholders on conflict resolution. Activities will be designed and implemented in a win-win manner, beneficial to all, as far as possible. The sustainable development of the landscape will be emphasized with arguments that are supported with long-term economic forecasts.
POLITICAL Necessary policy changes to facilitate project implementation are not approved. The risk is that policy changes in terms of updating the PA Legislation with States falls outside OEEM's control. If the necessary policy changes are not approved the current unclear legal status (i.e. gazetting) and legal mandate to manage PAs will persist.	**MEDIUM**	**MODERATELY LIKELY**		Not updating the PA legislation in line with a common national framework and international best practice will impact the legal status / international recognition of PAs. This will not affect other aspects of Component 2, as the formal legal status versus de-facto recognition of PAs is not a prerequisite for implementing of on-the-ground PA management activities. Further, there is strong National Government and State Government support for protected area management, which is seen in the commitment made towards the Micronesian Challenge. Through the full involvement of the FSM in the MC and continual reporting against its targets, the FSM and its political leadership will remain supportive towards this endeavour together with the other neighbouring countries. Also, the Making the Case component of the project (Output 1.3) is designed to secure the additional political support necessary to effect the policy changes proposed by this project. There is already a process of updating PA policy and law in the FSM. The R2R project is going to strengthen this process.
ENVIRONMENTAL Individual pig owners do not want to adopt SLM practices. This will affect project partners' ability to implement Component 1 project activities that seek to reduce pressures on biodiversity through better land/water and natural resource management practices in water catchments	**MEDIUM**	**MODERATELY LIKELY**		Counter measures built in the project include awareness-raising, practical training and extension services for SLM, and facilitating access to revolving finance to implement SLM practices. Also, implementation includes working with all piggeries in a water-catchment / community therefore individuals who do not participate will marginally reduce not entirely reduce overall impact of project at the whole catchment-level
ENVIRONMENTAL Lack of effective enforcement of SLM and PA legislation: lack of effective enforcement within PAs will (1) limit the ability of fish populations to recover, and (2) allow continued degradation of watershed forest through sakau cultivation. In terms of SLM lack of enforcement of existing land-use / zoning	**MEDIUM**	**MODERATELY LIKELY**		The project will have a focus on improving the complete enforcement system by: (1) understanding the current barriers to effective law enforcement; (2) involving and working with communities in local law enforcement; (3) improving co-operation between communities and multiple state enforcement agencies; and, (4) improving co-operation between and professional skills of state enforcement officials and prosecutors to better prosecute environmental crimes

IDENTIFIED RISKS AND CATEGORY	IMPACT	LIKELIHOOD	RISK ASSESSMENT	MITIGATION MEASURES
laws will see continued settlement and piggeries with legally defined streamline setbacks and reduce efficacy of dry litter piggery interventions to improve water quality.				
ENVIRONMENTAL The effects of climate change further exacerbate loss of habitat and species from the High Island terrestrial and marine ecosystems, leading to an increase in the vulnerability of rare and threatened species	**LOW**	**UNLIKELY**		The impact of climate change on marine and terrestrial ecosystems during the project period is expected to be minimal. In marine environments, climate change will increase the vulnerability of fish populations through reduced survival and production related to loss of coral reef habitat. By implementing a representative PAN that is based on the principles of biodiversity representation and retention of ecological processes the entire high-island marine ecosystem will be buffered against these impacts. A well-designed and managed PAN will retain ecologically viable populations of species that will provide the source populations underpinning the sustainability of the reef ecosystem as a whole. In terrestrial environments, climate change will increase the risk of landslides and coastal flooding, and increase demand for new settlement as the population is displaced from high-risk areas. By implementing the ILMP land-use planning can avoid high value biodiversity sites as these are identified in the plan. The ILMP also includes information on climate change mitigation measures and strategies linked to difference zones in the landscape identified through the SEA process. By implementing the ILMP it is possible for authorities to plan for climate change impacts whilst minimising environmental risk and biodiversity loss.
ENVIRONMENTAL Increasing the size of the PAN will displace exploitation, thereby intensifying ecosystem degradation outside of PAs.	**LOW**	**UNLIKELY**		Current assessments of reef fish stocks in the FSM indicate that they are mostly near commercial extinct. It is well demonstrated internationally that MPAs increase fish local fisheries. Any displacement in fishing intensity due to the establishment of MPAs will be short-term and offset in the medium term by improvement in local fish stocks. Sakau cultivation in water catchment areas is driven by cultural perceptions associated with high-grown sakau, and not by shortage of arable land in the lowlands and therefore excluding sakau cultivation from water catchments will have no activity displacement impact. The monitoring component of the project (Output 2.4.3) will include a Risk and Mitigation Strategy designed to quantify risks such as displaced exploitation (e.g. marine organism harvesting, sakau cultivation) and quantify. Further, most of the protected areas to form part of the PAN will be community-managed, and before the actual proclamation there needs to be community buy-in. It should also be realised that over exploitation is a short term gain and in order to sustainably utilise the fishing and forestry resource and receive maximum returns from fisheries/forestry areas certain areas need to be set aside for non-consumptive uses e.g. fish spawning areas, water catchment areas etc. Further, the human population and demographics in FSM are currently

IDENTIFIED RISKS AND CATEGORY	IMPACT	LIKELIHOOD	RISK ASSESSMENT	MITIGATION MEASURES
				not such that an increase in PAN area will lead to exploitation elsewhere.

INCREMENTAL REASONING, EXPECTED GLOBAL, NATIONAL AND LOCAL BENEFITS

248. The Government of FSM has made considerable investments in SLM and biodiversity conservation to date, and has clearly indicated that sustainable development and biodiversity conservation are national priorities in various policy statements and programs including the Micronesia Challenge and the National Biodiversity Strategy and Action Plan. Achieving its sustainable development and biodiversity conservation goals is limited by the lack of national frameworks for promoting coordinated SLM and a representative PAN; systemic capacities at all levels; the availability of critical information, especially biodiversity information and knowledge; and, programmatic funding.

249. Mainstreaming SLM approaches into State-level government planning and operations is hindered by complex institutional arrangements. The financial and human resources earmarked in the baseline programs for environmental improvement are deployed and managed by sectoral departments under a highly decentralized governance framework with poor interaction between sectors. There is a need to align and coordinate efforts across sectors and land and water managers and owners, and spearhead innovative ways and means of enhancing ecosystem functioning and resilience in an integrated and coordinated way that balances socio-economic and environmental objectives. In the absence of a proper assessment, monitoring and planning regime for environmental management, managers and users continue to have a difficult time effectively evaluating and integrating biodiversity conservation and land degradation risks within decision-making processes. Under resourced States lack the capacity to generate, implement and enforce integrated land and water management plans, whilst financial constraints present a further barrier to up-scaling SLM to a level required to successfully address land-use at the whole landscape or island-level. Effecting change in the status quo is compounded by a disconnect between public expenditure and environmental priorities. This is linked to limited awareness both among decision-makers but also among the public and local communities of the importance and value of goods and services provided by intact and functional ecosystems. The value proposition of biodiversity to the long-term social well-being and economic sustainability of FSM is not reflected in institutional capacity and budgets. The FSM does not have operational examples or implementation frameworks for SLM at the landscape level. Without access to know-how, proven through demonstration, and supported by scientific observation government decision-makers and resource users do not have the experience, tools or knowledge-base necessary to effectively manage land-use.

250. The FSM government has only recently started to play a more active role in PA creation and management in an effort to build a representative national PAN. The decentralized political situation in the FSM and the prevalence of private and/or traditional control of lands and waters throughout the nation necessitates broad public participation to build public understanding of the importance of conservation and the role of protected areas. Many of the nation's areas of biodiversity significance are remote and isolated, necessitating that local communities and land/reef owners play a significant management role, irrespective of tenure. Foremost, communities are users of the natural resources found in PAs. Communities also have strong cultural and social ties to the environment but with rapid changes in population, consumption patterns and changes in people's lifestyles, the capacity for local communities to manage the areas of biodiversity significance is eroding. Establishing PAs requires broad-based

community involvement and consultation whilst management of these areas necessitates extensive awareness raising and capacity building within involved communities. Effective enforcement in PAs remains a significant challenge especially in community managed PAs were traditional rule of law is not supported by State-law or law-enforcement officials. The current unclear roles and responsibilities among the National, State and local-level agencies (NGOs) and local communities responsible for managing PAs combined with gaps in National and State legislation, PA strategy and management guidelines mean that the legislative and regulatory framework for implementing a national PAN is a major limitation. Many States do not have sufficient biodiversity or PA legislation and there are no national standards or guidelines for the creation and management of PAs. At the national-level there is a clear imperative to build a representative PAN that effectively conserves examples of all FSMs biodiversity and maintains key ecological processes. Current PA expansion has been mostly opportunistic and not underpinned by a systematic spatial conservation plan. Meanwhile, the support from State and national government for strengthening local conservation measures has not kept pace with needs. Whilst the biodiversity of FSM is reasonably well documented this information generally resides out of state and is not readily available to or interpreted for planning purposes or state/community PA managers.

251. As a result, under the **baseline scenario without GEF investment** in the proposed project, intervention by different government agencies, NGOs and communities on SLM and PAs will continue to be uncoordinated and ineffective at both National and State levels due to limitations in the policy, planning and regulatory framework, and systemic weaknesses in capacity to plan, establish and manage ILMPs or PAs systematically. The unique ecosystems of FSM will continue to be under-represented in the national PAN, whilst existing PAs will not be given adequate management attention, especially enforcement-related, to achieve the PAs management objectives or international PA criteria. The specific information and capacity needed to overcome the barriers to ensuring adequate coverage of a biologically representative PAN or to effectively manage PAs will not be developed. Biodiversity criteria or the R2R EBM approach to land-use planning and development will not be mainstreamed into government planning processes. Ecosystem values will continue not to be taken into account in development planning and environmental standards and safeguards to ensure their protection and sustainable utilization will not be developed and applied in an integrated or systematic fashion. Most importantly, an integrated approach to ecosystem management will not be implemented. PAs will continue to be managed in isolation from the surrounding production landscapes. Biodiversity considerations will not be effectively considered in land-use planning processes. The goal of integrated landscape spatial planning where the same R2R EBM principles and the same environmental and biodiversity informants are used to identify PAs, and develop PA management plans and ILMPs using systematic spatial biodiversity planning principles will not be realized. Consequently, globally important biodiversity found within FSMs High Islands will become increasingly fragmented, degraded and threatened due to changes in land use, unsustainable levels of exploitation, pollution and a range of other direct and indirect threats. The economic and human well-being consequences of continued degradation and loss of FSM natural ecosystems are easy to predict as within island nations globally there are ample examples of societies that have collapsed as a result of ecological collapse.

252. The **GEF-funded alternative** will revitalize the national focus and effort to integrate SLM into land-use planning and decision making, and create a representative PAN in line with the MC mandate, supported by an appropriate legal and policy enabling environment. The GEF R2R intervention will enable the R2R EBM vision of a truly integrated approach to landscape and land-use management to be realized in FSM. The project will support actions to overcome the key policy, capacity, knowledge and technical barriers that currently prevent effective SLM and PAN interventions thereby also strengthening the overall

PAN and mainstreaming the R2R EBM framework into National, State and community operational processes. This will include:

- Strengthen communication and learning process to foster wider cooperation around SLM and PA issues at the State, National and regional scales.
- Foster relationships between all stakeholders especially State, NGO and community to build support for a common sustainable future vision and to mobilize support for implementation of SLM and PA activities aimed at achieving this vision.
- Improve the biodiversity knowledge-base with which SLM and PA planning decisions are made, and linked to this build on existing initiatives to develop regional capacity and systems for information management and GIS.
- Employ systematic spatial biodiversity planning (systematic conservation planning) approaches to integrate spatial data on environment, biodiversity and the social-economy within the SEA and PA design frameworks to give practical effect to R2R EBM principles within the context of practical ILMP or PA management tools.
- Streamline the national SLM, PA and information management policy frameworks and strengthen the State legal frameworks to harmonize activities across States in line with common national standards based on international best practices.
- Build awareness amongst all sectors of society and government around the importance of environment and biodiversity conservation underlying the economic sustainability and social well-being of FSM.

253. The GEF investment will generate the following **Global Environmental Benefits**: GEF funding will secure globally unique biodiversity in the Yap Tropical Dry Forest and Caroline Tropical Moist Forest Ecoregions within the Polynesia/Micronesia Hotspot. The GEF R2R intervention will result in a 90% increase in the extent of the terrestrial PAN and a 200% increase in the marine FSM High Island PAN. The total extent of PAN interventions will cover 23,644 ha. This area includes the world's lowest elevation dwarf cloud forests; Pohnpei's Nanmeir en Salapwuk Valley that holds what is considered to be the largest intact lowland tropical forest in the Pacific outside of Hawaii; and, the Yela valley in Kosrea that holds the largest remaining ka (*Terminalia carolinensis*) forest in the Pacific. The PAN is also home to nearly 200 FSM endemic plant species; four endemic reptiles and amphibians; four species of fruit bats (flying foxes); an endemic sheath-tailed bat; and, 19 endemic and 20 threatened bird species. The project also expects to generate a range of global environmental and development benefits through improved management of land-uses in over 62,122 ha of land across the four FSM States. This will be achieved through a range of targeted interventions aimed at improving institutional capacities, and the policy and legal framework in which SLM and PA interventions are conducted. Integrated Land Use Management Plans will be developed and implemented covering this 62,122 ha and thereby reducing pressures from competing land uses on important ecosystem functioning and the ability of these ecosystems to provide the necessary services for human development. Through the SEA and ILMP development and implementation the project will see avoided degradation in the existing forest, agroforestry and mangrove areas measured through implementation of ILMPs within communities and integration of ILMPs into EIA decision-making processes. Using the SEA to identify critical areas of habitat that will have ecosystem process benefits for PAs, the project will use ecological rehabilitation techniques to restore 350 ha of forest and 50 ha of mangrove and wetland habitat. Further the project will demonstrate the transition of a catchment area (Ipwek, Dachengar, Finkol and Nefounimas catchments) where piggery farming has a impact on the quality of the water to one where the impact on water quality is minimised by introducing dry litter systems in all the piggeries in the area. The system will be upscaled through the ILUMPs and identifying and addressing the barriers to upscaling.

COST-EFFECTIVENESS

254. Pressures on biodiversity in FSM continue to increase and are set to rise further. Without urgent action, globally important biodiversity is at risk and land degradation will increase. This in turn will erode the ecosystem goods and services that underpin local livelihoods. In addition, failing to act now will result in greater difficulties and substantially higher costs in securing biodiversity and sustainable land management goals.

255. One potential option for addressing biodiversity conservation and land degradation would be for the government to continue to operate on an ad-hoc species/site/problem centric basis as opposed to a holistic ecosystem-based approach at the landscape scale.

256. In a country such as FSM, with increasing development pressure and demands on scarce resources, coupled with high alpha and beta diversity in the marine environment and high gamma diversity in the terrestrial environment, the impact of a silo approach and the ongoing costs related to their management, would not be a viable strategy on its own. A species/site/problem centric approach would not only ultimately fail to reach conservation and rehabilitation targets, the constrained amount that would be achieved would come at significantly higher costs than are necessary.

257. The R2R project approach that has been selected recognizes these challenges and builds alternatives. It recognizes that responsibility for natural resource management and biodiversity conservation will straddle private, community and government landholders, and the imperative of supporting and incentivizing the conservation and sustainable management of these resources. At the same time, it also recognizes that without effective protected area management, resource use planning, a system of co-management and incentives would not be sufficient to reduce and reverse current rates of biodiversity loss and land degradation.

258. The approach is not only considered a realistic means of achieving natural resource management and biodiversity goals in the FSM context, it is also the preferred approach from a cost-effectiveness point of view. This project will enable the willingness and energies of the majority of resource users and landholders to be harnessed and to participate in achieving conservation goals given the appropriate incentives to do so. The project seeks to achieve efficiencies through reducing conflicting land-uses and land-use practices, and improve the sustainability of terrestrial and marine management so as to maintain the flow of vital ecosystem services and sustain the livelihoods of local communities.

259. The project approach also recognizes that, with more focus on ecosystem approaches at the landscape scale and the introduction of technological innovations, government institutions involved in natural resource management can realize greater effectiveness in reaching biodiversity and natural resource management goals.

PROJECT CONSISTENCY WITH NATIONAL PRIORITIES/PLANS

260. This project is a result of extensive consultations at national and local level that have taken place over the past 18 months with all stakeholders to define the priorities for programming the GEF 5 Focal Area allocations.

261. PA area outcomes from the R2R project contribute towards achieving the MC goals for FSM of conserving 20% terrestrial and 30% marine ecosystems.

262. This project is fully aligned with FSM Strategic Development Plan, specifically to "protect, conserve, and sustainably manage a full and functional representation of marine, freshwater and terrestrial ecosystems". The following strategies will benefit from this project: (1) A Blueprint for Conserving the Biodiversity of the FSM, specifically the identification of areas of biological significance; (2) The NBSAP, specifically the following Strategic Themes: 1 – Ecosystem Management. Strategic Goal: a full representation of FSM's marine, freshwater, and terrestrial ecosystems are protected, conserved, and sustainably managed, including selected areas designated for total protection; 2 – Species Management. Strategy Goal: FSM's native, endemic, threatened, and traditionally important species are protected and used sustainably for the benefit of future generations of the people of the FSM and the global community. 4 – Agrobiodiversity. Strategic Goal: The conservation and sustainable use of Agrobiodiversity contributes to the nation's development and the future food security of the FSM. 8 – Human Resources and Institutional Development. Strategy Goal: All citizens, residents, and institutions of the nation are aware of the importance of biodiversity and have the technical knowledge, skills, and capability to conserve all biodiversity within the nation. 9 – Resource Owners. Strategy Goal: traditional resource owners and communities are fully involved in the protection, conservation, preservation, and sustainable use of the nation's biodiversity. 10 – Mainstreaming Biodiversity. Strategy Goal: All economic and social activities of the FSM take full account of impacts on and fully consider sustainability of biodiversity.

263. The project will directly support the FSM to achieve the following Aichi Targets: (5) By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced; (6) By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying the ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits; (11) By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes; (12) By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly those in decline, has been improved and sustained. The project also advances the strategic goals of the UNCCD 10-year strategic plan namely: 1) To improve the living conditions of affected populations; 2) To improve the condition of affected ecosystems; 3) To generate global benefits through effective implementation of the UNCCD. It addresses the following operational objectives of the UNCCD Strategic Plan: 1) Advocacy; 2) Science, technology and knowledge; 3) Capacity-building; and 4) Financing and technology transfer.

264. The project is well aligned with the GEF's Programme Framework Document for the regional programme "Pacific Islands Ridge-to-Reef National Priorities – Integrated Water, Land, Forest and Coastal Management to Preserve Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods". The project's two components are primarily aligned with the Regional PFD Component 1: National Multi-focal Area Ridge-to-Reef Demonstrations in all Pacific Island Countries, patricularly with the following three Outcomes; (1) Ridge-to-Reef approach achieved in demonstration sites through the scaling up of IWRM and introduction of ICM towards integrated management of natural resources and to reduce watershed and coastal pollution in priority catchments; (2) Improved terrestrial and marine biodiversity conservation in priority catchments and linked to coastal areas; and (3)improved resilience to climate change of island ecosystems and communities in priority catchments.

COUNTRY OWNERSHIP: COUNTRY ELIGIBILITY AND COUNTRY DRIVENNESS

265. The Federated States of Micronesia ratified the Convention on Biological Diversity (CBD) on the 20 June 1994.

266. The FSM published its National Biodiversity Strategy and Action Plan (NBSAP) in 2002 and submitted its 4th National Report to the CBD in 2010. The FSM's vision for the nation, as stated in the 2002 NBSAP, is that "The FSM will have more extensive, diverse, and higher quality of marine, freshwater, and terrestrial ecosystems, which meet human needs and aspirations fairly, preserve and utilize traditional knowledge and practices, and fulfill the ecosystem functions necessary for all life on Earth." In support of this vision, the theme for the 2004 – 2023 SDP for the nation is "Achieving Economic Growth and Self Reliance'. External economic shocks and natural disasters will always threaten our development efforts and it is the Government's hope that the implementation of the strategies outlined in the SDP will cushion the adverse impact of these shocks against the achievement of the national vision."

267. The Micronesia Challenge was launched in 2006 and is a commitment by Micronesian governments to strike a critical balance between the need to use their natural resources today and the need to sustain those resources for future generations. Five Micronesian governments (the Republic of Palau, the Federated States of Micronesia, the Republic of the Marshall Islands, the U.S. Territory of Guam and the Commonwealth of the Northern Mariana Islands) committed to "effectively conserve at least 30 percent of the near-shore marine resources and 20 percent of the terrestrial resources across Micronesia by 2020."

268. This region-wide initiative evolved from local, on-the-ground conservation projects across Micronesia into a large-scale partnership between governments, nonprofit and community leaders, and multinational agencies and donors. Spanning 6.7 million square kilometers, the Micronesia Challenge represents more than 5 percent of the Pacific Ocean and 61 percent of the world's coral species. It includes 66 threatened species, more than 1,300 species of reef fish, 85 species of birds and 1,400 species of plants — 364 of which are found only in Micronesia.[58]

269. The MC project document includes a succinct summary as to why this is important: "This strategy recognizes that in Micronesia, grassroots engagement, spearheaded through the PAN Networks, must bring institutional strengthening, help develop finance and project management skills including granting and reporting procedures, and must encourage and coordinate conservation efforts over time." The FSM is an important player in the Micronesia Challenge and has made significant contributions of energy and funding to environmental protection. The R2R project will support the design of a nationwide network of marine and terrestrial PAs that will serve as one of the building blocks of the Micronesia Challenge. In turn the MC will mobilize sustainable funding and providing isolated island communities with the expertise they need to preserve their resources.

270. The Global Environment Facility (GEF) presents FSM with a vehicle for advancing global environmental objectives within the context of national development policies and programs. FSM has signed and ratified key international conventions pertaining to biodiversity conservation (Table 16), including the Convention on Biological Diversity, the UN Framework Convention on Climate Change (1997) and the Convention to Combat Desertification (1997). FSM is a non-party to CITES, Ramsar and the Nagoya Protocol.

[58] Costion. C.M. and D.H. Lorence. 2012. The Endemic Plants of Micronesia: A Geographical Checklist and Commentary. Micronesica 43(1): 51–100

Table 16. Multilateral environmental agreements ratified by FSM.

Agreement Name	Date Ratified
Compact of Free Association between the FSM and the United States of America	3/11/1986
UN Framework Convention on Climate Change	18/11/1993
Convention on Biological Diversity	20/6/1994
Cartagena Protocol	1/9/2003
Vienna Convention for the Protection of the Ozone Layer	3/8/1994
Montreal Protocol	6/9/1995
Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal	6/9/1995
Waigani Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes	26/1/1996
UN Convention to Combat Desertification in those Countries Experiencing Drought and/or Desertification	25/3/1996
Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Central And Western Pacific Ocean	20/12/2002
Stockholm Convention on Persistent Organic Pollutants	27/1/2005

SUSTAINABILITY AND REPLICABILITY

271. The integrated approach being implemented through the project (i.e. combining SLM, forest management, biodiversity conservation) as a coordinated partnership between government administrations and local stakeholders will provide an innovative example that is expected will (a) generate important lessons for small island developing states; (b) build new national expertise in new fields (e.g. land use planning, spatial biodiversity planning, PA management and enforcement); and, (c) build an environmental knowledge-based that will support future conservation decision making. Further, the project will illustrate a new approach to land use planning and the allocation of land between different land uses in the FSM as it will bring together the various stakeholders within a landscape and develop Integrated Land Management Plans. Through the participation of the FSM in in the regional Ridge to Reef programme for the Pacific, there will be opportunities to scale up this approach to other Pacific small island countries. This project is building on a strong baseline. First, a policy and institutional framework for protected area management and integrating natural resource management into land use planning already exists. Secondly, there is a strong commitment from Government to address the forest and land degradation issues in the High Islands. Thirdly, the project has financial sustainability written into it, through the valuation of goods and services of natural systems as well as different SLM practices, which will be used as a basis for brokering new public finance for biodiversity conservation and sustainable land management.

272. Lastly, the R2R is supporting the MC in securing sustainable finance for the PAN. The R2R contribution to PA sustainability is not focused directly on baseline funding of PAs as the MC is already

in place and achieving this objective. The Micronesia Challenge Sustainable Finance Plan[59], which was last updated in 2012, each state within the FSM has identified an annual funding 'gap' to effectively manage the protected areas within that state. The R2R is not intended to permanently and perpetually fill that gap, but instead to off-set operating costs in the near term while the FSM conducts other fundraising for the Micronesia Challenge Endowment. Therefore, the R2R will support the activities of the MC by focusing on activities that enable individual PAs to qualify for membership of the national PAN and thus qualify to receive MC endowment funding, namely: (1) Improving the legal status of all sites (ie improving PA law and gazetting); (2) Building capacity of individuals and institutions (state and community) to effectively manage PAs; and, (3) Improving PA enforcement broadly.

UNDP'S COMPARATIVE ADVANTAGE

273. The Government of the Federated States of Micronesia has requested UNDP assistance in designing and implementing this project, due to UNDP's track record in Asia and the Pacific. UNDP has an established national representation in the FSM UN Joint Presence Office, Kolonia, Pohnpei with well-developed working relationships with the key stakeholders. It counts on a country development manager exclusively dedicated to FSM's affairs. This officer is supported by other programme, operations and Senior Management staff at UNDP Fiji Multi-country Coordinating Office's. Moreover, the project will benefit from the presence of a UNDP/GEF Regional Technical Advisor dedicated to Biodiversity in the Regional Service Centre. UNDP also has extensive experience in integrated policy development, human resources development, institutional strengthening, and non-governmental and community participation. The United Nations Development Assistance Framework (UNDAF) for the Pacific Region for the period 2013 – 2017 has identified, under Focus Area 1: "Environmental Management, Climate Change and Disaster Risk management" as a priority. Under Outcome 1.1, the Framework identifies "By 2017, the most vulnerable communities across the PICT are more resilient with particular focus on communities, through integrated implementation of sustainable environmental management, climate change adaptation/mitigation, and disaster risk management. Improved resilience of PICTs, with particular focus on communities, through integrated implementation of sustainable environmental management, climate change adaptation/mitigation, and disaster risk management". This project is aligned with this priority of the Framework, which is also applicable to the FSM.

274. UNDP has a large and active GEF biodiversity portfolio in FSM and in the surrounding region. The project manager, the host initiations and the UNDP Multi-country Office will ensures that this proposed project and the other projects benefit from technical synergies. These synergies will be created primarily with the following projects:

- Implementation of Global and Regional Oceanic Fisheries Conventions and Related Instruments in the Pacific Small Island Developing States (GEF #4746): The aim of this recently approved project is to support Pacific SIDS in meeting their obligations to implement and effectively enforce global, regional and sub-regional arrangements for the conservation and management of transboundary oceanic fisheries thereby increasing sustainable benefits derived from these fisheries. This will be particularly important when addressing Aichi Targets 6 and 7.

[59] Walsh, S. and Stege, M. 2012. Funding The Micronesia Challenge: A Regional Plan For Sustainable Finance. Part 2 of 3 of The Micronesia Challenge's Sustainable Finance Project. Carried out for the Micronesia Challenge Regional Coordination Office with the financial and technical assistance of Micronesia Conservation Trust and The Nature Conservancy. December 15, 2010 (Updated February 27, 2012)

- Pacific Islands Oceanic Fisheries Management Project: The aim of this recently completed project was to support Pacific SIDs' efforts to reform, realign, restructure and strengthen their national fisheries laws, policies, institutions and programmes.
- Pacific Adaptation to Climate Change Project (GEF #3101): The aim of this project, which is under implementation, is to implement long-term adaptation measures to increase the resilience of a number of key development sectors in the Pacific islands to the impacts of climate change. This will be particularly important when addressing Target 15.
- The Micronesia Challenge: Sustainable Finance Systems for Island Protected Area Management - under the GEF Pacific Alliance for Sustainability (GEF # 3626): The aim of this project is to develop a national incentive program for mainstreaming sustainable land management planning and practices in order to combat land degradation, conserve biodiversity of global importance and protect vital carbon assets. This will be particularly important when addressing Targets 2 and 3.
- Implementing Sustainable Integrated Water Resource and Wastewater Management in the Pacific Island Countries - under the GEF Pacific Alliance for Sustainability: The aim of this project is to implement sustainable integrated water resource and wastewater management in the Pacific Island Countries - under the GEF Pacific Alliance for Sustainability.
- The R2R project for the FSM (GEF5) will support protected areas management, expansion as well as effective biodiversity conservation and environmental management in the broader landscape. The R2R gives effect to the biodiversity conservation and environmental management principles identified in the NBSAP. Further, the baseline and monitoring information collected through the R2R project will provide the baseline input data into future revisions of the NBSAP.

PART III: Management Arrangements

IMPLEMENTATION ARRANGEMENTS

275. To ensure the achievement of project objectives and following UNDP guidelines for nationally executed projects, the management arrangements have been designed to provide for coordination and close collaboration among project partners and key stakeholders.

276. At the national level there are two key national role players, OEEM and R&D. OEEM has been assigned as executing agency for the R2R project with overall responsibility for project implementation over the five year period and will thus be accountable for both project and financial management.

277. As Executing Agency OEEM will sign the Project Document with UNDP and will be accountable to UNDP for the disbursement of funds and the achievement of the project objectives and outcomes according to the approved work plan. In particular, the Executing Agency will be responsible for the following functions: (i) coordinating activities to ensure the delivery of agreed outcomes; (ii) certifying expenditures in line with approved budgets and work-plans; (iii) facilitating, monitoring and reporting on the procurement of inputs and delivery of outputs; (iv) coordinating interventions financed by GEF/UNDP with other parallel interventions; (v) approval of Terms of Reference for consultants and tender documents for sub-contracted inputs; and (vi) reporting to UNDP on project delivery and impact. The OEEM will designate a senior staff member as a Project Director (PD). The PD will provide the strategic oversight and guidance to project implementation.[60] The PD will not be paid from the project funds but will represent Government in kind contribution to the project. The PD will sign and approve the project financial reports, the financial requests for advances , any contracts issued under NIM and the MOU between OEEM and the other 9 partner organizations. OEEM will enter into a Project Memorandum of Understanding (MOU) with each of the 9 partner organizations to execute a number of outputs and activities.

278. The Terms of Reference for key staff are included in Annex 2. They will be contracted to serve the project for a period of between 4 & 5 years. The Programme Manager and the Financial Administer will be employed for 66 (sixty six) months (5.5 years) to allow for project closure. The R2R Project Manager will be responsible for the recruitment of all other staff and procurement of consulting services in close collaboration with the Project Board and/or the relevant agency representatives at the time that such staff or services are to be procured. This is to ensure that recruitment and procurements dynamics that prevail at the time are taken into account and are reflected in the Terms of Reference.

Project Implementation Unit

279. To achieve these functions the OEEM will establish a **Project Implementation Unit (PIU)** comprising of a project coordinator (R2R Project Manager), who will lead the PIU, two program managers (SLM National Co-ordinator, PA National Co-ordinator) and Financial Administrator (Figure 2). The PIU team will be responsible for implementing the various components of the project. This will include providing technical leadership to the project, managing and coordinating project activities, contracting service providers, providing oversight on the day to day operations of the project, communications, monitoring and evaluation of project performance, reporting and serve as secretariat for the **Project Board (PB)** and **National/State Technical Advisory Committees (TAC)**. The Financial Administrator's

[60] The PD will not be paid from the project funds, but will represent a Government in-kind contribution to the Project.

primary functions will be to ensure that projects funds are disbursed timeously according to an agreed work plan/payment schedule, and that the project's financial management meets UNDP management/reporting requirements.

280. In addition, OEEM will provide the necessary administrative support for the day to day running of the project and procurement services to the project.

281. The Project Manager will be based in OEEM; the two national program co-ordinators in R&D; and the Financial Administrator in the Department of Finance. The placing of these positions is designed to promote efficient workflow and co-operation between R2R staff and existing personal in National government relevant to project implementation.

282. At the State-level the PIU will be represented by a SLM and a PA Co-ordinator. These positions will be funded by the project and each component co-ordinator will be based in the relevant State agency responsible for SLM or PA activity implementation and co-ordination (see Table 10). The State SLM and PA Co-ordinators will develop work programs to implement the R2R that are aligned with that of the State agency, and which are agreed to by the heads of these institutions.

283. The PIU, with inputs and guidance from the national and state TACs, will be responsible for elaborating the project outcomes and developing the Terms of Reference for local and international service providers to undertake specific project components. Contracting and monitoring of service providers will be the responsibility of the PIU.

Project Board

284. Project Board (PB) comprising representatives of the project partners on the basis of a Terms of Reference to be negotiated at project launch. Membership of the PB will be negotiated with stakeholders at project inception. The UNDP will also serve on the PB. The PB provides overall guidance and policy direction to the implementation of the project, and provides advice on appropriate strategies for project sustainability. The PB will direct and steer the project at the national and regional levels. In order to provide technical guidance to the project relevant biodiversity knowledge, information management, finance, SLM, PA management, etc. technical experts may occasionally be asked to participate in the PB to provide technical inputs. The PB will play a critical role in project monitoring and evaluation by quality assuring the project processes and products. It will arbitrate on any conflicts within the project, or negotiate a solution to any problems with external bodies. It will also approve the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. The OEEM Director will chair the PB and convene meetings on a bi-annual basis.

285. The PM will produce an Annual Work Plan (AWP) to be approved by the PB at the beginning of each year. These plans will provide the basis for allocating resources to planned project activities. Once the PB approves the AWP, this will be sent to the UNDP Regional Technical Advisor for Biodiversity at the GEF Regional Coordinating Unit (RCU) for clearance. Once the AWP is cleared by the RCU, it will be sent to the UNDP/GEF Unit in New York for final approval and release of the funding. The PM will further produce quarterly operational reports and Annual Progress Reports (APR) for review by the PB, or any other reports at the request of the PB. These reports will summarize the progress made by the project versus the expected results, explain any significant variances, detail the necessary adjustments and be the main reporting mechanism for monitoring project activities.

286. The PB is responsible for making management decisions for the project in particular when guidance is required by the Project Manager. 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 Manager 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). Any deviations from the original plans require approval from Regional Technical Advisor, UNDP-GEF.

287. In order to ensure UNDP's ultimate accountability for the project results, PB decisions will be made in accordance to standards that shall 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 shall 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 Project Implementation 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 the national Director of the Office of Environment and Emergency Management.
- **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 the UNDP that is held accountable for fiduciary oversight of GEF5 resources in this initiative. The UN Country Development Manager based in FSM 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 the Department of Foreign Affairs.

288. The Board is expected to meet bi-annually and its deliberations will consider recommendations put forward by the PIU and TACs. 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).

Technical Advisory Committees

289. Project implementation will be managed in close collaboration with the organs of state and implementing partners at the State level. To facilitate the technical development of the project, and co-operation and communication between project partners and service providers, the R2R Project Manager will be responsible for establishing and maintaining a National Technical Advisory Committee (NTAC).

290. To facilitate R2R implementation at the State-level a **Technical Advisory Committee (TAC)** will be established in each State to provide a local communication and discussion platform comprising all implementation partners plus other stakeholders involved in the R2R project implementation. The TAC will provide project oversight of State-level activities and also provide technical advice to support informed decision making and development of the project activities. It will meet on a quarterly or bi-monthly basis. The State SLM or PA Co-ordinator or a person elected by the State stakeholders and ratified by the PB will chair the TAC. The PIU will act as the TAC secreteriate.

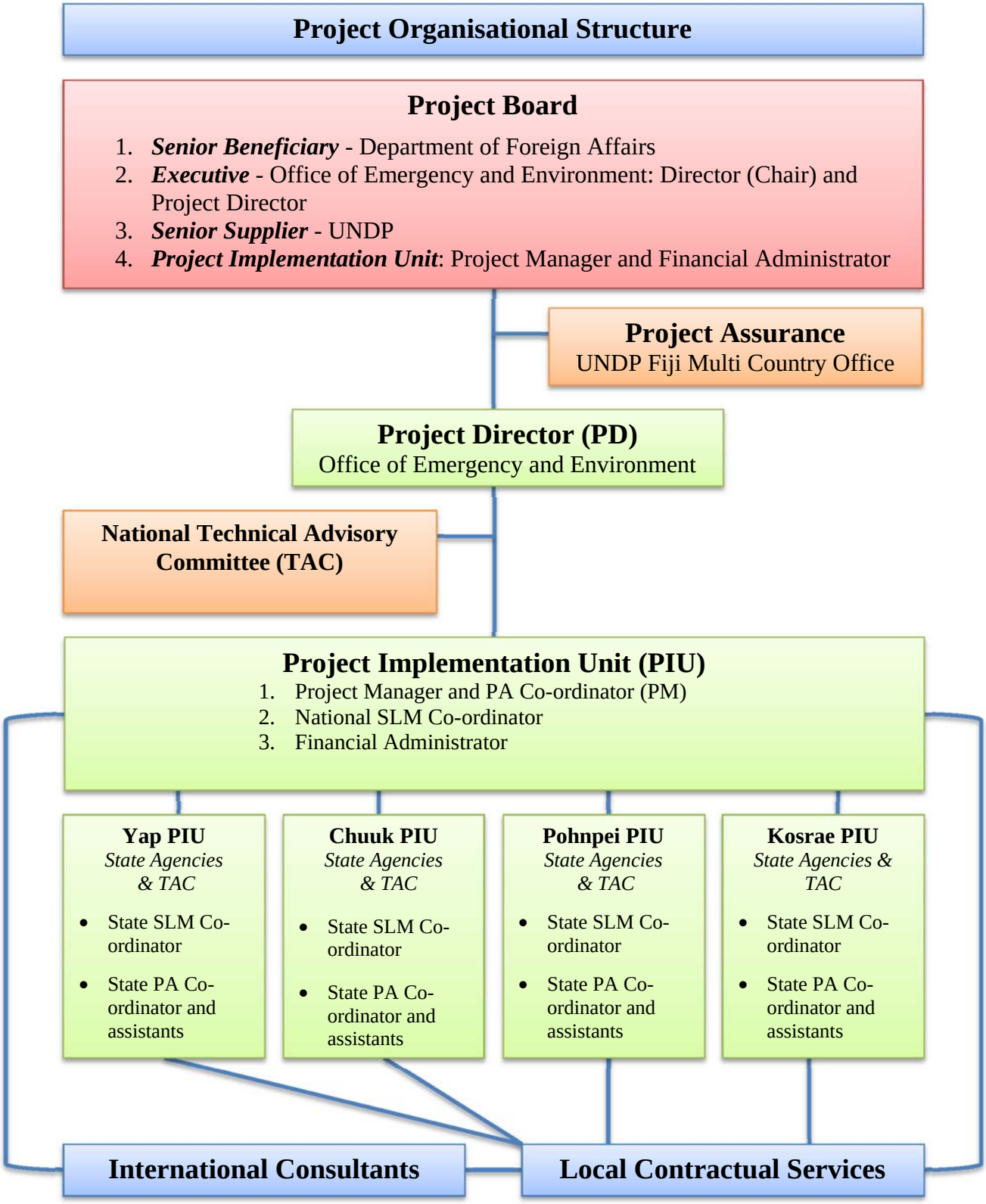

Figure 2: Proposed organisation structure of for the R2R project.

291. OEEM and R&D will provide suitable office space for the PIU staff on full-time service contracts, as well as the necessary office furniture and support services (cleaning, internet access, etc.). At the State-level the relevant State agency will provide office space and support services (cleaning, internet access, etc.) to the State-level project staff.

292. All PIU staff on full-time contracts at the national level and State Co-Ordinators will be answerable to the R2R Project Manager to ensure consolidated reporting back to the PIU amd the PB. Service providers contracted at the national-level will report to the National Co-ordinators or the Project Manager. Service providers contracted at the State-level will report to the relevant State Co-ordinator. Service providers will be subject to the terms and conditions of employment as negotiated in their service level agreement with the PIU. The Project manager will be answerable to the Project Director and Project Board. The National SLM Co-ordinator and Financial Administrator will report to and be managed by the Project Manager, and the State-level co-ordinators will report to and be managed by the National program co-ordinators.

PROJECT MANAGEMENT

Project Oversight

293. Day-to-day operational oversight of project activities, PIU and the R2R Project Manager will be the responsibility of the appointed official within in the OEEM.

294. The UNDP, through the UNDP Multi Country Office in Fiji; the UN Joint Presence Office in Pohnpei; and, the UNDP - GEF Regional Technical Advisor (RTA) will provide strategic operational and technical oversight and support for the project.

Project Management at the central level

295. The project will be coordinated and managed by the Project Implementation Unit (PIU) under the R2R Project Manager supported by the PIU staff, and be based in the OEEM and R&D.

Project Management at the State level

296. Implementation at the State level will be the responsibility of the State-level R2R Co-ordinators as well as the project partners contracted by the PIU to complete relevant work packages.

Financial and other procedures

297. The financial arrangements and procedures for the project are governed by the UNDP rules and regulations for National Implementation Modality (NIM). All procurement and financial transactions will be governed by applicable UNDP regulations under NIM.

Audit Clause

298. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted according to UNDP financial regulations, rules and audit policies by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

PART IV: Monitoring Framework and Evaluation

299. The project will be monitored through the following monitoring and evaluation (M&E) activities:

300. At project start-up a project **Induction Workshop** will be held within the first month of the Project Implementation Unit being established and the services of the Project Manager and Financial Administrator being engaged. It will be conducted by UNDP for the Project Implementation Unit. At the end of the induction workshop, it is expected that Project Manager and Financial Administrator will understand the GEF and UNDP reporting requirements (financial and technical) as well as the management arrangements, roles and responsibilities.

301. A **Project Inception Workshop** will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan. Apart from inception workshops at the national level, there will be state-level inception discussions so that state stakeholders are aware of project, respective roles and opportunity to comment on draft work plans i.e. to ensure ownership at the state level as well as national level.

302. The Inception Workshop should address a number of key issues including:

- 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.
- Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- 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.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule bi-annual Project Steering Committee meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Steering Committee meeting should be held within the first 6 months following the inception workshop.

303. 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. The draft report for comment will be circulated to stakeholders within 3 weeks of the Inception Workshop and the final report disseminated no later than 6 weeks from the Inception Workshop. During the inception phase of the project a Harmonized Approach to Cash Transfer (HACT) assurance plan will be developed and finalsised. A spot check will be conducted three quarter way in first year of implementation of HACT plan to follow up on the assurance plan.

Quarterly

304. Quarterly monitoring and reporting activities include:

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.

- Based on the initial risk analysis submitted, the risk log shall 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

305. 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 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) used by most focal areas on an annual basis.

Periodic Monitoring through site visits

306. 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

307. The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation. The Mid-Term Evaluation 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-GEF. In line with the Social and Environmental Screening that were conducted for the project

at development stage, the Mid-Term Evaluation consultancy will be responsible to assess whether the risk mitigation measures have been implemented at the mid-term phase as appropriate. These measures include (i) stakeholder involvement needs to strive for equitable representation of women; (ii) Capacity building needs to ensure that institutions, communities and individuals are able to deliver on the planned project outcomes; (iii) Establishment of new PAs needs to explicitly address land tenure and rights of access, especially those of womem; (iv) Restoration protocols must be developed that meet international criteria for ecological and biodiversity conservation, which avoid the use of invasive alien species. If the use of non-indigenous species is considered in the rehabilitation of habitats, an environmental and social impact assessment needs to be conducted prior to the start of any rehabilitation. Based on the recommendation of the ESIA such rehabilitation can be considered. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

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

309. The mind-term review will also include a Sustainability Assessment and Strategy conducted by the PIU, and involving all project partners and stakeholders. This analysis will explore interventions and mechanisms for securing the long-term sustainability of project interventions beyond the life of the project. Recommendations and practical measures for improving building in sustainability into project activities will be incorporated into project work-plans for the remainder of the project.

End of Project

310. An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and 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-GEF. In line with the Social and Environmental Screening that were conducted for the project at development stage, the Terminal Evaluation consultancy will be responsible to assess whether the risk mitigation measures have been met. These measures include (i) stakeholder involvement needs to strive for equitable representation of women; (ii) Capacity building needs to ensure that institutions, communities and individuals are able to deliver on the planned project outcomes; (iii) Establishment of new PAs needs to explicitly address land tenure and rights of access, especially those of womem; (iv) Restoration protocols must be developed that meet international criteria for ecological and biodiversity conservation, which avoid the use of invasive alien species. If the use of non-indigenous species is considered in the rehabilitation of habitats, an environmental and social impact assessment needs to be conducted prior to the start of any rehabilitation. Based on the recommendation of the ESIA such rehabilitation can be considered.

311. The 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).

312. The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

313. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons

learned, problems met and areas where results may not have been achieved. It will also layout recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing

314. The project will facilitate two knowledge exchange forums. It is recommended that the first exchange emphasizes enhancing learning within the project and that it is held mid-term as part of an adaptive management process. The mid-term exchange will also begin to develop a **Sustainability and Legacy Strategy** for the R2R. This strategy will applied by all project partners to actively improve the post-project impact of the R2R investment. The second exchange should be held at or near termination with a greater focus on sharing lessons beyond the project.

315. In addition, results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will focus on facilitating horizontal learning between different districts and institutions as well as vertical learning between different spheres of government.

316. 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 though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

317. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements

318. 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.

319. Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines")[61]. 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.

320. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

[61] http://www.thegef.org/gef/sites/thegef.org/files/ documents/C.40.08_Branding_the _GEF%20final_0.pdf.

Monitoring and Evaluation work plan and budget

Table 17. M&E Activities, Responsibilities, Budget and Time Frame.

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Inception Workshop and Report	▪ Project Leader ▪ UNDP CO, UNDP GEF	Indicative cost: US$20,000	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ UNDP GEF RTA/Project Leader 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 *output and implementation*	▪ Oversight by Project Leader ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project Leader and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project Leader and team	None	Quarterly
Mid-term Evaluation	▪ Project Leader and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: US$30,000	At the mid-point of project implementation.
Sustainability Assessment and Strategy	▪ Project Leader and team ▪ Government representatives	Indicative cost: US$5,000	At the mid-point of project implementation after Mid-term Evaluation
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. national and international evaluation team)	Indicative cost: US$30,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager and team ▪ UNDP CO ▪ Local consultant	Indicative cost: US$3,000	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	Indicative cost: per year: US$ 3,000	Yearly

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, UNDP costs are paid from IA fees and Government representatives from operational budget	Yearly
M&E and Knowledge exchange Forums	▪ Project manager and team. ▪ All sub project executants ▪ Government representatives	Indicative cost: US$45,000	Mid-point of implementation and at project termination
TOTAL indicative COST *Excluding project team staff time and UNDP staff and travel expenses*		US$ 148,000	

*Note: Costs included in this table are part and parcel of the UNDP Total Budget and Workplan (TBW) in the PRODOC, and not additional to it. Costs will be shared between UNDP and GEF according to the TBW.

PART V: Legal Context

321. This document together with the CPAP signed by the Government and UNDP, which is incorporated by reference, constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

322. Consistent with the Article III of the Standard Basic Assistance Agreement, 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. The implementing partner shall:

- 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; and,
- Assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

323. 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 this agreement.

324. 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 the internet[62]. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

[62] http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm

SECTION II: STRATEGIC RESULTS FRAMEWORK (SRF)

This project will contribute to achieving the following Sub-regional Programme Document for the Pacific Island Countries and Territories (SRPD) Outcome: Improved resilience of PICTs, with a particular focus on communities, through the integrated implementation of sustainable environmental management, climate change adaptation and/or mitigation and disaster risk management
SRPD Outcome Indicators: 1. Capacities of local government departments are strengthened for effective, participatory environmental governance. 2. Demonstration projects on natural resources management and biodiversity at the community level that can be scaled up are implemented, and the formulation of evidence-based policies is supported.
Country Programme Outcome Indicators: *Area of terrestrial and marine ecosystems under improved management or heightened conservation status increased by 50 per cent by end of 2016*
UNDP Strategic Plan Primary Outcome: (From UNDP Strategic Plan 2014-2017) Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.
Applicable GEF Strategic Objective and Program: *BD1 Improve the sustainability of Protected Area Systems* *LD3 Reduce pressures on natural resources from competing land uses in the wider landscape* *IW1 Catalyse multi-state cooperation to balance conflicting water users in trans-boundary surface and groundwater basins while considering climate variability and change*
Applicable GEF Expected Outcomes: *BD1.1 Improved management of existing and new protected areas* *LD3.2 Integrated landscape management practices adopted by local communities* *IW1.3 Innovative solutions implemented for reduced pollution, improved water use efficiency, sustainable fisheries with right-based management, IWRM, water supply protection in SIDS, and aquifer and catchment protection*
Applicable GEF Outcome Indicators: *BD1.1* Protected area management effectiveness score as recorded by Management Effectiveness Tracking Tool: Average METT score for 27 existing and 13 new PAs (40 total) increased by an average of 10% *LD3.2* Application of integrated natural resource management (INRM) practices in wider landscapes: ILMPs developed and implemented for 4 pilot sites (1 in each State) in the FSM. *IW1.3* Measurable water related results from local demonstrations: 5 % of piggeries in each state practicing dry litter system

	INDICATOR	BASELINE	END OF PROJECT TARGETS	SOURCE OF INFORMATION	RISKS AND ASSUMPTIONS
Project Objective To strengthen local, State and	Area of High Islands of the FSM where pressures from competing land uses are reduced (measured by no net	0 ha Area of intact forest within the	62,133 ha No net loss of intact forest	Project Reports Municipal and State Congress	**Assumptions:** Government remains committed to investing in SLM & biodiversity conservation and give their full

National capacities and actions to implement integrated ecosystem based management through "ridge to reef" approach on the High Islands of the four States of the FSM	loss of intact forests) through the implementation of Integrated Landscape Management Plans	High Islands to be established in Year 1	against the baseline	documentation ratifying the ILMPs	support to implementing the ILMPs and establishing the PAs Stakeholder institutions are engaged by the project and engage constructively in project activities. Government is committed to working with all stakeholders both nationally and in the region. **Risks:** Mainstreaming SLM and biodiversity conservation into landscape-level development plans and other existing frameworks hindered by competing government/social priorities. The effects of climate change degrade conservation value of ecosystems and PAs. Poor resilience of ecosystems and species to the effects of invasive species and climate change. Extreme climatic events result in catastrophic loss of ecosystems (e.g. landslides, coastal flooding/erosion)
	Average of METT Scores for 40 target PAs covering 24,986 ha	55%	65% with no drop in scores in any of the individual PAs	Project review of the METT Scorecards	
	Sustainable Land Management Capacity Development Score for FSM	50%	70%	Project review of SLM Capacity Development Scorecard	
	PA Management Capacity Development Score for FSM	55%	75%	Project review of PA Capacity Development Scorecard	
	% of the FSM population benefitting in the long-term from the sustainable management of the fisheries resource which includes providing adequate refugia for sustaining the resource	0%	20%[63]	Marine PAs established and adequately managed	
Outcome 1:	**Outputs:**				

[63] Estimated % of the population that are currently (2014) fishers. Fisheries data from Pohnpei as an illustrative example of the number of people that depend on fisheries in and around Pohnpei's marine protected areas. Pohnpei is one of four island states in the FSM, with a population of around 35,000 individuals and approximately 6,000 households. Of these, more than 63 percent of households contain at least one fisher (for a total of 7,227 fishers). These fishers constitute more than 20 percent of the total population. Of this population of fishers, 2,976 are commercial/artisanal and 4,251 are subsistence coral reef fishers (source – Micronesia Challenge biological monitoring/Dr. Kevin Rhodes). While this data is for Pohnpei, the other three states have a similar profile for fishers. It is not unreasonable to extrapolate from this that approximately 20% of the population of the FSM are fishers.

Integrated Ecosystems Management and Rehabilitation on the High Islands of the FSM to enhance Ridge to Reef Connectivity	1.1 Four Integrated Landscape Management Plans (ILMPs), each covering the High Islands of FSM, are developed and implemented for the High Islands of the FSM: 1.2 Institutions with sectoral responsibilities for the development and conservation of the High Islands, together with relevant CSOs and community partners, are capacitated for coordinated action at the wider landscapes on SLM 1.3 Additional finances for SLM investments (including PA management costs) secured and existing contributions to the environmental sector to support SLM practices aligned. 1.4 Management and rehabilitation of critical ecosystems implemented to enhance functional connectivity, reduce erosion, improve water quantity and quality and reduce coastal flooding.				
	Number of Integrated Landscape Management Plans being implemented	0 ILMPs being implemented	4 ILMPs being implemented (1 per State)	Project Reports Municipal and State Congress documentation ratifying the ILMPs	**Assumptions:** The National and State governments allocate adequate resources (staff and budget) to fulfil their roles in PAN implementation, SLM and information management. Identified role players and stakeholders engage constructively with respect to PAN implementation, SLM and capacity building. **Risks:** ILMPs developed but not implemented by regulatory authorities. Catastrophic climatic events reverse progress made with rehabilitation
	Enhanced cross-sector enabling environment for integrated landscape management as per PMAT score: (i) Framework strengthening INRM (ii) Capacity strengthening	(i) Score 2 – INRM framework has been discussed and formally proposed (ii) Score 2 – Initial awareness raised (e.g. workshops, seminars)	(i) Score 4 – INRM framework has been formally adopted by stakeholders but weak (ii) Score 4 – Knowledge effectively transferred (e.g. working groups tackle cross-sectoral issues)	Project review of PMAT	
	Annual Government and Donor funding allocated to SLM (including PA management costs)	US$ 9.2 million	At least US$ 10.1 million	Annual National, State and NGO budget allocations	
	Extent (ha) of ecosystems rehabilitated resulting in increased delivery of ecosystem and development benefits: (i) Upland forests (ii) Mangroves & wetlands	(i) 0 hectares (ii) 0 hectares	(i) 350 hectares (ii) 50 hectares	Project reports	

	% of piggeries using the dry litter piggery system within the Ipwek, Dachangar, Finkol, and Nefounimas catchments resulting in increased water quality[64]	0%	100%	Project reports	
Outcome 2: Management Effectiveness enhanced within new and existing PAs on the High Islands of FSM as part of the R2R approach (both marine and terrestrial)	**Outputs:** 2.1 A National and State-level Legal and Institutional Framework have been established to improve management effectiveness of PA's. 2.2 The PAN of the High Islands has been expanded, and existing and new PAs of the have been secured through a review and upgrading of legal protection status (gazetting of all PAs). 2.3 Management authorities (state and community) of newly established PAs are equipped and capacitated in managing PAs. 2.4 Effective PA management practices have been adopted in existing and new PAs.				
	Coverage (ha) of statutory PAs in the High Islands (i) PAs gazette status verified (ii) Marine (iii) Terrestrial (iv) Total	(i) Legal status of 0 (0 ha) PAs verified (ii) 3,154 ha (iii) 4,444 ha (iv) 7,598 ha	(i) Legal status of 40 PAs verified - 27 existing and 13 new gazette (ii) 14,953 ha (iii) 10,033 ha (iv) 24,986	Project reports National PAN register State Congress PA proclamations	**Assumptions:** The National and State governments allocate adequate resources (staff and budget) to fulfil their roles in PAN implementation, SLM and information management. Identified role players and stakeholders engage constructively with respect to PAN implementation, SLM and capacity building. **Risks:** Recommendations from the SEA and ILMP not integrated into PA management plans. Recommended State-level PA law reform not enacted by State governments.
	Number of States having a fully operational PA management decision support system in place on which management decisions are based	0	4	Project Reports Management actions	
	Mean % of total fish biomass of (i) *Cheilinus undulates* (EN); and (ii) *Bolbometopon muricatum* (VU) across the States[65]	Chuuk: (i) 1.14% (ii) 0.22% Kosrae: (i) 1.52%	Stable or increasing mean % against baseline at each State	PA monitoring results Project reports	

[64] Increase water quality (as well as other assets) as a result of the introduction of dry litter piggery system is confirmed by Fischer, R.D. 2010. Inoculated Deep Litter System. United States Department of Agriculture: *"Because it does not rely on wash downs to move the waste out of the pen and subsequently to a stream or lagoon, the dry litter waste management system eliminates one of the major potential sources of contaminated runoff on the farm. Other attractive benefits: lower water bills and labor costs to the farm because pen washig is virtually eliminated. The dry litter waste management facility produced 10.7 parts per billion hydrogen sulfide levels and 5.0 parts per billion in the production and storage area. The control or conventional wash-down facility had measurements of 54.3 parts per billion and an average of 104.5 parts per billion at the effluent entry to the waste lagoon."*

[65] Methodology and sample sites should be similar to those used by Peter Houk, Unpublished data from FSM Coral Monitoring Programs, University of Guam.

		(ii) 0.00% Pohnpei: (i) 5.2% (ii) 0.48% Yap: (i) 2.47% (ii) 4.70%			National and State role players cannot agree on their respective roles in PAN implementation, management, monitoring and enforcement.
	Mean Detection Rate[66] of the following birds: (i) Kosrae: *Zosterops cinereus* (Kosrae White-eye) Endemic (ii) Pohnpei: *Myiagra pluto* (Pohnpei Flycatcher) Endemic (iii) Chuuk: *Metabolus rugensis* (Truk Monarch) Endangered (iv) Yap: *Monarcha godeffroyi* (Yap Monarch) Endemic (v) All States: *Ducula oceanica* (Micronesian Pigeon) Regionally endemic	(i) 1,846[67] (Baseline to be verified in year 1 of project) (ii) 0.7936[68] (iii) – (v) Baseline TBD in year 1 of project	Stable or increasing against baseline	PA monitoring results Project reports	Poor resilience of marine and terrestrial ecosystems and species to the effects of climate change and IAS

[66] Mean Detection Rates should be established using similar methodology to Oleiro, P.C. (2014) *Avian Population Responses to Anthropogenic Landscapes Changes in Pohnpei, Federated States of Micronesia*. MSc Thesis, University of Missouri; or, Engbring, J., Ramsey, F.L. and Wildman, V.J. (1990) Micronesian forest bird surveys, the federated states: Pohnpei, Kosrae, Chuuk, and Yap. U. S. Fish & Wildlife Service, Honolulu, Hawaii.

[67] Densities (Individuals / Km2) of bird species in mangroves and along an elevation gradient in tropical rainforest of Kosrae in July 1983 (Engbring et al., 1990) reported in Hayes, F.E. and Pratt, H.D. (unpublished manuscript) The Avifauna of Kosrae, Federated States of Micronesia, with Taxonomic Revisions of Endemic Taxa. Mean density calculated excluding the Mangrove habitats:

Species Name	Common Name	Mangroves	0–100m	100–200m	200–400m	400–600m	600-800m	MEAN
Zosterops cinereus	Kosrae White-eye	1,098	2,062	2,000	1,897	1,350	1,981	1,846

[68] Oleiro, P.C. (2014) *Avian Population Responses to Anthropogenic Landscapes Changes in Pohnpei, Federated States of Micronesia*. MSc Thesis, University of Missouri. Species detection rates (birds detected/8 minutes) observed in 2012 on the island of Pohnpei, FSM at six elevation zones. Mean Detection Rate calculated excluding the Mangrove habitats:

Species Name	Common Name	Mangrove	0-100m	100-200m	200-400m	400-600m	600-800m	MEAN
Myigra pluto	Pohnpei flycatcher	0.468	0.851	0.781	0.837	0.762	0.737	0.7936

SECTION III: TOTAL BUDGET AND WORKPLAN

Award ID:	86017	Project ID(s):	93439
Award Title:	Ridge to Reef Micronesia Project		
Business Unit:	FJI10		
Project Title:	Micronesia: Implementing an integrated "Ridge to Reef" approach to enhance ecosystem services, to conserve globally important biodiversity and to sustain local livelihoods in the FSM		
PIMS no.	5179		
Implementing Partner (Executing Agency)	Office of Environment and Emergency Management (OEEM)		

Project Outcome / Component	Impl. Agent	Fund ID	Donor Name	ATLAS Budget Code	Altlas Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	TOTAL	Notes
1) Integrated Ecosystems Management and Rehabilitation on the High Islands of the FSM to enhance Ridge to Reef Connectivity	OEEM	62000	GEF	71200	International Consultants	0	70,000	70,000	70,000	20,000	230,000	*1*
	OEEM	62000	GEF	71400	Contractual Services – Individual	84,800	124,800	124,800	124,800	124,800	584,000	*2*
	OEEM	62000	GEF	71600	Travel	37,250	17,250	17,250	17,250	17,250	106,250	*3*
	OEEM	62000	GEF	72200	Equipment and Furniture	58,250	2,812	2,812	2,813	2,813	69,500	*3a*
	OEEM	62000	GEF	72100	Contractual Services-Companies	56,667	86,667	86,666	40,000	40,000	310,000	*4*
	OEEM	62000	GEF	72300	Materials & Goods	28,200	144,200	54,200	54,200	54,200	335,000	*5*
	OEEM	62000	GEF	72800	Information Technology Equipment	9,320	2,720	720	720	720	14,200	*6*
	OEEM	62000	GEF	75700	Training	30,000	30,000	30,000	30,000	30,000	150,000	*7*
TOTAL COMPONENT 1 GEF						**304,487**	**478,449**	**386,448**	**339,783**	**289,783**	**1,798,950**	
2) Management	OEEM	62000	GEF	71200	International Consultants	12,000	36,750	56,750	36,750	66,750	209,000	*8*

Effectiveness enhanced within new and existing PAs on the High Islands of FSM as part of R2R approach	OEEM	62000	GEF	71300	Local Consultants	0	20,000	20,000	20,000	20,000	80,000	*9*
	OEEM	62000	GEF	71400	Contractual Services - Individual	103,400	191,400	191,400	191,400	191,400	869,000	*10*
	OEEM	62000	GEF	71600	Travel	26,125	26,125	26,125	26,125	26,125	130,625	*11*
	OEEM	62000	GEF	72200	Equipment and Furniture	120,000	158,125	52,500	52,500	52,500	435,625	*11a*
	OEEM	62000	GEF	72100	Contractual Services-Companies	68,474	93,479	97,480	107,983	152,514	519,930	*12*
	OEEM	62000	GEF	72500	Supplies	1,900	2,000	2,000	500	2,000	8,400	*13*
	OEEM	62000	GEF	72800	Information Technology Equipment	15,280	9,920	3,920	3,920	1,920	34,960	*14*
	OEEM	62000	GEF	72200	Equipment and Furniture	6,000	6,000	6,000	6,000	6,000	30,000	*15*
	OEEM	62000	GEF	75700	Training	70,000	70,000	70,000	70,000	70,000	350,000	*16*
TOTAL COMPONENT 2 GEF						**423,179**	**613,799**	**526,175**	**515,178**	**589,209**	**2,667,540**	
3) Project Management	OEEM	62000	GEF	71400	Contractual Services - Individual	34,800	34,800	34,800	34,800	34,800	174,000	*17*
	OEEM	62000	GEF	72800	Information Technology Equipment	2,000	0	0	0	0	2,000	*18*
	OEEM	62000	GEF	74100	Professional Services	0	0	3,000	0	3,000	6,000	*19*
	UNDP	62000	GEF	74500	Direct Project Costs	8,265	8,265	8,265	8,265	8,265	41,325	*20*
TOTAL PROJECT MANAGEMENT GEF						**45,065**	**43,065**	**46,065**	**43,065**	**46,065**	**223,325**	
TOTAL PROJECT						**772,731**	**1,135,313**	**958,688**	**898,026**	**925,057**	**4,689,815**	

BUDGET NOTES

No.	Budget Note
1	Integrated land use management planning and SEA specialists (280 days@ $500/day = $140,000) (Output 1.1); Resource economist for "Making the Case" (180 days@$500/day = $90,000) (Output 1.3).
2	National SLM Programme Manager (full-time @ $150,000); 4 x State SLM Coordinators (full-time for 4.5 years; total: $360,000; 40% of the time of the Project Manager ($74,000)

3	Air travel for staff and consultants ($80,000); daily travel allowance (USD175/day for 150 days = $26,250).
3a	Purchase, maintenance and running costs of vehicle for SLM and PA component of project (1 vehicle per state; $26,250). The project is operating in four states each separated by 1000km of ocean. The project in each state needs its own basic transport infrastructure.
4	Contracts with local service providers to: (1) Biodiversity profile - Collating biodiversity information and drafting of biodiversity profile to accompany ILMP (Output 1.1 - $140,000); (2) Monitoring of SLM-specific indicators - can be linked to overall biodiversity monitoring program (Output 1.4 - $50,000); (3) Conducting restoration works including materials (Output 1.4 - $120,000)
5	(1) Materials for construction of dry litter piggeries (Output 1.4 - $64,000); (2) Purchase of 3 chippers ($30,000 each) for Yap, Chuuk and Kosrae (Output 1.4 - $90,000), and running costs of 4 chippers (1 existing and 3 new) for 4 years (Output 1.4 - $20/hour - $40,000); (3) Contribution to SLM piggery and restoration running costs ($36,000); (4) Training cost in dry litter piggery system ($5,250/year for 4 states - $120,000)
6	Equipment for PIU State and National SLM staff across 4 offices: 5 computers; 4 cameras; 4 printers.
7	Participation of 2-3 national stakeholders in training workshops / programs and monitoring / reporting activities of the UNDP-GEF Regional R2R Project ($150,000)
8	Protected area legal expert (Lawyer, 180 days) (Output 2.1) for reviewing existing legislation in the 4 States and drafting new/amended legislation ($99,000); International Consultants for Mid-Term ($20,000) and Final Evaluation ($30,000); International Chief Technical Advisor ($60,000)
9	GIS Information Management Officer (200 days) will undertake various tasks across the outputs of Outcome 2 ($80,000)
10	4 State PA coordinators (one in each State - $20,000/year for 4.5 years = $360,000); 8 technical assistants (PA Rangers, 2 in each State; $12,000/year = $432,000); 40% of the time of the Project Manager ($74,000)
11	Air travel for staff and consultants ($100,000); daily travel allowance (USD175/day = $30,625)
11a	Purchase ($20,000/boat = $120,000 (1 for Yap and Kosrae States, 2 for Pohnpei and Chuuk) and running costs of boat for PA management and enforcement ($337,500). The project is operating in four states each separated by 1000km of ocean. The project in each state needs its own basic transport infrastructure.
12	Contracts with service providers to: (1) biodiversity monitoring program (Output 2.4 - $200,000). This program will be divided into 4-6 sub-contracts and tender out to environmental NGOs; (2) stakeholder engagement to support development of PA management plans, community and stakeholder training in PA and SLM management (Output 1.2 & 2.3 - $290,055); Project Inception workshop; Mid-term evaluation and sustainability planning workshop ($8,000)
13	Printing costs of producing large format maps for PAs (e.g. Ink cartridges and Paper - $8,400)
14	Equipment for PIU State and National PA staff and PAs: Computers ($5,000); GPS ($4,000); Cameras ($4,000); Printers ($2,360) and Buoys for marking MPA boundaries ($19,600).
15	Contribution to PA running costs ($100/month - $30,000)
16	Training of PA role-players (state, NGO and community) in PA management activities (planning, budget, conservation, enforcement, monitoring, etc.) ($70,000/year - $350,000)
17	Project contribution for salaries of Project Implementation Unit staff for project management and accountability: Project Manager (20% of time - $34,000), Financial Administrator (100% of time - $140,000)
18	Equipment for PIU National office: 3 laptops; 1 printer; external hard drives and other IT consumables
19	Audits (two audits at $3,000 each)
20	Estimated UNDP Direct Project Service/Cost recovery charges to UNDP for executing services. In accordance with GEF Council requirements, the costs of these services will be part of the executing entity's Project Management Cost allocation identified in the project budget. DPS costs would be charged at the end of each year based on the UNDP Universal Price List (UPL) or the actual corresponding service cost. The amounts here are estimations based on the services indicated, however as part of annual project operational planning the DPS to be requested during the calendar year would be defined and the amount included in the yearly project management budgets and would be charged based on actual services provided at the end of that year.

SECTION IV: ADDITIONAL INFORMATION

PART I: LETTERS OF CO-FINANCING COMMITMENT

[Refer to separate file for letters of co-financing commitment]

Sources of Co-financing	Name of Co-financier	Date	Amounts mentioned in letters (USD)	Amounts considered as project co-financing (in USD)
National Government	Office of Environment and Emergency	26 January 2015	$1 000 000	$1 000 000
National Government	Department of Resources and Development	26 January 2015	$1 000 000	$1 000 000
Local Government	Kosrae Island Management Authority	29 May 2014	$550 000	$550 000
Local Government	Kosrae Department of Resources and Economic Affairs	29 May 2014	$550 000	$550 000
CSO	Kosrae Conservation and Safety Organisation	29 May 2014	$500 000	$500 000
CSO	Yela Land Owners Authority	29 May 2014	$500 000	$500 000
Local Government	Pohnpei Environmental Protection Agency	09 May 2014	$2 000 000	$2 000 000
CSO	Conservaiton Society of Pohnpei	09 May 2014	$900 000	$900 000
Local Government	Chuuk Environmental Protection Agency	15 January 2015	$2 602 000	$2 602 000
CSO	Chuuk Conservation Society	15 January 2015	$98 000	$98 000
Local Government	Yap Environmental Agency Protection	09 May 2014	$387 220	$387 220
Local Government	Yap Marine Resources Management Division	09 May 2014	$225 986	$225 986
Local Government	Yap Division of Agriculture and Forestry	09 May 2014	$536 063	$536 063
Local Government	Yap Department of Public Works and Transportation-SWM	09 May 2014	$320 136	$320 136
CSO	Yap Cap	09 May 2014	$216 993	$216 993
CSO	Micronesia Conservation Trust	15 January 2015	$5 000 000	$5 000 000
CSO	The Nature Conservancy	14 January 2015	$1 500 000	$1 500 000
	TOTAL		**$17 886 398**	**$17 886 398**

CTED AREAS MANAGEMENT CAPACITY SCORECARD

Protected Areas Management Capacity Scorecard

port 2: Management effectiveness enhanced within new and existing PAs on the High Islands of the FSM as part of the R2R approach (both marine and terrestrial)

	Scorecard	Initial Score	Evaluative Comments
el of	0 - There are no National or State-level institutional frameworks for PA management. 1 - There are partial PA management frameworks at the National and State levels, but they have many inadequacies. 2 - There are PA management frameworks at the National and State levels, but gaps and weaknesses remain. 3 - There are adequate PA management frameworks at the National and at all State levels	1	Two of the four States have PAN laws already (Kosrae and Pohnpei) and Yap is developing their own legislation. Stakeholders in Chuuk recognize the benefits of a PAN framework. At the National level the role of the government is to support the establishment and implementation of PANs in all States and is in the process of developing a set of criteria for supporting State PANs
nd n egal	0 – State PA agencies are not actively involved in PA management functions. 1 – Some State agencies, with support from the Department of R&D, are involved in some PA management functions, but the majority of PA management functions occur at the site level. 2 –State agencies, with support from the Department of R&D, are in involved in most aspects of centralized PA management functions, but weaknesses remain. 3 – The majority of State agencies, with support from the Department of R&D, are involved in all aspects of centralized PA management functions	2	The assistant secretary of R&D currently acts as the Micronesia Challenge (MC) focal point and the PAN coordinator for the FSM, providing support to State MC focal points/PAN coordinators. At the State level agencies work collaboratively with local and regional NGOs, Municipalities, and communities to manage PAs. However capacity for project management, financial, and monitoring varies across PAs

2.1.2: A standardized PA reporting and performance monitoring system has been implemented. And a National biodiversity/ecological monitoring and information system has been established	0 - There is no standardized PA reporting and performance monitoring system and a National biodiversity/ecological MIS has not been established. 1 - PA reporting and performance monitoring takes place, but is not standardized and a National biodiversity/ecological MIS has not been established. 2 - Standardized PA reporting and monitoring takes place, but a National biodiversity/ecological MIS has not been established. 3 - Standardized PA reporting and monitoring takes place, and feeds into a National biodiversity/ecological MIS	1	Through the MC, the FSM is working towards a standardized monitoring and reporting system for PAs, including a consistent set of indicators for biological/socioeconomic/performance monitoring. State agencies collaborate with local NGOs/communities to conduct monitoring. However there is not an FSM-specific MIS to house/provide access to PA data across all sites (currently housed at the regional MC database)
2.1.3: An integrated and adaptive PA management decision support system is established at State and National levels to facilitate biodiversity, financial and risk (climate change and land-use pressures) adaptive management planning and decision making.	0 - There is no PA management decision support system at State and National levels. 1 - There is an ad-hoc PA management decision support system at the State and National levels, but it provides only marginal input to adaptive management planning and decision-making. 2 - There is a PA management decision support system at the State and National level, but it provides only marginal input to adaptive management planning and decision-making. 3 - There is a well integrated and effective management decision support system at the State and National levels	1	The R&D PAN coordinator provides input upon request, but there is no systematic method for involving other National/State resources into decision-making.
2.2: The PAN of the High Islands has been expanded, and existing and new PAs of the High Islands have been secured through a review and upgrading of legal protection status (gazetting of all PAs)	0 - There is no plan and/or capacity to expand PANs and few PAs are in the process of becoming legally gazetted. 1 - There are plans to expand PANs, but limited capacity (human and financial) to implement the plans, and few PAs are in the process of becoming legally gazetted. 2 - Some State PANs are being expanded, but issues remain and many PAs are in the initial stages of becoming legally gazetted 3 - All PANs are being expanded and most PAs are in the process of becoming legally gazetted/are gazetted	2	All States are working to expand their PANs to meet MC goals. Each State has its own legal and/or traditional system for establishing and recognizing PAs. Additionally Municipalities in some States are able to declare PAs. Recognizing the diversity of ways in which a PA can be recognized in the FSM, there is a need to establish National and State frameworks to recognize all PAs (those that are legally declared as well as those recognized within communities/traditional systems)

2.3: Management authorities (State and community) of newly established PAs are equipped and capacitated in managing PAs.	0 - Management authorities (communities and States) of new PAs are not equipped or capacitated in managing PAs. 1 - A few management authorities have the equipment and capacity required to effectively manage new PAs, but many deficiencies remain. 2 - Most management authorities have the equipment and capacity required to manage new PAs, but some deficiencies remain. 3 - Management authorities have adequate equipment and capacity to effectively manage new PAs	2	State agencies and local NGOs play a strong and important role in PA management across the FSM, involving communities and community based-organizations as the traditional stewards/owners of the conserved resources. New community-led PAs benefit from this technical capacity and experience. However, these management groups need ongoing financial and human capacity development support to achieve PA management objectives over the long-term
2.4: Effective site and cross-site level PA management practices promoted in new and existing PAs	0 - Effective site and cross-site management practices are not promoted. 1 - Some effective site and cross-site management practices are promoted, but the process is ad-hoc. 2 - Many effective site and cross-site management practices are promoted, but there is no institutionalized system for this process. 3 - The promotion of effective site and cross-site management practices is institutionalized as a routine part of National and State agency PA activities	1	Varies per State. In general PA management groups are site-specific and deal with issues on the site-level. However, there is a growing use of the MPAME tool and cross-site visits allowing for increased learning opportunities. These are ad-hoc and not institutionalized into PA management activities FSM-wide
2.4.1: Improved PA management planning and boundary demarcation have been implemented	0 - PA management agencies are not using available tools, such as the MPAME, to improve management; and boundary issues are widespread. 1 - Some PA management agencies are self-assessing at least annually and improving management planning, and there are some boundary issues. 2 - Most PA management agencies are routinely self-assessing and improving management planning, and most PA boundaries are demarcated. 3 - PA management agencies are using available project management/assessment tools and almost all PA boundaries are known and demarcated.	1	Through the MC, PA management groups are getting access to new tools to conduct self-assessments and are increasingly using these tools. As a separate issue, many PA boundaries in the State remain delineated due to land/resource ownership issues
2.4.2: Improved zoning and boundary demarcation based on and aligned to the ILMP, and SEA	0 - There is limited capacity for zoning and boundary demarcation at the State and Municipal levels and many boundary issues remain. 1 - There is limited progress towards clearly demarcating boundaries, as capacity and community support are lacking and boundaries are weakly aligned to ILMPs and SEA. 2 - In some areas boundary demarcation is proceeding well as is generally aligned with ILMP and SEA, but community and capacity constraints are hindering progress in other places. 3 - There is widespread community support for boundary demarcations, and the process is proceeding based on and aligned to the ILMP and SEA	1	While all PA boundaries are not fully demarcated, (land/resource ownership regimes vary by State and include both community and individual ownership practices) PA management can and does continue throughout the FSM. Work to demarcate boundaries therefore proceeds alongside other aspects of PA management and in successful cases involves multiple communities and/or

			entire Municipalities to reach eventual agreement on boundaries
2.4.3: Biological/ecological monitoring systems have been implemented	0 - No biological/ecological monitoring systems are in place. 1 - Some biological/ecological monitoring systems are in place, but those existing do not provide enough/the right kind of data to support more effective decision-making. 2 - Many biological/ecological monitoring systems are in place in most areas, providing data to support more effective decision-making, but some data gaps remain. 3 - Biological/ecological monitoring is highly integrated into PA management, providing data to support decision making in most areas	2	Per the MC, efforts are ongoing to conduct routine monitoring of PAs and information collected is being used to inform decision making, including biological, socio-economic, and performance management. However more terrestrial and socio-economic monitoring needs to be done to provide a fuller data-picture for decision making
2.4.4: Enforcement of PAs has been strengthened	0 - Enforcement of PAs is insufficient and illegal/prohibited actions are not being mitigated or deterred. 1 - Enforcement of PAs is sporadic and only marginally mitigates/deters illegal/prohibited actions. 2 - Enforcement systems are established and consistently contributing to mitigation and deterrence, but some deficiencies/areas for improvement remain. 3 - Enforcement systems are effective in mitigating and deterring illegal/prohibited actions throughout the PANs	2	Partnerships between communities, States, and NGOs are proving effective at increasing compliance and enforcement. By getting traditional/community leaders involved and continuing public awareness campaigns, enforcement is moving beyond simply citing violators to changing behaviours and getting commitment for PA goals through the communities
2.4.5: Communities have been capacitated to better management of specific land-use pressures at the site-level	0 - Communities have no capacity to manage land-use pressures. 1 - Some communities have capacity to manage land-use pressures, but most communities do not. 2 - Most communities have the capacity to manage land-use pressures, but some deficiencies remain. 3 - Communities across the FSM are sufficiently capacitated to manage land-use pressures	2	The communities are quite aware of the implication of land and water based activities on marine and terrestrial sites, but lack alternatives to current practices and in many cases have clear economic incentives to continue detrimental practices

PART III: SUSTAINABLE LAND MANAGEMENT CAPACITY SCORECARD FOR FSM

Strategic Area of Support	Issue	Scorecard	Initial Score	Evaluative Comments
1. Capacity to conceptualize and formulate policies, legislations, strategies and programmes	1.1 The "mainstreaming biodiversity" agenda is being effectively championed / driven forward	0 -- There is essentially no mainstreaming biodiversity agenda; 1 -- There are some persons or institutions actively pursuing a mainstreaming biodiversity agenda but they have little effect or influence; 2 -- There are a number of mainstreaming biodiversity champions that drive the biodiversity mainstreaming agenda, but more is needed; 3 -- There are an adequate number of able "champions" and "leaders" effectively driving forwards the mainstreaming biodiversity agenda	**2**	The champions driving biodiversity forward in FSM include NGOs in each of the 4 States, as well as regional institutions such as MCT, and resource management agencies at the State and National levels.
	1.2 There is a strong and clear legal mandate for the integration of biodiversity conservation into land use planning	0 -- There is no legal framework for integration of biodiversity conservation into land use planning; 1 -- There is a partial legal framework for integration of biodiversity conservation into land use planning but it has many inadequacies; 2 – There is a reasonable legal framework for integration of biodiversity conservation into land use planning but it has a few weaknesses and gaps; 3 -- There is a strong and clear legal mandate for integration of biodiversity conservation into land use planning	**1**	There are several Land Use plans, which have integration into biodiversity, e.g. Pohnpei watershed forest reserve and Mangrove Act of 1983 and others. Kosrae recently developed Land Use Plan, but Chuuk and Yap do not have land use plans, Pohnpei has one from the 1980's. Unfortunately most of these legislations are not enforced.
	1.3 There is an institution or institutions responsible for land use planning in FSM	0 – Development Zone Authorities/Governorates have no land use plans or strategies; 1 -- Development Zone Authorities/Governorates do have land use plans, but these are old and no longer up to date or were prepared in a totally top-down fashion; 2 -- Development Zone Authorities/Governorates have some sort of mechanism to update their land use plans, but this is irregular or is done in a largely top-down fashion without proper consultation; 3 – Development Zone Authorities/Governorates have relevant, participatorially prepared, regularly updated land use plans	**2**	The agencies responsible for Land Use planning at the State level in general lack resources to routinely update their plans through a consultative process.
	1.4 The land use planning process in FSM is participatory and inclusive, such that resulting plans have a high level of ownership	0 -- There are no opportunities for public participation and involvement in the land use planning process; 1—Land use planners have some skills for involving the public but lack the conviction, capacity and know-how for involving the public; 2 -- Necessary skills for effective public participation do exist but are stretched and not easily available; 3 -- Adequate capacity, commitment and skills exist among land use planners for meaningful and effective public participation in the process.	**2**	The agencies that are responsible for land use planning, could benefit from the community-engagement approaches being used by Conservation Societies throughout the FSM and could explore partnering with these local NGOs and other international/regional development partners (SPC, SPREP, TNC, USFS, GIZ, others) to develop the land use plans.
2. Capacity to monitor compliance and enforce land use plans	2.1 There are adequate skills for land use planning, monitoring and enforcement	0 -- There is a general lack of land use planning, monitoring and enforcement; 1-- Some skills exist but in largely insufficient quantities to guarantee effective land use planning, monitoring and enforcement; 2 -- Necessary skills for effective land use planning, monitoring and enforcement do exist but are stretched and not easily available; 3 -- Adequate quantities of the full range of skills necessary for effective land use planning, monitoring and enforcement are easily available	**2**	Overall limited capacity to do enforcement within State agencies throughout the FSM. Includes lack of staff, lack of staff with the right skills, and limited equipment/financial resources to monitor/enforce. Should be improved coordination between community, Municipal, and State-level enforcement agents. Municipalities and

				communities routinely engaged to promote compliance at the sub-State level. Also coordination ensuring that the same systematics are used and adequate sample sizes are used.
	2.2 There is a fully transparent oversight authority (there are fully transparent oversight authorities) for the implementation of land use plans	0 -- There is no oversight at all of land use plans; 1 -- There is some oversight, but only indirectly and in a non-transparent manner; 2 -- There is a reasonable oversight mechanism in place providing for regular review but lacks in transparency (e.g. is not independent, or is internalized) ; 3 -- There is a fully transparent oversight authority for the land use plans.	**1**	There are some ad-hoc internal reviews and updates of plans as well as monitoring plan implementation, but there is no set schedule for reviews and limited community involvement making the process less transparent than optimal due to capacity issues
	2.3 Land Use management institutions[69] are effectively led	0 -- Land use management institutions have a total lack of leadership; 1 -- Land use management institutions exist but leadership is weak and provides little guidance; 2 -- Some land use management institutions have reasonably strong leadership but there is still need for improvement; 3 -- Land use management institutions are effectively led	**2**	Varies by State, dependent on the political will/context. Issue that some resource management agencies lack a clear mandate to enforce existing regulations/legislation. Decisions made on a case-by-case basis instead of following a consistent process. Should explore routine inter-agency meetings to review applications in a transparent manner
	2.4 Human resources for land use management are well qualified and motivated	0 -- Human resources are poorly qualified and unmotivated; 1 -- Human resources qualification is spotty, with some well qualified, but many only poorly and in general unmotivated; 2 -- HR in general reasonably qualified, but many lack in motivation, or those that are motivated are not sufficiently qualified; 3 -- Human resources are well qualified and motivated.	**1**	Some agencies lack the human resources required to fulfil mandate – both in terms of not enough personnel, and personnel lacking the mix of skills required to be effective. Also sometimes people are not motivated because higher authorities do not always support field personal.
	2.5 Land use management institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	0 -- Land use management institutions typically are severely underfunded and have no capacity to mobilize sufficient resources; 1 -- Land use management institutions have some funding and are able to mobilize some human and material resources but not enough to effectively implement their mandate; 2 -- Land use management institutions have reasonable capacity to mobilize funding or other resources but not always in sufficient quantities for fully effective implementation of their mandate; 3 -- Land use management institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	**1**	For example the budgets for State natural resource management agencies are not adequate to fulfil their mandates and effectively implement/monitor/enforce land use management plans. Lack of knowledge/capacity to design and implement programs (including reporting compliance) and to leverage resources

[69] Land Use Management Institutions include all institutions that are involved in the regulation, planning and enforcement of land use in the context of conserving biodiversity across the landscape.

	2.6 Land use management institutions are effectively managed, efficiently deploying their human, financial and other resources to the best effect	0 -- While the land use management institutions exist, they have no management; 1 -- Institutional management is largely ineffective and does not deploy efficiently the resources at its disposal; 2 -- The institution(s) is (are) reasonably managed, but not always in a fully effective manner and at times does not deploy its resources in the most efficient way; 3 -- The Land use management institutions are effectively managed, efficiently deploying its human, financial and other resources to the best effect	**2**	Agencies responsible for land use plans should be encouraged to continue to prioritize their activities to make the most use of their limited resources. Make better use of partnerships with local NGOs, community-based organizations, regional groups and international organizations.
	2.7 Land use management institutions are highly transparent, fully audited, and publicly accountable	0 -- Land use management institutions totally un-transparent, not being held accountable and not audited; 1 – Land use management institutions are not transparent but are occasionally audited without being held publicly accountable; 2 -- Land use management institutions are regularly audited and there is a fair degree of public accountability but the system is not fully transparent; 3 -- The land use management institutions are highly transparent, fully audited, and publicly accountable	**1**	Audits are irregular; there is no process for making agencies publically accountable in the case of findings. Should institutionalize regular performance audits and improvement plans should be developed and implemented considering audit findings.
	2.8 Legal mechanisms on mainstreaming biodiversity through land use plan monitoring and enforcement	0 -- No enforcement of land use plans is taking place or no land use plans in place; 1 -- Some enforcement of land use plans but largely ineffective and external threats remain active; 2 – Land use plans are regularly enforced but are not fully effective and external threats are reduced but not eliminated; 3 – Land use plans are highly effectively enforced and all external threats are negated	**1**	There are some legislation in place at the State levels, but they are not well enforced due to capacity issues.
	2.9 Individuals working in land use regulation, planning and enforcement are able to advance and develop professionally	0 -- No career tracks are developed and no training opportunities are provided; 1 -- Career tracks are weak and training possibilities are few and not managed transparently; 2 -- Clear career tracks developed and training available; HR management however has inadequate performance measurement system; 3 -- Individuals are able to advance and develop professionally	**1**	No formal professional development plans existing within the State agencies. Need to develop and implement professional development plans
	2.10 Individuals working in land use regulation, planning and enforcement are appropriately skilled for their jobs	0 -- Skills of individuals do not match job requirements; 1 -- Individuals have some or poor skills for their jobs; 2 -- Individuals are reasonably skilled but could further improve for optimum match with job requirement; 3 -- Individuals are appropriately skilled for their jobs	**2**	In general, staff are adequately trained. However could benefit from additional skills such as analysing data for decision-making. Need to create incentives for staff advancement and retention to keep and motivate skilled workers
	2.11 Individuals working in land use regulation, planning and enforcement are highly motivated	0 -- No motivation at all; 1 -- Motivation uneven, some are but most are not; 2 -- Many individuals are motivated but not all; 3 -- Individuals are highly motivated	**2**	In general employees understand the importance of resource management and are committed to making a difference in their islands. However the lack of resources and in some case political will makes work challenging

	2.12 There are appropriate systems of training, mentoring, and learning in place to maintain a continuous flow of new staff working in land use regulation, planning and enforcement	0 -- No mechanisms exist; 1 -- Some mechanisms exist but unable to develop enough and unable to provide the full range of skills needed; 2 -- Mechanisms generally exist to develop skilled professionals, but either not enough of them or unable to cover the full range of skills required; 3 -- There are mechanisms for developing adequate numbers of the full range of highly skilled invasive species professionals	**1**	There is not a systematic process for comprehensive skills training, enabling professional development. However ad-hoc trainings are available.
3. Capacity to engage and build consensus among all stakeholders	3.1 The integration of biodiversity conservation into land use management has the political commitment	0 -- There is no political will at all, or worse, the prevailing political will runs counter to the interests of conserving BD through land use management; 1 -- Some political will exists, but is not strong enough to make a difference; 2 -- Reasonable political will exists, but is not always strong enough to fully conserve BD through land use management; 3 -- There are very high levels of political will to support conserve BD through land use management.	**2**	Most politicians either support or are neutral for biodiversity conservation however lack comprehensive understanding of ecosystems to be able to make fully informed decisions about infrastructure/private sector development
	3.2 The integration of biodiversity conservation into land use management has the public support they require	0 -- The public has little interest in conserving biodiversity in the wider landscape outside protected areas; 1 -- There is limited support for conserving biodiversity outside protected areas; 2 -- There is general public support for conserving biodiversity in the wider landscape outside protected areas and there are various lobby groups such as environmental NGO's strongly pushing them; 3 -- There is tremendous public support in the country for conserving biodiversity in the wider landscape outside protected areas	**2**	While most people understand the long-term impact of their activities, but without alternative livelihoods continue to overexploit natural resources.
	3.3 Land use management institutions can establish the partnerships needed to achieve the objective of conserving biodiversity within the wider landscape	0 – Land use management institutions operate in isolation; 1 -- Some partnerships in place but significant gaps and existing partnerships achieve little; 2 -- Many partnerships in place with a wide range of agencies, NGOs etc., but there are some gaps, partnerships are not always effective and do not always enable efficient achievement of objectives; 3 – Land use management institutions establish effective partnerships with other agencies and institutions, including provincial and local governments, NGO's and the private sector to enable achievement of objectives in an efficient and effective manner	**2**	In all four FSM States there are NGOs (Conservation Societies) to work with land use institutions. Partnerships are there, but coordination should be improved. Partnerships also weakly institutionalized, local NGOs/regional organizations not always invited into the decision making process in all cases.
4. Capacity to mobilize information and knowledge	4.1 Land use management institutions have the information they need to develop and monitor land use plans for the conservation of biodiversity	0 -- Information is virtually lacking; 1 -- Some information exists, but is of poor quality, is of limited usefulness, or is very difficult to access; 2 -- Much information is easily available and mostly of good quality, but there remain some gaps in quality, coverage and availability; 3 -- Land use management institutions have the information they need to develop and monitor land use plans for the conservation of biodiversity	**2**	Gaps, such as aerial maps, exist and should be closed. Resource management agencies, political leaders, communities, should be encouraged to continue using data to make decisions. There are many possibilities to get the necessary information, e.g. there are Int. and Regional Institution (NRCS, SPC, SPREP and others) who can provide the info.

	4.2 Individuals working with land use management, work effectively together as a team	0 -- Individuals work in isolation and don't interact; 1 -- Individuals interact in limited way and sometimes in teams but this is rarely effective and functional; 2 -- Individuals interact regularly and form teams, but this is not always fully effective or functional; 3 -- Individuals interact effectively and form functional teams	**2**	There are resource management committees/stewardship committees, but could improve how they work together. There could be a better cooperation amongst individuals working on land use management, e.g. DLNR Division of Forestry and CSP in Pohnpei.
5. Capacity to monitor, evaluate, report and learn	5.1 Society monitors the state of biodiversity in both protected areas and in the wider landscape outside protected areas	0 -- There is no dialogue at all; 1 -- There is some dialogue going on, but not in the wider public and restricted to specialized circles; 2 -- There is a reasonably open public dialogue going on but certain issues remain taboo; 3 -- There is an open and transparent public dialogue about the state of biodiversity conservation in the country	**3**	Issues of land-ownership/usage rights and alternative livelihoods are commonly cited community concerns, but public engages in discussion about biodiversity conservation
	5.2 Land use management institutions are highly adaptive, responding effectively and immediately to change	0 -- Institutions resist change; 1 -- Institutions do change but only very slowly; 2 -- Institutions tend to adapt in response to change but not always very effectively or with some delay; 3 -- Institutions are highly adaptive, responding effectively and immediately to change	**2**	Change is ad-hoc. Dependent on personalities and their priorities, not a systematic process at the State-level
	5.3 Land use management institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	0 -- There are no mechanisms for monitoring, evaluation, reporting or learning; 1 -- There are some mechanisms for monitoring, evaluation, reporting and learning but they are limited and weak; 2 -- Reasonable mechanisms for monitoring, evaluation, reporting and learning are in place but are not as strong or comprehensive as they could be; 3 -- Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	**1**	Agencies increasingly understand the importance of documenting and monitoring and evaluating activities. However this is not institutionalized at the agency-level, and should be supported and improved
	5.4 Individuals working in land use management institutions are adaptive and continue to learn	0 -- There is no measurement of performance or adaptive feedback; 1 -- Performance is irregularly and poorly measured and there is little use of feedback; 2 -- There is measurement of performance and some feedback but this is not as thorough or comprehensive as it might be; 3 -- Performance is effectively measured and adaptive feedback utilized	**2**	There is very little documentation and reporting

PROJECT ANNEXES

[Refer to separate file for Project Annexes]