



Integrated Environmental Management of the Fanga'uta Lagoon Catchment

(also referred to as Tonga Ridge to Reef)



Terminal Evaluation Report

June 15, 2018

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Integrated Environmental Management of the Fanga'uta Lagoon Catchment
(also referred to as Tonga Ridge to Reef)

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UNDP Project ID : 00088096
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GEF Agency : United Nations Development Programme

**Executing Agency: Department of Environment, Ministry of Meteorology, Energy, Information,
Disaster Management, Environment, Climate Change and Communications
Focal Area: Climate Change**

Project Period 2014-2017

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The views expressed in this report are intended to offer an overview of and some of the lessons learned from this Project as it comes to its conclusion. I have tried to balance thoughts and to offer fair perspectives of what was observed and learnt from people far more knowledgeable about the Project and its context than I will ever be.

And finally, one of the delights of this sort of work remains that of visiting a new and extremely welcoming country and going home again having made new friends, seen new things, and witnessed with great admiration the dedication and enthusiasm that so many people bring to their work in managing Lagoon Catchment sustainably. I would like to thank them and wish them every success in their continuing endeavours.

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Acronyms and Terms

ADB	Asian Development Bank
AusAid	Australian Aid
CBO	Community Based Organisation
CAP	Country Action Plan
CEO	Chief Executive Officer
CO	Country Office
CROP	Council of Regional Organisations in the Pacific
CPAP	Country Program Action Plan
DoF	Department of Forest
EA	Executing Agency
E&E unit	Energy and Environment Unit
EMP FLS	Environment Management Plan for Fanga'uta Lagoon System
EU	European Union
FLCIEMP	Fanga'uta Lagoon Committee for Integrated Environment Management Plan
GEF	Global Environment Facility
GEF-SGP	Global Environment Facility –Small Grants Program
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbeit
GOT	Government of Tonga
HQ	Head Quarters
IA	Implementing Agency
IC	International Consultant
IDNDR	International Decade for National Disaster Reduction
INGO	International Non-Governmental Organisation
IRM	Integrated Resource Management
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resource Management
JNAP	Joint National Action Plan
MAFFF	Ministry of Agriculture, Food, Forests and Fisheries
MDG	Millennium Development Goal
M&E	Monitoring and Evaluation
MIA	Ministry of Internal Affairs
MEIDECC	Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications
MLNRS	Ministry of Lands, Natural Resources and Survey
MoU	Memorandum of Understanding
MSP	Medium Sized Project
MTIC	Ministry of Trade Industry and Cooperatives
MTR	Mid-Term Review
MWE	Ministry of Water and Environment
NAP	National Adaptation Plan
NBSAP	National Biodiversity Strategic Action Plan
NEAP	National Environment Action Plan
NECCC	National Environment Climate Change Committee
NEMA	National Environment Management Authority
NEMP	National Environment Management Policy
NIM	National Implementation Modality
NGO	Non-Government Organisation
PCB	Polychlorinated biphenyls
PFD	Project Framework Document
POP	Persistent Organic Pollutant

POWPA	Program of Work on Protected Areas
PSC	Project Steering Committee
PIC	Pacific Island Countries
PIF	Project Information Framework
PIR	Project Implementation Review
PMU	Project Management Unit
ProDoc	Project Document
PUMA	Planning and Urban Management Division
ROtI	Review of Outcome to Impact
RRF	Result Resource Framework
R2R	Ridge to Reef
SMA	Special Management Area
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
SOPAC	Technical wing of South Pacific Community
SPCZ	South Pacific Convergence Zone
SPREP	Secretariat of the Pacific Regional Environment Programme
TE	Terminal Evaluation
TEC	Terminal Evaluation Consultant
TEMPP	Tonga Environment Management and Policy Planning
UNCBD	United Nations program on Conservation of Biodiversity
UNCCD	United Nations Convention to Combat Desertification
UNDAF	UN Development Assistance Framework
UNDP	United Nations Development Programme
UNDP HQ	UNDP Headquarter
UNDP PO	UNDP Pacific Office
UNFAO	United Nation Food and Agriculture Organisation
UNFCCC	United Nations Framework Convention on Climate Change
US\$	United States Dollar
WCS	Wildlife Conservation Society
WWF	World Wildlife Fund

Currency of Tonga is the Tongan Pa'anga (TOP). At the time of the final evaluation, US\$ 1 = TOP2.23

ii. Executive Summary

This Terminal Evaluation (TE) has been conducted as part of the Monitoring and Evaluation plan of the UNDP-supported GEF-financed Project: “Integrated Environmental Management of the Fanga’uta Lagoon Catchment”, and will be referred to as the “Project” in the scope of this report. The TE mission to Tonga was conducted from 22th May to 4th June 2018. Extensive consultations with the project partners were also conducted prior and following the mission to ensure a good understanding of the project’s results; leading to the submission of the TE report on the date of this report.

Project Summary Table

As per requirements for TE, the Project Summary Table is provided below:

Project Summary Table				
Project Title:	Integrated Environmental Management of the Fanga’uta Lagoon Catchment			
GEF Project ID:	5663		at endorsement (US\$)	at completion (US\$)
UNDP Project ID: UNDP PIMS ID:	00088096 5219	GEF Fund:	1,756,880	1,756,880
Country:	Tonga	Govt of Tonga in Kind:	650,000	1,896,888
Region:	Asia and the Pacific	UNDP:	500,000	500,000
Focal Area:	Biodiversity, Land Degradation and Integrated water	Development Partners	5,500,000	21,315
		Total co-financing:	6,650,000	2,418,203
Executing Agency:	UNDP	Total Project Cost:	8,406,880	4,175,083
Other Partners involved:	• MEIDECC, MLNRS, MAFFF, MIA	ProDoc Signature (date project began):	July 2014	
		(Operational) Closing Date:	Proposed: 31 December 2017	Actual: 31 June 2018

Brief Description of Project

The Kingdom of Tonga covers 747km² of landmass (720,000km² combined sea and land area) and is situated in the active zone along edge of the Fijian and Pacific plates and has been progressively uplifted and tilted in very recent geologic time. The shallow, almost completely closed Fanga’uta and Fangakakau Lagoons are an important breeding ground for birds and fish as they live within the mangroves growing around the lagoon’s shores. The lagoons were declared a Marine Reserve in 1974 by the government.

Rainfall in the Tongatapu Island has high variability from year-to-year. Nuku’alofa receives about three times as much as rain in the wettest years as in the driest years. Almost two-third of the annual rainfall comes during the wet season from November to April. The remainder falls in the dry season from May to October. This reflects the importance of the South Pacific Convergence Zone (SPCZ) on rainfall in the Fanga’uta Lagoon and in Tonga, which is most intense during the wet season. According to a new research on climate change in the Pacific, the intensity and frequency of days of extreme rainfall and extreme heat are projected to increase over course of the 21st century. Whereas annual and wet season rainfall at Nuku’alofa has decreased since 1950, rainfall patterns are projected to change over this century with more extreme rainfall days expected.

Studies of 1980 recorded sewage-related contamination with high nutrient concentrations in the water of the lagoon. Since early 1990s, the lagoon system was undergoing significant changes. Information was emerging

during this time that the lagoon was occasionally turning green, that turbidity was increasing, that fish catches continued to decline, that many species of seagrasses became covered in algae, and that more mangrove areas were being cleared. By that time, many of the lagoon beaches were converted to seawalls and sewage was a common component of storm water entering through drains. Over the last decades, in the absence of a multi-sectoral consensus on how to achieve sustainable management of the lagoon's ecosystem services and an integrated approach, the ecological conditions of the Fanga'uta lagoon system have continued to decline contributing to growing concerns of the limits to the lagoon's ecosystem productivity. Pollution in the lagoon system comes through direct dumping, groundwater, and run-off from the land and pollution that is made inside the lagoon as a result of human disturbance. Direct dumping and littering involves cans, paper, plastic, car tires, batteries, timber, masonry and other rubbish. Some items are thrown along the shores of the lagoon and then washed into it during storms. Other items such as gillnets and floats, may be lost by fishermen. Approximately 26,000 m³ of freshwater are flowing into the lagoon every day from the groundwater reservoir around the lagoon. This water falling as rain on the land can collect pollution and carry it into the groundwater. The pollution may be sewage from leaking septic tanks, pesticides and chemical fertilizers from agricultural areas, waste oil, asbestos roofing, or a cocktail of chemicals found in garbage dumps.

The country has the Parks and Reserve Act 1988 which authorizes the Land Management Office to declare an area in the coastal environment or on land as a Protected Area for protection, preservation and control of any aquatic form of life and any other organic matter contained within protected area boundary. The National Spatial Planning and Management Act 2012 which came into effect on the 1st January 2014, plays an important role with regards to land use and other related activities. The Fisheries Act 1989 gives authority to the Minister and DoF to conserve endangered inshore marine resources. The Forest Act CAP 126 provides the Minister for Forests with the Cabinets consent to make regulations in areas of concern to Tonga's forests.

In the activities under the Tonga Environmental Management and Policy Planning (TEMPP) Programme (1997-2000), a series of studies on the decline of health of the Fanga'uta Lagoon were undertaken by Department of Environment in collaboration with 10 other government agencies, 3NGOs and 20 communities. The result of studies were used to make informed decision on the development of the Environment Management Plan for Fanga'uta Lagoon System (EMP FLS) in 2001 and was approved by cabinet in 2003. This management plan was developed to address increasing pollution and decreasing marine resources.

The objective of the project is to conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience. The project expected to achieve these through 3 major components.

Project aims to address the problem by:

- Developing policy, regulatory and institutional environment that support sustainable land, water and biodiversity management in the catchment area.
- Enhance capacity of relevant institutions and community group to implement management plan.
- Knowledge management to generate awareness among relevant government/non-government agencies and community regarding environment, climate change, sustainable use of resources and ecotourism.
- Implement adaptation programs to enhance resilience.

Because it believes that:

- Effective enforcement of policies and management plans will help to address threats that the catchment is facing.
- Evidence based planning will help to address problem effectively.
- Enhancing capacity of the implementing agencies will strengthen the management practices.
- Development of local economy will help to reduce pressure on natural resources and also support catchment management.
- Community involvement in catchment management will make management effective and sustainable.

The Project Document was approved jointly by Government of Tonga, GEF and UNDP in November 2013 for the duration of four year i.e. 2014-2017 but the project document was signed only in September 2014 and Inception workshop took place in February 2015. The Project was implemented by the Department of Environment under MEIDECC through a Project Management Unit (PMU) with support from UNDP in close coordination with local government, various other institutions and local communities. UNDP as executing agency was responsible for the completion of activities like procurement of some goods and services, recruitment of international consultants, monitoring and financial disbursement. The Project has been executed in accordance with the standard rules and procedures of the UNDP NIM Modality. The Project budget is US\$ 8,406,880 of which US\$ 1,756,880 is the GEF Grant and US\$500,000 was in-kind co-financing provided by the UNDP. Similarly, National and the local government contributed US\$650,000 and non-government Partners and collaborators expected to contribute US\$5,500,000.

Rating Table

As per UNDP and GEF's requirements for TE, the Terminal Evaluation Rating Table is provided below:

1. Monitoring and Evaluation	Rating	2. IA & EA Execution	Rating
M&E design at entry	Highly Satisfactory	Quality of UNDP supervision/backstopping	Moderately Satisfactory
M&E Plan Implementation	Moderately Satisfactory	Quality of Execution by Executing agency	Moderately Satisfactory
Overall quality of M&E	Satisfactory	Overall quality of Implementation / Execution	Moderately Satisfactory
3. Assessment of Outcomes	Rating	4. Sustainability	Rating
Relevance	Relevant	Financial resources:	Likely
Effectiveness	Moderately Satisfactory	Socio-political:	Moderately Likely
Efficiency	Moderately Satisfactory	Institutional framework and governance:	Likely
Likelihood of Impact	Average	Environmental:	Likely
Overall Project Outcome Rating	Moderately Satisfactory	Overall likelihood of sustainability: Stakeholder participation	Likely Satisfactory

Note: Justification of rating is given in Annex IX and evaluation criteria in XIII

KEY SUCCESSES

The Project has recognized the importance of ecosystem services and has contributed to the development of key policies and legislations for relevant departments, ministries and partners and stakeholders and set up contact point to implement IEM concept for FLC. The key ministries' annual budget request has reflected the Government's support for the FLC IEMP. Similarly, the project has conducted socio-economic and bio-physical studies and has developed a monitoring plan to track climate change impact.

The project established multi-stakeholder management committee to guide the updating of the EMP FLS and implementation of IEMP. The updated IEMP development was completed and gazetted. The mangrove habitat was managed in eight areas for maintaining ecosystem services of which about 20.1ha through plantation and nearly 69ha through clean up. The project established 2 Special Management Area (SMA) (and one is under process of resolving conflict between neighboring communities) covering 12% area of the Fanga'uta lagoon for conservation and management of fish and other sea species. About 2% of the catchment area was managed for

sustainable use of ecosystem services and this was achieved through biodiversity conservation and sustainable ecosystem services programs that had impact on 3,864.38ha directly and more than 10,000ha indirectly. To provide economic incentives and conserve historical sites, project provided support to setup infrastructures in the Vaini and Capt. Cook landing sites. The infrastructures are to promote eco-tourism through women's group. Similar work was also initiated in Ancient Tonga area but before completion it was destroyed by a recent cyclone. The Vaini site is facing problems due to a dispute between Town Officer and Women's group. The Project has conducted fruit tree plantations in schools, coastal areas and also in private lands. The Project conducted several trainings on agro-forestry, waste management and sanitation and water testing etc. to community members. Similarly, the project produced various promotional materials such as posters, documentaries, brochures, site visits, posting information on websites, generating awareness amongst student, youth and other groups of the communities.

The project collaborated with the various ministries, local governments and community groups to implement project activities. Furthermore, the project through capacity enhancement and establishment of a knowledge base contributed in mainstreaming environmental issues of lagoon in development planning process of the government. Through project activities, local communities, community-based institutions and government have begun to understand the impact of climate change and link between water and land management activities, as well as how such activities address environmental and livelihood issues.

KEY PROBLEM AREAS

Water clarity was relatively clear (>1m) with possibility to see seagrasses and coral reefs from aerial photograph are now polluted due to sewage contamination containing high nutrient concentrations. Since 1990s, the lagoon system was undergoing significant changes. Increase in turbidity and decrease in fish catches and decrease in mangrove areas are some indication of problem in these areas. Lack of a coordinated effort from multi-sector and lack of consensus on how to achieve sustainable management of the lagoon's ecosystem services Fanga'uta lagoon system continued to decline. Significant areas of mangroves were lost from two areas within the lagoon system. Similarly, draining of pesticides and fertilisers from agricultural field by rain water was also polluting lagoon.

The mangrove ecosystem has been reduced in area due to removal of trees or reclaiming areas for agricultural practices. Unsustainable development activities has also affected this ecosystem. Continuation of traditional practice of exploiting for wood for construction, gathering of crabs, fish and fuel wood is one of the main reason for exploitation of mangrove ecosystem which is also important breeding ground for marine aquatic organisms. Construction of inappropriate seawalls, depletion of sand from the beaches, accumulation of solid wastes either washed onto the shores or in many cases deliberately dumped along the shore and in the mangroves have contributed to coastal erosion and loss of habitats in the lagoon.

Main conclusions, recommendations and lessons learned

Conclusion

The project was able to accomplish several activities and the remaining ones (boats, one SMA, financial arrangement for IEMP implementation, Ancient Tonga eco-tourism activities etc.) have been initiated and will contribute towards meeting the targets with follow up and support from the implementing and executing agencies. To address the IEM related problems, the project intervened in five main areas: review and improvement of policies, awareness generation, infrastructure development, afforestation in degraded/eroded coastal and watershed areas, biodiversity conservation, improvement of fishing practices and household income generation. The policy development approaches included revision of policies and plans to incorporate IEM issues. Similarly, District level Land Management plans were developed to mainstream IEM. Likewise, policy recommendations were made for IRM and sustainable ecosystem services. Project established Committees (Multi-stakeholders committee at national level, sub-committee formed by steering committee and community communities in 26 communities) to guide updating of EMP and also to implement IEMP. To encourage evidence based planning, the project conducted studies and generated knowledge on biophysical and socio-economic aspects and made these

available to the local and national government officials. Infrastructures like water tank, compost toilet, infrastructures for eco-tourism sites, water quality monitoring station and stone walls along the coast line to control erosion were completed. Without addressing the livelihood of the people it is not possible to address environment issues as poverty is one of the root causes. Hence, the project trained communities in ecotourism, sustainable fisheries, agro-forestry (fruit trees) and handicraft promotion etc. which provided the dual benefit of improving household economy while also supporting environment protection. Provision of water tanks for communities helped to store water from rain water harvest and sanitation programs like toilet and garbage bin distribution helped to address water stress and waste and sanitation management. To reach a large audience, the information generated by the project was uploaded in websites of the implementing Ministry and UNDP and also networking with like-minded institutions within the country. Awareness trainings, radio, television programs, brochure distribution, poster and campaign programs also helped to make large audience aware on the project activities and understand the environmental issues. Similarly, exchange visits for policy makers and also communities and participation by the project staffs in international seminars also helped to share outcomes of the project.

For sustainable fisheries, the project arranged monitoring of lagoon at national level by the marine team. Similarly, for community-based management it established Special Management Area (SMA) in two places (Holonga and Lapaha) through community group/committee but due to conflict between neighbouring communities the third one in Nukuleka was not accomplished. Planning of SMA program was unable to realise the need of a boat for monitoring by community members so it was not provisioned in the program but latter on request from communities it was ordered but without a motor which still had not arrived during the time of TE. Similarly, target of increasing green coverage was not completed and survival rate of seedlings in reforestation (mangrove, coastal, school/private afforestation) was very low. Poor monitoring and planning had affected afforestation and survival rate of the samplings. Mangrove plantation program was carried out involving youth groups. This encourage them in conservation and environment improvement activities and also enhance their knowledge. Planning of afforestation lacked minimum protection arrangements and monitoring and fencing in some areas took place only latter after request from the communities while in others it was lacking and in some of these areas saplings were damaged either by pigs or due to erosion or due to poor quality of saplings. The Project conducted various programs and clean-up campaigns to generate awareness. Understanding on pollution and sanitation was generated among community members through different awareness programs but it was not manifested in action as still rubbish were disposed on the ground of historical sites, mangrove habitat, coastal line and roadside. Even in the areas where rubbish bins were placed, rubbish were thrown outside the bin. Moreover, the delay in initiation of procurement for hiring staffs and equipment caused limitation of time which also limited the achievement of activities. Project Manager was efficient but weak monitoring by the technical staff and gap in technical feedback affected project performance. But despite these difficulties, the project has managed to deliver a series of interventions that have reduced the environmental threats to some extent. This has partly been achieved through generation of awareness from local to the national level, mainstreaming IEM in development planning through developing IEM plans, creating a knowledge base and facilitating access to it, as well as construction of physical structures to combat soil erosion, pollution and deforestation. Though the project has been underpinned by good science, a technical back up was weak and there is still room for further technical improvement. One of the important achievement of this project is that it has enhanced capacity to incorporate ground information related to lagoon water, socio-economic condition, environmental threats and management approach into the development planning process of the local government in the pilot areas; and improved environmental awareness and raised concerns about environmental risk and ecosystem services at the local communities and government.

To make the outcomes and interventions sustainable, the project formed community groups and trained them to use various technologies. The community members were made aware of the benefits of practicing sustainable harvest of ecosystem services, managing wastes and other sources of pollution, managing nurseries for afforestation activities and monitoring water, soil and biodiversity. The project tested participatory planning and implementation approaches. Since these approaches showed some positive impacts, the lessons learned from this should be replicated in other areas of the lagoon.

Recommendation

- Quota system in fishing in SMA curtail people's unlimited access that they enjoyed in the past and curtailing may affect their livelihood as many of their household economy is dependent on fishing. It is also learned that people from other areas are fishing in SMA and surroundings areas. It is also learned that people destroyed rope placed to demarcate boarders of SMA. Since SMA designation is not based on home-range study of fish and sea animals, fish from SMA will move outside its boundary (as area is not so big) and communities from neighbouring areas or from other side of the lagoon could enjoy fishing protected fish. This could bring dissatisfaction among those restricted communities. To avoid conflict, it is recommended to expand SMA (area) and also include all communities of the lagoon so that everyone from lagoon will have equal fishing access. SMA will not succeed without support from all inhabitants from lagoon and to attract them in the program and generate their support, project should develop programs to provide alternative livelihood. To make sustainable fishing only designing SMA is not sufficient but also need to maintain lagoon ecosystem and for that it is necessary to facilitate recharging of biodiversity of lagoon from the sea. The movement of large fish and sea animals at present is obstructed due to heavy sedimentation near Nukunukumotu-Nukuleka area. Hence, sediments should be removed to maintain depth of up to 3-4m so that fish and other sea animals could easily visit lagoon.
- It is recommended to upscale and replicate lessons learned from this project by GoT, UNDP and other agencies involved in this project. This project has piloted community based management approaches of the Lagoon and catchment area and have generated a lot of practical knowledge. But still a large area of lagoon needs activities to maintain lagoon's ecological functions and services. Hence, a second phase should be developed to cover all areas of lagoon and activities planning should include all necessary components of each activities.

Lessons Learned

- Community organisations lack scientific knowledge and are ill-equipped for handling such projects so support to enhance their knowledge and strengthen their capacity will help to encourage them to continue in adapting risk of climate change and there by facilitate a cooperative approach for reducing damage from risks to ecosystem function. Moreover, local adaptation knowledge is easily adapted by the rural communities. Local knowledge should be promoted together with scientific knowledge to respond to local situation as they are more easily adapted by the rural communities. Local communities were good in identifying signs of deforestation, land degradation, effect to ecosystem function and proposing suitable and feasible mitigation measures.
- Working directly through existing government structures brings dividends. The project chose to work directly with the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC), other line ministries and local government, rather than setting up parallel implementation structures. This decision has proved very successful not only in empowering government by providing experience and training, but also in developing effective government "ownership", engagement, participation and motivation, thereby promoting long-term sustainability of the project's achievements.
- Designing a project linking various institutions from grassroots level institutions, government agencies, local authorities and communities generates huge benefits for sustainability, and through the synergies developed provides the intervention with much greater effectiveness than that which can be achieved by stand-alone projects.
- Community participation in the project design, formulation of implementation modality, implementation and monitoring is very important. This will help to implement projects effectively and also make activities sustainable. In this project, formation of community management committee didn't follow democratic process and some community members were excluded from the committee formation process. Due to this conflict developed and affected program implementation. One of the example is weak function of SMA committee.

More on Recommendations and Lessons Learned are given on pages 42-45.

I. Introduction

1.1 Purpose of the Evaluation

As per UNDP's guidance for initiating and implementing terminal project evaluations of UNDP supported projects that have received grant financing from GEF, this Terminal Evaluation (TE) has the following complementary purposes:

- To promote accountability and transparency, and to assess and disclose the extent of project accomplishments.
- To synthesize lessons that can help to improve the selection, design and implementation of future UNDP activities.
- To provide feedback on issues that are recurrent across the UNDP portfolio (E & E unit) and need attention and on improvements regarding previously identified issues.
- To contribute to the overall assessment of results in achieving GEF strategic objectives aimed at global environmental benefits.
- To gauge the extent of project convergence with other UN and UNDP priorities, including harmonization with other UN Development Assistance Framework (UNDAF) and UNDP Country Programme Action Plan (CPAP) outcomes and outputs.

The guidance is designed to enhance compliance with both UNDP and GEF evaluation policies and procedural requirements, which are consistent and mutually reinforcing, and use common standards. The guidance also responds to GEF requirements to ensure that Terminal Evaluations of GEF-financed projects should include ratings of project's relevance, effectiveness, efficiency, monitoring and evaluation implementation as well as sustainability of results (outputs and outcomes).

By adopting "UNDP's guidance for Conducting Terminal Evaluations of UNDP-Supported GEF-Financed Projects", this Terminal Evaluation responds to both UNDP and GEF requirements for Terminal Evaluations.

1.2 Scope & Methodology

This Terminal Evaluation (TE), carried out by independent consultant, was initiated by UNDP as the GEF Implementation Agency for the "Integrated Environmental Management of the Fanga'uta Lagoon Catchment" project to measure the effectiveness and efficiency of project activities in relation to the stated objectives, and to collate lessons learned.

The TE mission was conducted over a period of 15 days between 22th May 2018 and 4th June 2018 by an international consultant. The approach was determined by the terms of reference ([Annex I](#)) which were closely followed, via the itinerary detailed in [Annex II](#). Full details of the objectives of the TE can be found in the TOR, but the evaluation has concentrated on assessing the concept and design of the project; its implementation in terms of quality and timeliness of inputs, financial planning, and monitoring and evaluation; the efficiency and effectiveness of activities carried out and the objectives and outcomes achieved, as well as the likely sustainability of its results, and the involvement of stakeholders.

The evaluation was conducted through the following participatory approach to provide it with sufficient evidence upon which to base conclusions:

- extensive face-to-face interviews with the project management and technical support staff. Throughout the evaluation, particular attention was paid to explaining carefully the importance of listening to stakeholders' views and in reassuring staff and stakeholders that the purpose of the evaluation was not to judge performance in order to apportion credit or blame but to measure the relative success of implementation and to determine lessons learned for the wider GEF context. Wherever possible, information collected was cross-checked between various sources to ascertain its veracity (e.g. activities outlined in work-plan were tallied with information in PIR, Quarterly and annual reports and also verified through observation in the field and through discussion with the stakeholders, also response to recommendations in PIR by the management to see adaptive management etc.), but in some cases time limited this. A full list of people interviewed is given in [Annex III](#).

- face-to-face interviews with local stakeholders, particularly the community members, CBOs, local governments authorities, Ministries, town officers, NGOs, PMU and project field staffs;
- a thorough review of project documents and other relevant texts, including the Project Document, revised log-frame, and monitoring reports, such as progress and financial reports prepared for UNDP and annual Project Implementation Reviews (PIR), minutes of Project Steering Committee meetings, technical reports and other activity reports, relevant correspondence, and other project-related material produced by the project staff or partners; and
- field visits to the project sites.

Wherever possible the TE Consultant has tried to evaluate issues according to the criteria listed in the *UNDP/GEF Monitoring and Evaluation Policy*, namely:

- Relevance – the extent to which the activity is suited to local and national development priorities and organisational policies, including changes over time, as well as the extent to which the project is in line with the GEF Operational Programmes or the strategic priorities under which the project was funded.
- Effectiveness – the extent to which an objective has been achieved or how likely it is to be achieved.
- Efficiency – the extent to which results have been delivered with the least costly resources possible.
- Results – the positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short-to medium term outcomes, and longer-term impact including global environmental benefits, replication effects and other, local effects.
- Sustainability – the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

In general, the baseline indicators are very straight forward but detail socio-economic information and quantitative information on threats to Lagoon is lacking. These are consistent with the rationale of the project that there is a considerable knowledge gap, which the project intends to fill, or at least tries to contribute to the build-up of a science-based knowledge system. The objective of the project is to provide national & local government, non-government institutions and community groups with the enabling policy, institutional capacity enhancement for effective management of lagoon environment and implementation of adaptation activities to enhance resilience to climate change impacts. The project seeks to achieve three components:

- Component 1: Appropriate Governance of Fanga'uta Lagoon Catchment Areas and Integrated Management of Lagoon Ecosystems.
- Component 2: Implementation of the Integrated Environmental Management Plan for the Fanga'uta Lagoon Catchment.
- Component 3: Knowledge management.

The original log frame in the Project Document was assessed significantly in Feb 2015 during inception workshop which didn't make any changes but only targets for each yearly activities were set and approaches discussed. The log frame, comprising 3 Components and 4 Outcomes, and 11 Outputs, has been used throughout as the basis for this evaluation (see Annex VI), and the TE has evaluated the project's performance against these according to the current evaluation criteria provided to it by the UNDP. This is reproduced in Annex XIII for clarity. Project results were measured against achievement of indicators guided by evaluation questions (tracking tools, Annex XII).

In addition, other scales have been used to cover sustainability (Annex XIII-ii), monitoring and evaluation, and to assess impacts. The Review of Outcomes to Impacts (ROtI) method also requires ratings to be made for outcomes achieved by the project and the progress made towards the 'intermediate states' at the time of the evaluation. The rating scale is given in Annex XIII- iii while Annex XIII-iv shows how the two letter ratings for "achievement of outcomes" and "progress towards intermediate states" translate into ratings for the "overall likelihood of impact achievement" on a six-point scale. A rating is given a '+' notation if there is evidence of impacts accruing within the life of the project which moves the double letter rating up one space in the six-point scale. Comments/suggestions from reviewers are addressed and changes made are mentioned in the Audit Trail in Annex XIV (submitted separately).

The results of the evaluation were conveyed to UNDP and other stakeholders ([Annex IV](#)). **Lessons learned** have been placed and further explained in page 42-45.

1.3 Constraints

Not able to analyse differences between the budgeted and the actual spending of GoT and the Development Partners' contributions as the yearly breakdown per component of planned budget was not available. Consultant visited several of the project sites but not all so analysis is based on the findings of the visited sites, assuming same in the remaining sites.

1.4 Structure of the Evaluation Report

The TE report is structured in line with UNDP's guidance and covers the following Sections:

- Project description and development context (this includes project design, its rationale and development context, the problems that project sought to address, the objectives, establishment of baseline, key stakeholders and expected results)
- Findings (Results of implementation and comparison with the targets asset)
 - Project Design / Formulation
 - Project Implementation
 - Project Results
- Conclusions, Recommendations & Lessons
- Annexes.

2. Project Description and Development Context

2.1 Project Start and Duration

The Project Document was signed on 4 September 2014 for the duration of slightly more than three years. However, initiation of project implementation was delayed in the beginning. Project activities were officially launched in Feb 2015 followed by a two and a half day inception workshop. The project was to end in December 2017 but later made a no cost extension up to March and later to June 2018. Final evaluation was conducted in May 2018.

The key timelines which were planned for project implementation are shown in the Table below.

Key timelines planned for project implementation.

Key project's milestones	Date
PAC meeting	28 Nov 2013
Submission to GEF of a Full Project Proposal	23 December 2013
Approval of project document by GEF Secretariat	2 May 2014
Project activities launched	January 2015
Terminal Evaluation Date	May 2018
Original Planned Closing Date	December 2017
Actual Closing Date	30 June 2018

2.2 Problems that the Project sought to Address

The Fanga'uta Lagoon has been threatened due to natural and human disturbances. Natural causes like changes in tidal depth and circulation following the geological uplift of the northern coastline of the Tongatapu Island and human induced activities like introduction of new fishing technologies to meet the high urban demands for fish, exploitation of mangrove, unsustainable land development, population expansion and unique system of land tenure, high input of nutrients and pollutant from the urban and rural developments affected lagoon ecosystem. Fanfa'uta Lagoon has been source of supply of large mullet fishery and prolific edible mussels from centuries for the inhabitants of Nuku'alofa and other villages in the northern part of Tongatapu. Increased demand due to population growth, destruction of habitat and pollution resulted in decline of the population of mullet and edible mussels. From some locations of the lagoon it has already disappeared.

The mangroves of Tonga are unique in terms of community structure. The mangrove ecosystem has been reduced in area due to removal of trees or reclaiming areas for agricultural practices. Unsustainable development activities have also affected this ecosystem. Continuation of traditional practice of exploiting for wood for construction, gathering of crabs, fish and fuel wood is one of the main reason for exploitation of mangrove ecosystem which is also important breeding ground for marine aquatic organisms. Construction of inappropriate seawalls, depletion of sand from the beaches, accumulation of solid wastes either washed onto the shores or in many cases deliberately dumped along the shore and in the mangroves have contributed to coastal erosion and loss of habitats in the lagoon.

Excess nutrients and sediments resulted in eutrophication in coastal waterways, in seagrass beds and on coral reefs degraded water quality in the Fagu'ata Lagoon. Accidental and deliberate release of persistent organic pollutants (POPs) such as agricultural pesticides and PCBs used in electrical transformers and industries has polluted groundwater. Activities related to urban and industrial development are also adding impact to the ecosystem and also affecting human health, agriculture and animal husbandry. Poorly maintained sewage treatment is resulting in leakage polluting soil and groundwater. No land is owned by communal organisation or communities in Tonga and most of the land belong to the royal families and nobles or is government land. Population growth and city migration increased demand for land which was already shortage for residential and

non-residential uses. This forced recent migrants to settle in the swampy and low-lying areas of Sopu and Popua. Besides, some climate change impact like increase in mean air temperature has also been observed. The frequency of costal flood inundation through a combination of storm surges and high tides with waves overtopping coastal defences and increasing shoreline erosion, highlighting as critical evidence of climate change that require urgent attention. Studies also indicated that the intensity and frequency of days of extreme heat and extreme rainfall are projected to increase and mean sea-level rise is projected to continue.

To address the problem, the project was designed to work at both a macro level (national scale) and a micro level (community level). At the national level, it was aimed to develop and strengthen the enabling environment through the identification of legal constraints and the required intervention points at the regulatory level to promote sustainable management of Lagoon ecosystem and promote reality based planning. Similarly, at the micro level it was aimed to work at community level to generate awareness among local communities and grassroots level organisations to strengthen their knowledge and adaptive capacity, make them aware of the benefits of using climate information or manage ecosystem in sustainable way, provide various support for uptake of sustainable agricultural practices, woodlot creation (increase mangrove habitat), control pollution, economic development through sustainable ecosystem management and addressing costal erosion and highlight the importance of lagoon ecosystem.

2.3 Immediate and Development Objectives of the Project

The overall goal of the project is "Sustainable Lagoon Management" that provides the basis for economic development, food security and sustainable livelihoods while restoring the ecological integrity of the Lagoon ecosystem. The objective of the project was to conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience and achieved these through 4 major outcomes plus a project management component. These are: i) the policy, regulatory and institutional environment support for sustainable ecosystem management in the Lagoon; ii) barrier analysis and addressing critical gaps in environment and ecosystem services conservation through establishing effective governance and sustainable management of Lagoon ecosystem; iii) implement integrated environment management approaches for improving conditions of critical habitats, productivity, water quality and fisheries in the lagoon catchment; iv) knowledge management and awareness of the Fanga'uta Lagoon ecosystem functions and associated socio-economic benefits within the national stakeholders and local communities.

2.4 Baseline Indicators Established

To measure the achievement of the project, baseline indicators were established and are as follows:

Goal: To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.

Objective: To conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience.

Outcomes and Outputs: Project had four Outcomes and 11 outputs. Outputs under each of the four outcomes are presented in section 2.6 (Expected Results, Page 6-7). To achieve these outputs several activities were identified and activities are described in "Achievement of Project Outcome and Output" (page 32-36).

2.5 Main Stakeholders

The main implementing agency for this project is the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC). MEIDECC played a key role of bridging and ensuring the collaboration and close communication between ministries and public entities having the mandate for biodiversity conservation and sustainable management of ecosystem services in the Fanga'uta Lagoon and catchment areas. Main activities included: a) consultation with relevant stakeholders, as well as seeking financial assistance (co-financing), for updating the EMP FLS and for implementation of the FLC IEMP; b) information sharing and collaboration with concerned Cabinet members, relevant national committees and authorities on mangrove, fisheries, agriculture, land use, water quality and pollution, eco-tourism, marine and coastal resource conservation and management, either directly or through a project advisory body; and, c) exchanging best practices and lessons learned with other projects under the Pacific Island R2R Program at appropriate occasions as well as with other stakeholders at regional, national and local levels.

Other national level stakeholders are NGOs, academic and research communities, and concerned business sector representatives or developers. Division and local levels, stakeholders include the division, district and village government units, NGOs, churches, local business groups, community organizations and local associations or co-operatives of farmers, fishers, and other resident groups dependent upon the lagoon space, catchment, resources and processes (for ecosystem services) such as pig farms, aquaculture producers and processing, shellfish and jellyfish gatherers, mangrove bark users, lagoon settlements, and tourism groups, particularly those are often operated by women and young people.

Some local leaders and community representatives, including women and youth, were trained and participated in the environmental monitoring exercises. The establishment of local environmental monitoring team in the FLC through the project training and capacity development activities helped improve knowledge and awareness of local communities in the protection and conservation of the lagoon's ecosystems and their services. The involvement of local stakeholders and FLC communities in management of ecosystem goods and services of the Fanga'uta Lagoon through integrated approaches is important to make intervention sustainable.

2.6 Expected Results

The project aimed to achieve its objective through four outcomes generated by a total of 11 outputs.

Output level indicators were also developed for each of the output and are summarised as:

Outcome 1.1 Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)

Output 1.1.1 Capacity of NECC and FLC Stakeholders enhanced to more effectively implement an integrated lagoon ecosystem management approaches;

Output 1.1.2 Measures delivered to fully engage the Fanga'uta Lagoon Catchment (FLC) communities in lagoon ecosystem management

Outcome 1.2 Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for;

Output 1.2.1 FLC IEMP prepared and completed; establishing technical, biophysical, oceanographic, socioeconomic and demographic baselines; updating the EMP completed in 2001 with additional parameters to be established.

Output 1.2.2 FLC IEMP adopted, mainstreamed, and funded

Output 1.2.3 Multi-stakeholder participatory mechanisms conducted to ensure adaptive management during the preparation, implementation, monitoring and evaluation of FLC IEMP

Outcome 2.1 Improved conditions of critical lagoon habitats, productivity, water quality and fish production through the implementation of priority interventions identified in the IEMP

Output 2.1.1 Areas of approximately 80 ha of the lagoon's major coastal habitats (mangroves stands) restored

- Output 2.1.2 Working mechanisms set up to guarantee participatory fishing area and sustainable fisheries resources management by the FLC communities;
- Output 2.1.3 Eco-tourism awareness to FLC community conducted and local initiatives demonstrated
- Output 2.1.4 Activities based on sustainable land and forest management demonstrated in the FL catchment areas
- Output 2.1.5 Capacity for Fanga'uta Lagoon water quality control strengthened and on-site activities demonstrated

Outcome 3.1 Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon

- Output 3.1.1 Awareness programs conducted through the production and distribution of awareness materials; Production of project briefs, videos in local dialect and disseminated to various media; lessons learned shared with the PICs through the regional program support project;

As per the project document, Fanga'uta Lagoon and watershed areas were selected for implementing the project activities.

Table 1: Summary of expected global environmental benefits arising from the project

<p>Outcome 1.1 Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)</p> <p>Outcome 1.2 Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for implementation</p>	<ul style="list-style-type: none"> The policy, regulatory and institutional environment supports sustainable lagoon and its catchment ecosystem management in the Fanga'uta Lagoon (in particular EMP and legislation for sustainable ecosystem services and the biodiversity conservation). This will support conservation of ecosystem of global significance within Fanga'uta Lagoon Catchment.
<p>Outcome 2.1 Improved conditions of critical lagoon habitats, productivity, water quality and fish production through the implementation of priority interventions identified in the IEMP</p>	<ul style="list-style-type: none"> Establishment of participatory monitoring will support Sustainable Lagoon and catchment Management and strategic planning practices for reducing land, water and forest degradation and this will help in environment protection and conservation of ecosystem and biodiversity of global significance. Developing capacity for catchment management planning and utilization will support knowledge-based planning which will form basis for improving sustainable economic development and environment protection. This improves ecosystem use and also household economy which will reduce dependency on forest biodiversity of global significance. Knowledge management and dissemination in wide audience will help effective ecosystem management in similar situations of different parts of the world which will help to address problem related to biodiversity of global significances and also address climate change issues. Comprehensive approach integrating environmentally sustainable development and global environmental concerns and commitments in national development planning, with emphasis on livelihood improvement and consideration of gender equality issues.
<p>Outcome 3.1 Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon</p>	<ul style="list-style-type: none"> Country develops and uses communities' support in environmental management contributing in environment protection, address climate change issues and conserve biodiversity of global significances.

Baseline indicators were fully established and the latter given in the Project Document ahead of the Project's commencement.

3. Findings

3.1 Project Design/Formulation

The project was designed to address the identified problem by improving capacity of planners, policy makers and local community groups with knowledge, institutional capacity so that catchment management will be mainstreamed in development planning and also to facilitate effective implementation of policies, plans and investments that will prevent desertification (mangrove), sedimentation, water pollution, promote scientific land use planning and improve local economy and livelihoods. The project aimed at reducing environmental risks to farmers and fishers by enhancing their knowledge on sustainable management, knowledge of sustainable utilisation of ecosystem services and ecotourism. The design of RRF was very clear with clear output milestones, activities for each output and SMART indicators to monitor implementation and achievements. The project was designed to work at both a macro level (national government scale) and a micro level (local government and pilot sites or local scale). On the national level, it aimed to identify policy gaps and recommend legislative needs, develop policies for securing lagoon ecosystem and utilisation ecosystem services sustainably. At the micro level it aimed to work at developing capacity of local government and community groups to address lagoon catchment issues, generating awareness among communities and authorities, facilitating decision making of fishers and farmers on sustainable resource use, control soil erosion, control water pollution, establish degraded lagoon habitat and promote environment friendly income generation activities. Sites within the lagoon and watershed areas were identified for project activities based on the information on vulnerability status.

The implementing and executing institutions were involved in the project from the project design phase and the design involved a thorough analysis of capacities of various partners and their interests. Project design incorporated lessons learned from several relevant projects in Tonga and other island countries but still technical aspects of some of the activities have room for improvement to make them more effective and sustainable. The roles and responsibilities of the implementing partners and other institutions were clearly defined in the project design. Hence to address the identified problem, the project was designed to apply the following approaches:

- (i) Institutionalize Policy framework and guidelines to address threats to Fanga'uta catchment;
- (ii) Develop and systematically apply guidelines and criteria for Fanga'uta Lagoon management to enable priority allocation of risk reduction efforts and investments;
- (iii) Engage with global, regional and national research networks and centres working on Lagoon catchment and island issues;
- (iv) Develop risk and vulnerability maps for Fanga'uta catchment with the highest risk and exposure of lives, livelihoods and ecosystem;
- (v) Conduct preparedness actions for vulnerable communities to reduce risks from forest and land degradation;
- (vi) Establish community-based system for addressing land degradation, deforestation and pollution issues;
- (vii) Establish land degradation risk reduction measures such as soil erosion control, sedimentation control, plantation, management of household and enterprise waste and increased vegetation cover;
- (viii) Document technical knowledge and project lessons for use in future initiatives; and
- (ix) Disseminate project experiences to policy makers and development planners in Tonga.

3.1.1 Analysis of Logical Framework

The log frame has a single development objective and 4 outcomes and 11 outputs. The extensive activities are also listed in full, complete with their own indicators. The objectives, components and

outputs are clear and appropriate to the issues and also designed considering the timeframe of the project. The project also utilised lessons from other projects (see in 3.1.3) and also the capacity of executing/implementing agencies was considered while developing project activities (see 3.1.4 & 3.1.8). The project design sufficiently analysed potential risks and assumptions (see 3.1.2) related to the project and it is well articulated in the PIF and PRODOC. Roles and responsibilities of the partners were made clear from the project design phase (see 3.1.8). The logical framework was revised during inception workshop in February 2015 and only broadened the scope of outputs but no major change was made. There has not been any change in the number of outputs and sub-outputs as well as activities from the original log frame.

The indicators of the log frame are relevant, precise and mostly SMART (Specific; Measurable; Achievable and attributable; Relevant and realistic; Time-bound, timely, tractable and targeted). Expected target of percentage change in economy from improved fisheries and from eco-tourism activities is not clear in the indicators. Similarly, Indicators of awareness generation materials and activities are not quantified. All are based on sound scientific monitoring protocols using the most relevant measures for a given criteria.

3.1.2 Assumptions and Risks

There were six risks identified in the project document. Of these, one risk is rated high, two medium and three of low level. All the risks and assumptions outlined in the project document were logical and robust. These helped to identify appropriate activities and required precaution measures to address the risks and assumptions. Arrangements for all risks and assumptions other than related to natural fluctuation were made and with these arrangements, the project was able to implement activities effectively to achieve the targeted results. The risk rated high was regarding Climate change and tsunami/volcano threats to terrestrial and marine resources. The project has activities to build resilience in the islands and people to protect, retreat and accommodate to these threats in the long run. Medium level risks were regarding lack of political support and community buy-in for biodiversity conservation and sustainable land management and complex land tenure arrangement which could impede land rehabilitation. To mitigate these risks, project planned to involve both groups (elected officials and nobles) in project planning and implementation and in trainings. Similarly, to address land tenure issues, project planned to negotiate with the nobles who hold big lands and promote economic benefits from rehabilitated lands. Risks from political conflict to the project is very low and capacity risk will be addressed by capacity enhancement activities of the project. The capacity enhancement through trainings will also help to address risk related to lack of systematic approach and mechanisms for biodiversity conservation and sustainable land use.

3.1.3 Lessons from other Relevant Projects incorporated into Project Design

This project is built on the Pacific Island Ridge-to-Reef approach and the conceptual framework outlined in the Program Framework Document (PFD) of the programmatic approach entitled "R2R Pacific Islands Ridge-to-Reef National Priorities – Integrated Water, Land, Forest and Coastal Management to Preserve Biodiversity, Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods" under GEF support. The project is benefited from several other projects implemented by various institutions in Tonga related to biodiversity conservation and adaptive management. The project used baseline information from the baseline activities of the Government of Tonga are through the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC). Project is also benefited from Tonga's National Strategic Development Framework 2009–2014, the Draft Regional Framework for Nature Conservation and Protected Areas in the Pacific Islands Region 2014 – 2020, the United Nations

Convention on Biological Diversity, the Pacific Islands Framework of Action on Climate Change 2006–2015, the Pacific Disaster Risk Reduction and Disaster Management Framework for Action. Lessons from many projects implemented in Tonga and other Islands of the southern Pacific Ocean were also used to develop this project. A list of projects whose lessons were utilised to develop this project is described in the ProDoc (P.25) in the chapter “Linkage with other GEF & non-GEF Interventions.”

3.1.4 Planned Stakeholder Participation

The Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC) is the lead implementing agency. MEIDECC will also coordinate with other line ministries and public entities for biodiversity conservation and sustainable management of ecosystem services in the Fanga’uta Lagoon and catchment areas. Other stakeholders at the national level include NGOs, academic and research communities, and concerned business sector representatives or developers. Division and local levels stakeholders include the division, district and village government units, NGOs, churches, local business groups, community organizations and local associations or co-operatives of farmers, fishers, and other resident groups dependent upon the lagoon space, catchment, resources and processes (for ecosystem services) such as pig farms, aquaculture producers and processing, shellfish and jellyfish gatherers, mangrove bark users, lagoon settlements, and tourism groups, particularly those are often operated by women and young people.

The main roles of the national level stakeholder are to ensure political and executive support for the activities, generate co-financing from potential agencies while local stakeholders were more involved in planning, implementation activities and management of lagoon resources and ecosystems. Some local leaders and community representatives, including women and youth, were trained and participated in the monitoring of environment and this also helped to improve knowledge and awareness of local communities in the protection and conservation of the lagoon’s ecosystems and maintain ecosystem services. The involvement of local stakeholders and FLC communities in management of ecosystem goods and services of the Fanga’uta Lagoon also makes intervention sustainable.

3.1.5. Replication Approach

This project has demonstrated good models such as capacity enhancement of central and local government and local communities, awareness generation, habitat restoration, management of waste and sanitation management, soil erosion control, tree nursery management, gazetting Fanga’uta Stewardship Plan, established regular monitoring of Fanga’uta and conducted studies of soil, water, bird etc. The models have been demonstrated in collaboration with the local communities and the local government and non-government institutions. The lessons from this project are found replicated with up scaling by some other organisations in other areas within the Fanga’uta lagoon districts. One of the benefits of the signs of effective capacity building delivered for the local communities and government staffs is that they become champions of integrated management of ecosystems, and their expertise and experience could be used to assist other districts in their efforts of mainstreaming ecosystem management in their district development planning processes. Tools provided at district and local levels (training materials, approaches) for building local capacity for replicating and adapting the new community participatory management models of extension service will be useful for nation-wide dissemination. The livelihoods components were mostly designed as a demonstration of how livelihoods can be enhanced through implementing sustainable techniques and other various income generation activities; and scaling up and replication was one of the underlying objectives. Replication of viable techniques was facilitated through the organized and informal farmer-to-farmer interactions. Posting of the success stories on the Ministry, UNDP and project websites and bringing several others in electronic media helped to disseminate lessons to a wide audience.

The project document explained that the government intends to replicate innovative approaches of dealing with the threats tested by this project to address problems at the national scale. It also planned to upscale the project approach in remaining areas of this Lagoon and also in other areas. It was envisaged that sharing of lessons learned and best technical and management knowledge will help to encourage other organisations to invest in such activities. Government authorities also expressed their desire to replicate/upscale the lessons learned from this project in other areas within this lagoon and in other areas. MEIDECC as well as other ministries have given priority to integrated ecosystem management, environment protection and health and are working to generate support to replicate the project lessons in new areas. Similarly, there are discussions going on to submit another GEF project proposal to build on the lessons of this project.

The project tested approaches with dual benefits of mainstreaming environmental issues in development planning and increasing awareness at local to national levels. The learning from this project could be useful for other islands as well. Hence for the benefit of the project and for replication in other areas, the project systematically captured and documented technical knowledge and lessons in preventing land degradation, controlling soil erosion and promoting the growth of the local economy to decrease pressure on the mangrove habitats. Arrangements are made to provide lessons learnt from the project via a number of national, regional and international communication channels to increase their outreach (including radio and TV news pieces). This will enable adoption of the project experiences in upscaling of the project lessons outside of the immediate project area, and benefit other such vulnerable areas.

3.1.6 UNDP Comparative Advantage

During the inception workshop, UNDP's project assurance role was presented and discussed in detail. The participants endorsed the assurance role described in the approved project document. Enhancement of capacities at the national and sub-national levels has been considered by UNDP to be essential for promoting disaster risk reduction. Accordingly, and in line with the government's national priorities, support to enhance capacities and make planning evidence based in the fields of SLM and sea was also a priority area. The R2R Project is deemed to be congruent with these priorities as elaborated in the Millennium Development Goal 7 where ensuring environment sustainability is the first priority programme areas for Tonga; second, UNDAF priority for improved living conditions through environmental management for Sustainable Development, the third UNDP Country Program Action Plan (2008-2012) and the fourth it also pave road to the Sub-regional Programme document for the Pacific Island Countries and Territories (2018-2022). The project is in line with the pillars of technical and financial assistance which form the foundation from which risks of land degradation can be reduced in the Fanga'uta lagoon catchment. Specifically, the project will help to realise four pillars identified by UNDP:

- Development of the capacity of the local population to adapt best practices on land and sea management;
- Establish knowledge base and assure access to information to encourage evidence-based planning;
- Engagement of communities and local government and NGOs to reduce risk of land, sea and lagoon degradation; and
- Networking with national and regional organisations working in the field of land, sea and lagoon issues.

UNDP has been working in the field of environment protection, disaster risk reduction, SLM, biodiversity conservation and sustainable use of natural resources for economic development and poverty alleviation. UNDP has a lot experience from these areas. The project has benefited from

UNDP's experience during the project development phase through to implementation. This project aimed to encourage national and local authorities and communities in mitigating land degradation risks like soil erosion, loss of soil fertility, drought etc., by enhancing their capacities for addressing climate change and land degradation. In addition, the project also aimed to establish early warning systems to promote informed decision making by farmers and pastoralists. The project also benefited from UNDP in mobilizing additional funds, building capacity at the local level from its past experiences and supporting a policy review.

3.1.7 Linkages between Project and other Interventions within the Sector

This project was built on the Pacific Island Ridge-to-Reef approach and the conceptual framework outlined in the Program Framework Document (PFD) of the programmatic approach entitled "R2R Pacific Islands Ridge-to-Reef National Priorities – Integrated Water, Land, Forest and Coastal Management to Preserve Biodiversity, Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods" under GEF support. Lessons from several other completed or ongoing projects related to biodiversity conservation and climate change adaptation were also utilised in project development. The development of the National Biodiversity Strategic and Action Plan and the Joint National Action Plan on Climate Change Adaptation and Disaster Risks Management complies with Tonga's National Strategic Development Framework 2009–2014, the Draft Regional Framework for Nature Conservation and Protected Areas in the Pacific Islands Region 2014 – 2020, the United National Convention on Biological Diversity, the Pacific Islands Framework of Action on Climate Change 2006–2015, the Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005–2015, the International Decade for Natural Disaster Reduction (IDNDR), the Yokohama Plan for Action and the Hyogo Framework for Action 2005–2015, and the United Nations Framework Convention on Climate Change. MEIDECC is the coordinating agencies for GEF projects as well as those funded by the EU, AusAID, Japan and others so it also help to maintain coordination with similar project in the Kingdom. There are several projects which are relevant to this project and this project development was benefited from lessons from those projects and there are several others which are ongoing and are working in close coordination and cooperation with this project. More information of these projects are provided in the ProDoc (page 25). Despite extensive activities, they are insufficient to adequately conserve terrestrial and marine biodiversity and manage land resources across the length and breadth of the Fanga'uta Lagoon and its catchment areas. Project development exercise identified number of gaps of those initiatives and included activities in this project to address them.

As per the plan indicated in the project document, the findings (lessons learned) were distributed to many relevant audiences and will also be distributed to other GEF funded projects dealing with similar issues.

3.1.8 Management Arrangements

UNDP National Implementation Modality (NIM) was applied to ensure broad stakeholder participation and to create both high flexibility and an enabling environment for innovation. The Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC) as executing agency had responsibility of coordination for the implementation of activities and was accountable to UNDP and the GEF for project results. MEIDECC is responsible for the timely delivery of project inputs and outputs, allocating resources in an effective and efficient manner, and in this context, for the coordination of all other responsible parties, including other line ministries, local government authorities and/or UN agencies.

The project had a Project Management Unit headed by the Programme Manager who was responsible for the preparation of work plans and budgets and for supervising implementation of activities to deliver project results. The procurement of some of the equipment and hiring of international

consultants was done by UNDP on behalf of the project. MEIDECC appointed the Director of the Department of Environment as National Project Director (NPD) who had responsibility of ensuring the overall smooth implementation of the project in line with planned project objectives and outcomes as identified in the project document. The NPD provided strategic support as per need of the project, particularly to ensure strong engagement from key national and local stakeholders and ensured that members of the National Environment Climate Change Committee (NECCC), composed of CEOs of line ministries, were fully informed of the high-level policy objectives of the project. The mission found the close monitoring of the activities by the technical staffs from the project and also relevant government staffs was weak and due to that communities didn't receive feedback on time to address the problem.

A Project Steering Committee (PSC) was established with responsibilities of approving key management decisions of the project and to play critical role in assuring the technical quality, financial transparency and overall development impact of the project. The PSC comprised of the MEIDECC, UNDP and Fanga'uta Lagoon Catchment Management Committee.

Regular meetings were conducted to discuss progress and the constraints faced by the project. UNDP maintained quality of technical and financial implementation of the project through its multi country office in Fiji. UNDP PO also assured activity implementation, monitoring and ensured proper use of GEF funds to assigned activities, timely reporting of implementation progress as well as undertaking of mandatory and non-mandatory evaluations. All services for the procurement of goods and services, and the recruitment of personnel were conducted in accordance to NIM procedures, rules and regulations.

A Project Steering Committee (PSC) was established at the central level with the representation of all stakeholders and also District Council representation to provide strategic guidance for the implementation of the project. The PSC was chaired by the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications and co-chaired by UNDP. The day to day management of the project was handled by the Project Manager and the support team of the Project Management Unit. The project was implemented in close coordination with the implementing Ministry and other partner ministries, District Local Government and NGO/CBOs. The implementing partners were identified based on the thorough exercise of analysis of relevance, experience and willingness of potential agencies.

The Project's management and implementation focused on the revised log-frame throughout. The project team made an effort to raise awareness and develop capacity amongst stakeholders to provide a solid baseline of understanding the project's main goals and activities. The roles and responsibilities of executing and implementing parties were made clear and negotiated prior to signing the project document. A thorough review of relevant legislations was carried out to assure an enabling environment for the project implementation. Similarly, agreement on co-funding was made before signing the project document and staff, equipment and logistics arrangements were in place by the time of initiation of the project.

3.2 Project Implementation

Fanga'uta Lagoon and its catchment areas were selected by the project to implement policies, plans and investments that prevent soil degradation, maintain ecological integrity and support economic development of local communities.

3.2.1 Adaptive Management

The Project's adaptive management was moderate with some technical feedback lacking and also monitoring missed to identify issues in some cases. The project was driven by the capable management team, backed by good decision-making by the Project Steering Committee, support and advice from the

UNDP-PO. Adaptive management has operated effectively at the strategic level but at the technical level it was found weak due to weak monitoring.

No major changes were made in the project design and no new outputs were added but only prioritisation of outputs. As suggested in the inception report, the project redefined its scope and improved indicators and made activities more clear. Adoption of inception report recommendations is described under the heading “Feedback from M&E activities used for adaptive management”.

As most of the project activities including baseline study on biophysical and socio-economic situation were conducted late, the project could not monitor the impact, success and challenges of the plans. Similarly, eco-tourism activities of Vaini village was facing problem due to conflict between women’s group and City council officer and project was not able to work on the issue timely to address the problem. Likewise, SMA of Nukunukumotu was also facing problem due to dispute between two communities which was not addressed timely.

The project was designed to pilot in Fanga’uta Lagoon based on the recommendation of the vulnerability assessments. Project utilised lessons from the earlier projects in this sector and also from the ongoing project to strengthen the project implementation and management.

3.2.2 Partnership Arrangements

The Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications was the executing agency and also the GEF Focal Point and hosts and chairs the National Environment and Climate Change Committee with representation from the planning and implementing sectoral departments, specifically Agriculture, Fisheries, Forestry, Tourism, Lands, PUMA, public health, Internal Affairs, Geology, Private Sectors and NGOs. These agencies were involved in the project from the development stage. Other partners involved in consultation were the Ministry of Foreign Affairs and the Aid Management Division of the Ministry of Finance and the National Planning. The Tonga Trust, a coordinating body for many NGOs, the Civil Society Forum of Tonga, an umbrella group for other NGOs, particularly representing women’s organizations and the Tonga National Youth Council, which is a youth coordinating network, are members of the NECCC. Involvement of these organisations ensured the voices of communities, especially women, are heard in project determination and in participation to gain benefits from the project. Several NGOs played role in working with communities. The Tonga Trust provided community-based research and extension support to project; and the Civil Society provided community assistance in allocating financial assistance to national projects under the Small Grants Programme. Similarly, the Tonga National Fisheries Association which is an umbrella NGO for fisheries was also involved in the project to contribute in fisheries and coastal programs mainly to advocate and assist in the public awareness through all members (subsistence, artisanal, and commercial fishermen).

UNDP was the implementing agency of the project who has been playing an important role in strengthening regional governance of coastal and marine resources through its support for the Pacific countries. UNDP ensures that the GEF Secretariat is continually informed of activities and progress through M&E via an Annual Monitoring Report. UNDP coordinates with UNEP and UNFAO for the implementation of the Ridge-to-Reef and IWRM projects in all 14 Pacific countries. FAO was consulted on the fisheries aspects, especially in the implementation of alternative fishing industries to reduce pressure on the coastal fisheries. In addition, UNDP also coordinated with the SPC, especially with the technical arm SOPAC, and with ADB and SPREP on the technical and coordinating matters and involving contacts with the Pacific country governments. UNDP also involved key NGOs and other CROP agencies during the negotiation phase and also during implementation in some aspects of the design of the project and in implementing specific themes. IUCN, WWF, WCS and the University of the South Pacific contributed in implementing some aspects. The business community/corporate sectors provided support in aspects requiring special expertise, such as the design and construction of

engineering features as water and the sewage treatment systems, and hard structures to combat rising sea levels. The major donors and implementing agencies (EU, GIZ, Au AID, Govt. of Japan and US) involved in parallel projects in Tonga were also consulted regularly to ensure maximal benefits and avoid overlaps and utilise gaps identified by these agencies. More important one is the FLC Communities whose role was important in the project implementation at the local level.

The project reached a wider audience through awareness generation through brochure distribution, media coverage, sharing in the South to South learning spaces, web-pages of UNDP and the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications. The TEC found that stakeholder engagement and participatory approaches have been of good order throughout.

The project has worked closely with many stakeholders throughout and the active engagement of stakeholders has been vital to fulfilling its achievements, hence stakeholder participation is evaluated as Satisfactory.

3.2.3 Gender

Women and children are the ones who are most vulnerable to land & water degradation, reduction in food production and climate change. As women are the ones who are involved in food production to food preparation and collection of wood for cooking and water for drinking they are most vulnerable to the effects of drought, soil degradation and deforestation. The project therefore gave priority from the project development phase to implementation and made efforts to include women in all activities to enhance their knowledge and capacity, build leadership capacity, improve their economic situation, increase food production and decrease drudgery. The project provided practical knowledge to address land degradation and promote sustainable land management.

Considering gender mainstreaming to include increasing equity regarding access to and control over production resources, equity in sharing benefits and reducing inequities in gender distribution of labour, this project significantly contributed to increasing equity at community level. Both women and men benefited from the activities of the project. Women were also highly represented in the community groups formed with the support from the project and several of them were also led by women. Through support to CBOs, both women and men's capacity to manage their own groups was built.

3.2.4 Feedback from M&E Activities used for Adaptive Management

The project's adaptive management has been average as it made arrangement to address the risks identified at the annual review of risk but monitoring technical aspects of the project was weak and feedback on ground situation to the project manager and also technical assistance to the community was weak. In the latter part due to weak monitoring of project implementation and delay/lack of technical feedback to community, project adaptive management was affected. Technical weakness was also revealed in planning of activities e.g. Knowing threats of pig and in some cases erosion, no prevention to address these threats were made in plantation program and SMA plan didn't had provision of boat with motor for monitoring. Executing and implementing agencies' monitoring was weak and they failed to see problems and address them and PIR, quarterly and annual reports without problems from the project and lack of recommendation is example of it. Land tenure issue was recognised as threat from the project development phase but this was not addressed properly. As a result, the project had to bear some damage of mangrove plantation and nursery in Hoi village.

3.2.5 Project Finance

The total project cost as per project document was US\$8,406,880 which includes US1,756,880 in cash and US\$6,650,000 in kind. Of these, the GEF contribution was expected to be US\$1,756,880 in cash and in-kind contributions included UNDP of US\$500,000, Government of Tonga's (GoT) of US\$650,000 and non-government partner and collaborators of US\$5,500,000. If project spending is used as a basis of measure of the progress of implementation, then the Project has achieved most of the progress originally envisaged. Co-financing was well planned and clearly mentioned in the project document. Co-financing ratio and amount later changed after revising project finance. There was no difference between committed contribution and actual contribution from the GEF as well as UNDP. In-kind contribution from the Government of Tonga was far higher than committed while kind contribution from the development partners and other collaborators was far less than committed (Table 2 and 8). The committed amount of Government of Tonga was US\$650,000 while the actual contribution was US\$1,896,888.67 i.e. 29183% higher than committed amount. Similarly, committed amount of development partners and other collaborators was US\$5,500,000 while actual contribution was US\$21,315 i.e. only 0.39% of the committed amount. It was expected that R2R and the projects of the development partners will run alongside but their project commenced very late so their contribution was received only for the few activities at the latter part of this project and the total committed support was not received. The executing and implementing agencies made close monitoring of the financial transactions and program implementation and materialised the fund for activities by changing mode of payment and this helped to accomplish the activities much faster than during the initial year.

- Project management cost was proposed at US\$83,660 and primarily funded by GEF and actual contribution from GEF for management was same as proposed, but additional in-kind contribution was made by the government of Tonga for management with equivalent to US\$ 137,436.83. So GEF contributed 38% of the management cost while GoT contributed 62% in kind of the management cost.
- Project management costs comprised about 5.3% of the total spent (both cash & kind). Original closing date of the project was December 2017 but due to delay in initial years and slow implementation in the beginning, the closing date was changed to 30 June 2018 and this also increased in kind management cost from GoT.
- The project was co-financed by the UNDP, GoT and Development Partners and collaborators. The final GEF co-finance ratio in terms of monies spent was 1:2 (US\$1,756,879 (GEF)) to US\$2,418,203.67 (UNDP+GoT+Dev. Partners), This is a good result as GEF requirement is at least 1:1 ratio;
- Spending on Component 1, 2, 3 and 4 (US\$ 282,782, US\$473398.08, US\$3128136.8 and 51398.55) accounted for 6.8%, 11.3%, 75% and 1.2% of the total spend respectively, while management costs (US\$239366.82 i.e. 5.7%) was not much higher than component 1, 2, 3 but only higher than component 4.
- GEF funding was distributed among all five components while UNDP funding was only allocated to component 1 (Table 2). GoT support was through in-kind contribution while development partners and collaborators contribution was for implementation of project activities. Of the total GEF fund, 8.9% was spent on component 1, 14.23% on component 2, 69.2% on component 3, 2.8% on component 4 and 4.76% on component 5. UNDP funds were allocated only for component 3.

Table 2: Total disbursement of funds by output (to end March 2018) (US\$) against full project budget as per Project Document.

	GEF			UNDP			National Government of Tonga			Collaborator & Development partners			Total		
	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budgeted	Actual	%
Component 1	150,000	157,018	103.5%	500,000	500,000	100%	0	125,764.41	0	0	0	0	150,000	282,782	188.5
Component 2	225,000	250131	111.2%	-	-	-	0	223,267.08	0	0	0	0	225,000	473398	210.4
Component 3	1,248,220	1,216,070	95.1%	-	-	-	650,000	1,409,021.81	7428 %	5,500,000	3045	0.06%	7898220	3128137	39.6
Component 4	50,000	50,000	79.2%	-	-	-	0	1,398.55	0%	0	0	0	50000	51398.6	102.8
Component 5 (Management)	83,660	83,660	87.6%	-	-	-	0	137,436.82	7%	0	18270	0	83660	239367	286.1
Total	1,756,880	1756,879	97.1%	500,000	500,000	100%	650,000	1,896,888.67	29183 %	5,500,000	21315	0.39%	84,06,880	4175082.7	49.7%

Source: UNDP PO & PMU

Analysis of the budgeted and the actual expenditure shows a big difference in all components. Similarly, it is also observed that in some components (component 3, Table 2) very limited expenses was made while in remaining it exceeded the budgeted amount (Table 2 & 3). In the initial year, delay in recruitment of staffs and other procurement processes affected program implementation and due to that some of the expenses could not be made on the specific component for the prescribed year while in the following years, program implementation accelerated and the expenses covered some of the previous year's pending activities also. The planned management cost as per project document was US\$83,660 and actual management cost was US\$239,367. The reason for increased actual management cost was because component wise breakdown of GoT contribution was not provided in the project document and large amount of it was mainly for project management.

Tables 3-5 show the disbursement of GEF and UNDP funds. Breakdown of Budgeted amount of the GoT and development partners was not available but it was learned that GoU contributed in kind i.e. manpower, office space, furniture, initial office supplies to begin the work for management of project implementation. Likewise, development partners and collaborators provided in-kind contribution (technical staff support for 8 months and nursery tools) in program implementation.

Personnel involved in this project from Department of Environment, district council, city council and various other line ministries, community based organisations and community members were found satisfied with some reservations and they were advocating achievement of the project. Ministry officials, district council head, UNDP PO and local communities also expressed commitment to continue support to the project activities. Similarly, they also noted that the ministry already has some projects which will complement some of the activities under this project and also replicate lessons learned.

TABLE 3: Total disbursement of GEF funds (US\$) by Component by year against budget as per Project Document

	2014			2015			2016			2017			2018			Total		
	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%
Component 1	33,919	-	0	47,040	5082.63	10.8049	47,167	74452.54	157.85	21,874	77483.29	354.23	0.00	0.00	-	150,000	157,018	104.679
Component 2	132,026	-	0	45,211	105803.89	234.022	12,100	76916.63	635.67	35,663	67410.56	189.02	0.00	0.00	-	225,000	250,131	111.1694
Component 3	32332	-	0	538,692	436535.37	81.0362	541,271	460415.26	85.062	135,925	288157.14	212	0.00	30962.69	-	1,248,220	1,216,070	97.42437
Component 4	5800	-	0	9200	8122.51	88.2882	19,200	22534.72	117.37	15800	8958.26	56.698	0.00	10384.51	-	50,000	50,000	100
Component 5	48,997	2536.11	5.2	14,305	41897.53	292.887	12978	23751.02	183.01	7380	5077.01	68.794	0.00	10398.33	-	83,660	83,660	100
Total	253,074	2,536	1	654,448	597441.93	91.2894	632,716	658,070	104.01	216,642	447086.26	206.37	0.00	51,746	-	1,756,880	1,756,880	100

SOURCE:UNDP PO

TABLE 4: Total disbursement of National Government of Tonga (US\$)

	2014	2015	2016	2017	2018	Total
	Actual	Actual	Actual	Actual	Actual	Actual
Component 1	3,925.35	26,361	45615.85	33,599.03	4216.59	113,717.82
Component 2	0	126,411	14207.2	31,545.89	1382.49	173546.58
Component 3	214.5	319,203	424316.2	399,903.38	19853.92	1163491
Component 4	85.8	892	206.5	0.00	0	1184.05
Component 5	1,501.50	1,502	39379.55	42,391.30	10368.66	95,142.51
Total	5,727.15	474,368	523725.3	507,439.60	35821.66	1,547,081.96

Source: PMU

TABLE 5: Total disbursement of UNDP funds (US\$) by Component by year against budget as per Project Document

	2014			2015			2016			2017 (up to end of March 2018)		
	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%
Component 1	100,000	100,000	100%	150,000	150,000	100%	100,000	100,000	100%	150,00	150,000	100%
Component 2												
Component 3												
Component 4												
Total												

Source: UNDP PO

TABLE 6: Total disbursement of Local Government (US\$) by Component by year (Breakdown of budgeted was not available)

	2014	2015	2016	2017	2018	Total
	Actual	Actual	Actual	Actual	Actual	Actual
Component 1	0	7830	0	0	4216.59	12046.59
Component 2	0	49720.5	0	0	0	49720.5
Component 3	0	49372.5	116928.6	74465.7	4764.05	245530.8
Component 4	0	214.5	0	0	0	214.5
Component 5	0	0	0	0	0	0
Total	0	107137.5	116928.6	74465.7	8980.64	307512.4

TABLE 7: Total disbursement of Development Partners and other collaborators (US\$) by Component by year (Breakdown of budgeted was not available)

	2014	2015	2016	2017	2018	Total
	Actual	Actual	Actual	Actual	Actual	Actual
Component 1	0	0	0	0	0	0
Component 2	0	0	0	0	0	0
Component 3	0	3045	0	0	0	3045
Component 4	0	0	0	0	0	0
Component 5	0	18270	0	0	0	18270
Total	0	21315	0	0	0	21315

Table 3 shows the actual funds spent for each component by year for the GEF funds. These show clearly that the management cost i.e. component 5 exceeded budgeted amount in the year 2015 and 2016 while in the year 2017 less than budgeted and in 2018 there is expenses but not budgeted as this was no cost extended year. Component 5 was funded by both GoT as well as the GEF. Component 1, funded by GEF, peaked disbursement in 2017 and Component 2 in 2015. Component 3 funding by GEF peaked disbursement in 2016, component 4 peaked in the year 2015 and component 5 in the year 2015. Component 1 funding by UNDP was equally distributed in all years and there was no difference in budgeted and actual expenses. No detail breakdown of budgeted amount of GoT contributions were available and so could not analyse difference in proposed and actual expenses per component in different years. Similarly, breakdown of budgeted amount of development partners and collaborators contribution was not available so could not compare with the actual expenses for each year. All the expenses correspond to the work accomplishment in respective years.

At all times, the chair of the Project Steering Committee, Minister for MEIDECC has been kept abreast on the project's progress through reporting and this has allowed the necessary budget revisions to be made on a sound basis. Similarly, the link between Implementing Ministry and the UNDP-PO has been efficient in ensuring that budget replenishments have been timely and there will not be inherent procedural delay.

Table 8: Co-financing the project.

Co-financing (type/source)	UNDP own financing (mill. US\$)		GEF (mill. US\$)		Govt. of Tonga (mill. US\$)		Partner/Collab orators		Total (mill. US\$)	
	planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants			1,756,880	1756880					1,756,880	1756880
Loans/Concessions										
• In-kind support	\$500,000	\$500,000			650000	1,896,888.67	5,500,000	21315	6,650,000	2,418,203.67
• Other										
Totals	\$500,000	\$500,000	1,756,880	1,756880	650000	1,896,888.67	5,500,000	21315	8406880	4175082.67

Source: UNDP PO & PMU

3.2.6 Monitoring and Evaluation: Design at Entry and Implementation

M&E Design

The project design included good monitoring and evaluation (M&E) plan which is comprehensive in its depth and scope. The project had a log-frame to monitor achievement and the log-frame had clear objectives, components and appropriate to the issues and also designed considering the timeframe of the project. A detailed survey was conducted following the standard scientific methods to identify the most vulnerable sites which helped to judge impact of the interventions. Roles and responsibilities of the partners were made clear from the project design phase. The indicators (mostly) of the log-frame were all Specific; Measurable; Attributable; Relevant, Achievable Realistic or Time-bound. At the stage of the inception, clarifications and updates were made to the M & E plan but no major change was made. All activities were listed and explained, and a table was included determining responsibilities, budgets and timeframe for each. M&E budgets was set realistically, with a total proposed amount of USD 52,000 (Fifty-Two Thousand) being set aside specifically for M&E activities. Actual management cost was only USD31,024.01 and this indicates that allocated budget for M&E was appropriate and also expenses for M&E is realistic and unable to use all M&E budget coincides with weak monitoring. Baselines were already set (except of few outputs of outcome 2) in the Project Document. The inclusions of indicators for each activity were not only appropriate and useful for evaluation but also good for management purposes.

The design of M&E included fully itemised and costed plan in the Project Document covering all the various M&E steps including the allocation of responsibilities; provision for monitoring of technical aspects and feedback mechanisms were good. Similarly targets were realistic for the time frame, hence monitoring and evaluation

design has been evaluated as **Highly Satisfactory**.

M&E Implementation

Monitoring and evaluation of the project activities has been undertaken in varying detail at three levels:

- i. Progress monitoring
- ii. Internal activity monitoring
- iii. Impact monitoring

Progress monitoring has been good and was being done through quarterly and annual reporting to the UNDP-PO. The annual work plans have been developed at the end of each year with inputs from Project staff and the UNDP-PO. The annual work plans were then submitted for endorsement to the Project Steering Committee, and subsequently sent to UNDP for formal approval. The implementing team has also been largely in regular communication with the UNDP-PO regarding progress, the work plan, and its implementation. The indicators from the log frame (few needed improvement) were used in measuring progress and performance. The project management has also ensured that the UNDP-PO received quarterly progress reports providing updates on the status of planned activities, the status of the overall project schedule, deliverables completed, and an outline of the activities planned for the following quarter. The reports' format contained quantitative estimates of project progress based on financial disbursements. The UNDP-PO generated its own quarterly financial reports from Atlas. These expenditure records, together with Atlas disbursement records of any direct payments, served as a basis for expenditure monitoring and budget revisions, the latter taking place bi-annually following the disbursement progress. Monitoring of activities was weak and due to that feedback mechanism was affected which resulted in damage of saplings in school and private afforestation, damage of mangrove afforestation and nursery, due to weak planning there was no provision of boat for monitoring of SMA by communities and latter two boats were ordered after request from the community (with funding arranged from partners) but procurement didn't include motor for the boats, conflict lingered for long time in tourism site of Vaini and SMA of Nukunukumotu etc.

From the quarterly reports, the UNDP-PO has prepared Quarterly Operational Reports which have been forwarded to UNDP/GEF Regional Coordination Unit, and also uploaded all the information in ATLAS. The major findings and observations of all these reports have been given in an annual report covering the period July to June, the Project Implementation Review (PIR), which is also submitted by the Project Team to the UNDP-PO, UNDP Regional Coordination Unit, and UNDP HQ for review and official comments, followed by final submission to the GEF. The PIR and quarterly/annual reports were unable to provide information on problems faced during implementation or shortcomings of programs. All key reports were presented to the Project Steering Committee members ahead of their half-yearly meetings and through these means, the key national ministries and the national government have been kept abreast of the project's implementation progress.

The Project Management Office (PMU) and the UNDP-CO have maintained a close working relationship, with project staff members meeting, or talking with, PO staff on an almost daily basis to discuss implementation issues and problems.

The project's risk assessment has been updated quarterly by the UNDP-CO with the main risks identified along with adequate management responses and person responsible (termed the risk "owner"), who in most cases differs from the person who identified the risk.

As project is of medium size a Mid-term Review (MTR) was not undertaken as this was not required for a medium sized project.

Internal activity monitoring undertaken by UNDP PO, the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC) and the Project Manager (coordinator) appears to have been good comprising a range of mechanisms to keep informed of the situation and to respond quickly and effectively to any areas of concern. These comprised many of the methods used to track progress, and implementation has been guided by the Annual Work Plan and the quarterly plans submitted to release funds. Generally the project has

been small enough not to require formalised communication or monitoring procedures; members being in almost daily contact.

Unusually, impact monitoring has been well-developed, with formal protocols in place to measure the functioning of improved management but due to limited time of the implementation impact studies were not carried out to see the impact of project activities. Undoubtedly this has arisen from the scientific background of the project design team, but enhancement by its technical staff was weak. So there was room for improvement on the technical aspects of some of the activities to make them more environment friendly, effective and sustainable. As in most often the case, adaptive management of the project has been influenced to a much greater extent by external variables and overcoming the problems (or taking opportunities) that these have presented than by responding to internal monitoring.

M&E implementation has been moderately satisfactory, with progress monitoring and internal activity monitoring. Responses have also been made to the risk assessments (though some room for improvement in technical aspects of the activities remains) and the TEC considers it to be “moderate practice”, hence the implementation of monitoring and evaluation has been evaluated as **Moderately Satisfactory**.

3.2.7 UNDP and Implementing Partners Implementation / Execution, Coordination and Operational Issues

Project Oversight

The project was implemented following National Implementing Modality (NIM) to ensure broad stakeholder participation and to create both flexibility and an enabling environment for innovation. The project execution was led by the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications in close coordination with UNDP Pacific Office. There was very good communication and coordination between implementing and executing agencies. Regular meetings were conducted to discuss progress and constraints of the project. UNDP had ensured high-quality technical and financial implementation of the project through its local office in Tonga and occasional visits from multi country office in Fiji. UNDP PO was responsible for monitoring and ensuring proper use of GEF funds, timely reporting of implementation progress as well as undertaking of mandatory and non-mandatory evaluations. All services for the procurement of goods and services, and the recruitment of personnel were conducted in accordance with NIM procedures, rules and regulations. The project Management Unit was formed to coordinate and manage project activities and it facilitated the achievement of targeted results on time, adequate and appropriate management practices, program planning and proper implementation and timely reporting. PMU had one National Project Manager, Technical Advisor and support staffs (admin/finance staff, driver and office helper). A risk management strategy was developed involving all partners and experts through detailed analysis of issues. Department of Environment provided office spaces and also nominated Project Steering Committee members representing the Community Officers from the project Districts. The project hired qualified experts to conduct studies but technical aspects of tree plantation in schools, planning implementation and monitoring of mangrove and other fruit trees plantation was very weak.

The capacity of the local government and community groups was enhanced for strengthening performance. From the project development to implementation, lead implementing ministry, other ministries and local government institutions were involved on behalf of Government of Tonga and this assures government ownership in the project. SMA program planning was not able to realise need of the Boats for monitoring by the community so order was made only after request from the community and was not arrived by the time of TE due to late procurement and it is also learned that it lack motor. Conflict between communities obstructed SMA activities of Nukunukumotu and conflict between women group and city council affected Vaini ecotourism program. The ecotourism activities of Ancient Tonga were not completed.

The Project has been planned and managed (except in some cases which were delayed and remained incomplete) providing products of good quality and within budget, while responding effectively to several internal and external challenges through adaptive management, hence the implementation approach has been evaluated as **Moderately Satisfactory**.

UNDP Supervision and Backstopping

UNDP supervision was accomplished through standard procedures and undertaken competently. Terminal Evaluator received no complaints from interviewees about excessive UNDP bureaucracy or delays in procurement, and UNDP's heavy requirements for reporting.

Key aspects of supervision were made through UNDP's involvement in communication with the Ministry of Finance, Economic Development and Planning and other stakeholders. Members of the Resilience and Sustainable Development Unit of UNDP PO were heavily involved in regular issues such as the review and approval of work plans and budgets, review of progress and performance against such work plans, and completion of the tracking tools. It appears that the PO was helpful and supportive throughout the implementation period, responding to provide guidance, honest and constructive criticism, and help to overcome particular problems as necessary. UNDP support was focused towards achieving targeted results and support was appropriate (but not adequate) and timely and the project staffs were satisfied by the quality of UNDP support. Annual planning was done on time with active participation of stakeholders. Similarly, risk management options were identified in close consultation of partners and experts and the project was able to manage risk efficiently except the one related to land tenure. The project was slow in the beginning due to delays in recruitment of staff, office setup and procurement of equipment. Due to initial delays, there were time constraints at the end of the project to accomplish or initiate all tasks, so a no-cost extension was approved by project steering committee for until May 2018 (and later further extended to end of June 2018) was approved by the project steering committee. The project activities ended in March 2018 and no major activities occurred after that and project spending was ceased from that date. The extension until June 2018 was to arrange for operationally closing the project.

UNDP has provided supervision and backstopping to the project, and its performance has benefitted as a direct result, hence UNDP's supervision and backstopping role is evaluated as **Satisfactory**.

3.3 Project Results

3.3.1 Overall Results

Attainment of Objectives:

The project attempted to reduce environmental risks of Fanga'uta Lagoon by addressing policy gaps, enhancing capacity of the local government and community based institutions, generating awareness among community members from the lagoon catchment areas, establishing information base and supporting evidence based planning with the establishment of an information database and facilitating access to them, construction of wall in the vulnerable areas of coastline and tree and mangrove plantation. The following IEM-related outputs were delivered:

- Updated EMP. Developed detail implementation plan of IEMP for Lagoon catchment areas.
- Prepared studies on IEM topics (Biophysical-socioeconomic assessments in project areas).
- Facilitated of community-level adaptation planning.
- Designed SMA and programs for sustainable fishing and safeguard sea biodiversity.
- Fanga'uta stewardship plan gazetted and implemented. 5year Action Plan prepared.
- Implemented sustainable lagoon and sea management activities that improve ecosystem services and income generation to improve livelihood of local communities, also contributing poverty reduction that is often exacerbated by and leads to Lagoon ecosystem degradation.
- Establishment of knowledge base (database) with access to planners to supports evidence based planning which helps to mainstream IEM.
- Developed P3D model of Fanga'uta lagoon.
- Policy gap analysis was conducted and recommendations for policy review to incorporate IEM issues were made.
- Established multi-stakeholder mechanism for effective adaptive management and strengthened institutional capacities to implement policies and to support evidence based planning.
- Monitoring Manual of Fanga'uta developed and established participatory monitoring system and strategic planning practices to support IEM to address water and land degradation risks.
- Tree plantation along the coast line to create vegetation cover and construction of walls in vulnerable areas of coastline.
- Established Mangrove nurseries and replanted Mangrove to establish mangrove ecosystem.
- Regular bird, sea lives survey and chemical tests of water conducted.
- Arranged management of waste and improve sanitation.
- Conducted various trainings and workshops to enhance capacity and generate feedback on various issues.
- Prepared a detailed report on the participatory FLC eco-tourism program development strategy and implementation plan.
- Conducted awareness programs to generate awareness among local communities and formed community groups at local levels for supporting implementation of IEM.

(Activities and achievement status are provided in Page 33-36)

A Summary of the Project's achievements is given below, followed by an outline of the attainment of objectives. This is followed by a Review of Outcomes to Impacts in Table 9 and a brief discussion on the verifiable impacts. A summary evaluation of Project Outputs is given in Table 10 followed by a more detailed description. A detailed evaluation of the level of achievements made against the indicators of success contained in the log frame is given in Annex IV.

Summary of Achievements

Project results were measured against achievement indicators guided by evaluation questions (tracking tools, Annex XI). The R2R Project has been well designed, but in management and implementation some problems were observed. The project team has managed to deliver a series of interventions that have reduced the threats of Lagoon ecosystem to some extent and contributed to the improved livelihoods of local communities from the Fanga'uta Lagoon of Tonga. In the process, the project has demonstrated innovative approach particularly special area management in lagoon for conservation of fish and other water animals. One of its biggest strengths has come about through a design-decision to

work directly with the community groups through the local government institutions rather than parallel project structures. Since the project is implemented by MEIDECC involving other ministries and District Councils, City Councils, Community Officers and local communities from 26 villages, all government agencies are taking full ownership for the project's outputs. One of the very good work of this project is that it brought different ministries and other relevant organisations on one platform to cooperate each other to achieve the target of Fanga'uta ecosystem management and environment protection. As will be seen below, the achievement of the outputs and activities under each of the four Outcomes has been evaluated as Moderately Satisfactory, and the evaluation of achievements against indicators (provided in Annex IV) show that several of the activities have been accomplished (with few about to complete and target of vegetation coverage not met). The project helped to address threats to Lagoon Ecosystem from various practices of the local communities and also natural threats, through awareness-raising, strengthening capacity of relevant community groups and institutions, lagoon protection by constructing walls, mangrove and other tree plantation, management of mangrove, maintaining the lagoon area clean, sanitation activities, improved cultivation practices and supporting evidence based development planning.

Overall, the project has achieved several of its major global and local environmental objectives, and yielded substantial global environmental benefits, with some shortcomings. The project can be presented as "average practice", and hence its attainment of objectives and results is evaluated as **Moderately Satisfactory**.

Key project achievements include:

A. Institutional and Financial Arrangements for Community Based Environment RISK REDUCTION:

1. Community groups established in the project sites.
2. Enhanced knowledge and capacity of the local governments.
3. Enhanced knowledge and capacity of the community groups.
4. Established separate women's groups.
6. Provided financial support to groups to initiate various IEM activities.

B. Non-structural interventions: (awareness raising, exposures, trainings, linkages development etc):

1. Conducted various trainings for awareness raising.
2. Conducted training programs to train locals on skills for waste management.
3. Various training for ecotourism management.
4. Awareness programs on pollution from the agriculture practices and the waste disposal.
5. Conducted studies on various subjects related to IEM.
6. Developed Lagoon Catchment management plan.
8. Several linkages development meetings were conducted with NGOs and line organisations followed by exposure visits to target project sites.
9. Conducted biophysical and socio-economic baseline studies at the project sites.
10. Conducted several capacity building activities (training on financial management, provided knowledge on organic fertilizer, various crops and tree plantation techniques and also provided equipment) for women and men.

INTERVENTION AT THE DISTRICT AND NATIONAL LEVEL

A. Activities with local, and National Stakeholders:

1. Conducted several coordination/consultation meetings.
2. At the beginning of the project to improve project component for implementation an inception workshop was conducted which refined indicators, approaches and also outlined specific activities.
4. Organised capacity needs assessment workshops.
5. Strengthened District Local Government Environment Cells in the project district offices.
6. Strengthened community groups.
7. Organised exposure visits (in country) for representatives of community groups and the government representatives.
8. Prepared district IEM Plan for the project catchment areas.

B. Intervention at the Policy Level:

1. Reviewed environment and biodiversity conservation policies and recommendation developed.

C. Awareness, Communication and Documentation:

1. Aired awareness programs on local TV/FM Radio.
2. Used print media for conducting campaign through news clips, articles etc.
3. Uploaded program information on websites of UNDP, MEIDECC and other ministries and agencies involved in the project.
4. Lessons learned developed for distribution.
5. Produced project brochure and disseminated to various audiences/stakeholders.

The main problem areas identified by the TEC are:

- Ministries and Local Governments of project districts expressed their support to project activities but funds were not committed to cover monitoring and other activities;
- At the time of conducting the TE, no guaranteed commitment from any non-governmental/development partners was available to replicate lessons from this project to other vulnerable areas of Tonga and also to implement IEMP. Government agencies mentioned that the regular budget could not afford the cost of implementation of IEMP.
- Technical assistance from the project office regarding plantation was weak. Similarly, monitoring was also weak so community couldn't get immediate feedback on various aspect including plantation.

Objective Indicators

A single “Project Goal” and single “Project Objective” was articulated in the log frame with a development objective. The project objective is to conserve the ecosystem services of Fanga’uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience. The project aims to achieve its stated objective through three outcomes. Full details and an evaluation of achievements against targets are provided in Annex IV. Project was able to accomplish most of the targeted activities and only few were incomplete. The TECs believes this to be an average performance.

3.3.2 Relevance

A comprehensive study on Fanga'uta Lagoon was conducted in the late 1990s which culminated in the adoption of Fanga'uta EMP in 2001. The EMP FLS was developed in response to increasing pollution and decreasing of marine resources as observed by communities and through rigorous scientific studies. The lagoon's Environmental Management Plan was approved by the Cabinet in 2003, but it didn't explain details on implementation (including financial and administrative commitments). The Environmental Management Plan for Fanga'uta Lagoon System (EMP FLS) was designed to improve the existing conditions in the lagoon and ensure that it can provide the maximum use of goods and services in the future. One of the main components of this project is to update this EMP through a participatory approach to engage stakeholders and communities who are residing and using the lagoon catchment area.

The overall policy objective of this project is to achieve sound sustainable development by reconciling economic growth and conservation of resources while spearheading social development. It is designed to contribute to the policy reforms to halt environmental degradation; institutional capacity building for proper ecosystem management planning depending upon modern scientific data; local economic development; sustainable ecosystem services; environmental protection, pollution control; reforestation to increase land cover. Hence the project is highly relevant to the needs of people in the project area and Tonga.

The project intervenes to reduce land degradation and contribute to human lives and property in the cattle Corridor of Tonga and is congruent with GEF and national priorities, and remains pertinent in light of the current levels of threats; hence it is evaluated as **Relevant**.

3.3.3 Effectiveness and Efficiency

Cost-effectiveness

The UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported projects defines the criteria of "efficiency" as:

"The extent to which results have been delivered with the least costly resources possible; also called cost effectiveness or efficacy."

The project has not exceeded the budgeted figures but all of the planned targets (activities targets) were also not completed by the time of terminal evaluation so the cost-effectiveness is only satisfactory. Many of the activities of all three components (four outcomes) were accomplished with shortcomings like incomplete targeted vegetation and not provisioned boats for monitoring SMA by communities and later when boats were procured after request from communities it lack motor and also boats were not arrived by the time of TE, Eco-tourism site management and handicraft promotion activities in Vaini was not taking place due to conflict, ecotourism work remaining in Ancient Tonga ecotourism sites and financial arrangement for implementation of IEM plans not completed. Overall management cost is more than initially budgeted, and this could also be due to increased timeframe and increased cost was in kind from the GoT. Total expenses of the project were only 49.7% of the total budgeted amount and this expense is including increased management cost. The remaining 50.3% was committed amount from development partners and other collaborators which project didn't receive and if this was received then project could save some money from its regular own budget to cover the cost of the remaining equipment and activities. Hence project is cost effective.

Project generated support from the government which helped to reduce cost of the project office space and project also used national consultants to provide technical advice, helping to reduce the cost of project management that otherwise could be high. Involvement of local communities in implementing project activities not only decreased cost of implementation but also helped to increase their knowledge and skills. Income from the project activities and water harvesting made livelihood of communities comfortable. Water tank for storage of water from rain harvest and construction of compost toilet reduced drudgery of women and also helped in family health which has generated interest of government and other like-minded institutions to be involved in such activities.

The project was able to achieve several of expected outputs, and cost-effectiveness has been a priority of the implementing agency throughout, amongst their priorities. This, combined with significant levels of additional co-financing leveraged by the project's activities, means the overall cost-effectiveness of the project has been good, hence it is evaluated as **Satisfactory**.

The project was able to achieve several of the expected outcomes and objectives. The initial delays in implementation were caused by late procurements and have contributed to the failure to accomplish some of the activities as planned for the project time period. Stakeholders expressed satisfaction with the accomplishments of the project and are of the view that it was not sufficient so the project need more activities to have significant impact and meet its objectives.

The project has facilitated changes in management practice and development planning processes and has increased the level of awareness about the long term positive impacts of IEMP, especially in the context of climate change. Similarly, project delivery modalities have been efficient and project has been able to contribute to the GEF and UNDP objectives and also to national priorities. Since some of the interventions of the project showed impact (impact on planning processes, decrease in environment risks, increased awareness on cause of environmental problems, improvement in sustainable management of ecosystem etc.) while others are yet to show impact, the effectiveness of the project is rated as **Moderately Satisfactory**.

The project followed standard scientific methods and used qualified technical manpower but due to weak monitoring and weakness in planning of plantation and SMA activities some of the targets were not met within the project time.

The project maintained good relations with all stakeholders and worked in close cooperation and this helped to execute activities efficiently with their cooperation.

3.3.4 Impacts

Table 9 provides a review of the likelihood of outcomes being translated into intended impacts.

TABLE 9: Review of outcomes to impacts at the end of project situation

Component	Findings	Review of Outcomes to Impacts
Site Level Outcomes		

Component	Findings	Review of Outcomes to Impacts
Outcome 1.1: Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)	<ul style="list-style-type: none"> A nationally recognised FLC Management Committee established and is operational. Sub-committee formed from the Project Steering Committee is closely assisting FLC Management Committee in its quarterly meetings. The Cabinet endorsed FLC Management Committees and sub-committees in May 2017 with Gazettement. 	AC: Likely
Outcome 1.2: Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for	<ul style="list-style-type: none"> The FLC IEMP was revised and amended. It was submitted to Cabinet in May 2017 and was endorsed and gazetted. Soliciting donors' commitment to fund for the 5 years to implement revised IEMP completed and Environment, Fisheries, Land, Natural Resources, Forestry and Agriculture have included annual monitoring of the catchment ecological health as part of their sector plans for next 5years. The regular budget from the government will not be sufficient to implement IEMP so need to arrange funding from other sources. 	

Component	Findings	Review of Outcomes to Impacts
Outcome 2: Improved conditions of critical lagoon habitats, productivity, water quality and fish production through the implementation of priority interventions identified in the IEPM	<ul style="list-style-type: none"> • Studies of mangrove conducted to generate baseline status of mangroves within the periphery of the lagoon. This study findings was used to develop long term management plan and also identify the critical locations for conservation activities. • 20ha of mangroves plantation and rehabilitation of about 69ha of mangroves cover through the waste clean-up campaign. Weakness in monitoring by the Forestry Department resulted in poor survival rate and in case of school plantation, survival of sapling is less than 20% and management of vegetation coverage was not attained the target level. Moreover, recently government destroyed large areas (0.6ha) of mangrove of Papua to create park and also in Hoi village mangrove nursery and fence were destroyed and gravel spread on the ground to construct road by one of the land owner on whose land. Destruction of mangrove was also observed in some other places due to soil erosion. • Renovation and arrangement of infrastructure in Vaini village for promotion of community based eco-tourism was not managed and gate and some fence moved out and sign post taken away, litter scattered close to spring and surrounding areas and area covered by weeds due to conflict between women's group and town officer. Similarly, ecotourism activities of Ancient Tonga was not completed. • The depth of the water in the lagoon is changing becoming shallower with average of 1.2m compared to 1.7m in 1998. Water salinity, temperature, acidity/alkalinity has fluctuated in the period of 1998-2016 with no significant trend. Nutrient levels in the lagoon appear to have dropping and level of Nitrate, Ammonia and Phosphates appear to be below ANZECC guidelines for recreational water quality. These indicates no improvement in eutrophication. Murky waters and algal growth are still dominant. • Benthic animals and plants shown continued decline and very significantly since 2015. Coverage of seagrasses in all section of the lagoon has dropped to 4.5% in 2016. The amount of mud, sand, rubble and rock has increased and covering 73% of the lagoon floor. • 12 variety of birds recorded from the lagoon areas. Follow up study needed to see impact of pollution, decrease in prey species and loss of habitat. • Establish water quality test laboratory for regular monitoring of lagoon water. Information will be useful for development planner to address the issues. • Over 350tonnes of solid waste were collected during clean-up campaign including 26 villages. But during TE, plastic bottles and other solid wastes were observed scattered everywhere in the mangroves and also along the shores. Regular clean-up campaign by community groups and youths is needed. • Soil from the timber treatment site had highest Arsenic, Copper and Chromium were found followed by the soil from town residential sites and rubbish dumping sites. 	BB : Likely
Integrated Environmental Management of the Fanga'uta Lagoon Catchment of Tonga - TE Report	<ul style="list-style-type: none"> • Construction of toilets, garbage bins and tanks for storage Management of the Fanga'uta Lagoon Catchment of Tonga - TE Report water from harvesting rain water was found effective. • Positive changes in the biotic factors of the lagoon, level of different harmful chemicals, complete resolving of litter problem etc will take some time to change from project activities so could expect better impact in the future from these activities of the project. 	Page 30

Component	Findings	Review of Outcomes to Impacts
Outcome 3: Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon	<ul style="list-style-type: none"> • 9 different brochures produced and used in various national level awareness programs. 9 videos of 30mins duration aired on TV, produced 9mini-video in local language with English subtitles, launched project website under Dept. of Environment and uploaded 130 news releases, quarterly newsletters produced, project news updated on project Face Book page which has 1139 followers, Outreach programs to 27 schools engaged more than 6239 students (49.6% boys, 46.6% girls) and 246 staff (3.8%) on waste management and sanitation, produced weekly SMS blast using Digicel services for awareness reminders of better care of environment and good land-base management activities reaching over 22,000 devices, hosted capacity building trainings on tree planting, mangroves, monitoring, waste management and communication at national and local level engaging 300 people. • Project also hosted spaces for South to South learning between Nauru and Tonga and also involved students from University of the South Pacific studying mangrove ecosystem and High School students and PhD candidates from Canterbury University studying ciguatera. • Awareness improved but attitude not changed as still littering is going on and still there is lack of cooperation between community and city officers eg. Vaini Ecotourism. 	BB: Likely

Note: Evaluation Criteria is provided in Annex XIII

TEC found local people very much aware of the environmental risks and safety precautions. Also the local and the national government officials were very much sensitized on the issues of the Lagoon ecosystem degradation and made future plans and programs to address the environmental issues of the lagoon. Awareness generated among the community members was resulted in them contributing in planting trees, construction of stone wall along the shores, cleaning mangrove and other ecosystems but follow up of monitoring and continuation of management of interventions from the national and district government and community groups was weak. Sanitation programs like construction of safe toilet, tanks for storing rain water and rubbish bins distribution in some areas was effective. This project helped to initiate coordination between different government agencies and community organisations which is very important for promoting an integrated approach and helps to bring together expertise from diverse fields. But after completion of the activities, coordination and commitment from responsible government agencies was found weakened due to which some mangrove plantations were damaged for making park and also for road. Similarly, historical water body renovated by making walls around the spring, rubbish bins for waste management, fencing and sitting arrangements for recreation for tourist as well as locals in Vaini village was not managed after the handover of the property to the women group due to conflict with the town officer. Awareness was generated but after the end of the project, continuation of management of interventions of the projects was poor due to which solid wastes were observed along the shores in most of the lagoon areas. Besides cyclone also deposited debris in some places. Very few awareness sign posts were observed and it was told that more than 80% of the sign posts were damaged by the cyclone. These indicate that the expected impact beyond the project life in certain areas like management of mangrove and pollution control are unlikely.

Documentation and dissemination of information on IEPM helped to share knowledge for benefit of large population from various countries with land degradation risks. Similarly, improvement in the Environment Management plan of Lagoon to address environmental, economic and health risks will help to mainstream integrated environment management in development practices for mitigation of such risks but cease of coordination and contribution from the communities to

safeguard the achievements of the project after the project life question sustainability of the outcome and also effective implementation of IEMP.

As a result of the review of outcomes to impacts, the overall likelihood of impacts being achieved is all **Moderately Likely**, hence the project is expected to achieve most of its major environmental objectives, and yield moderately satisfactory environmental benefits by managing environmental risk and its effectiveness is evaluated as **Moderately Satisfactory**.

Achievement of Project Output & Outcome

This section provides an overview of the main achievements of the project. Considering the results achieved under each of the outcomes, and the progress towards the overall objective, the project effectiveness is rated as Moderately Satisfactory. This project generated numerous significant results, meeting several of the planned accomplishments. The project objective was stated as "*To conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience*"

Based on the respective indicators and overall level of progress toward the three outcomes, the outcomes rating are as follows:

TABLE 10: Evaluation of the end of project situation as per the revised log frame

Component	Evaluation*					
	HS	S	MS	MU	U	HU
Outcome 1.1 : Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)						
Output 1.1.1 Capacity of NECC and FLC Stakeholders enhanced to more effectively plan and implement an integrated lagoon ecosystem management approaches		■				
Output 1.1.2 Measures delivered to fully engage the Fanga'uta Lagoon Catchment (FLC) communities in lagoon ecosystem management		■				
Outcome 1.2: Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for						
Output 1.2.1 FLC IEMP prepared and completed; establishing technical, biophysical, oceanographic, socioeconomic and demographic baselines; updating the EMP completed in 2001 with additional parameters to be established		■				
Output 1.2.2 FLC IEMP adopted, mainstreamed and funded			■			
Output 1.2.3 Multi-stakeholder participatory mechanisms constructed to ensure adaptive management during the preparation, implementation, monitoring and evaluation of FLC IEMP		■				
Outcome 2.1 Improved conditions of critical lagoon habitats, productivity, water quality and fish production through the implementation of priority interventions identified in the IEMP						
Output 2.1.1 Areas of approximately 80 ha of the lagoon's major coastal habitats (mangroves stands) restored		■	■			
Output 2.1.2 Mechanisms set up to guarantee participatory fishing area and sustainable fisheries resources management by the FLC communities		■	■			
Output 2.1.3 Eco-tourism awareness to FLC community conducted and local initiatives demonstrated		■	■			
Output 2.1.4 Activities based on sustainable land and forest management demonstrated in the FL catchment areas		■	■			
Output 2.1.5 Capacity for Fanga'uta Lagoon water quality control strengthened and on-site activities demonstrated		■	■			
Outcome 3: Increased awareness and appreciation of the ecosystem services of						

Component	Evaluation*					
	HS	S	MS	MU	U	HU
the Fanga'uta Lagoon						
Output 3.1.1 Awareness programs conducted through the production and dissemination of awareness materials						
Overall Project Rating						

* Note: HS = Highly satisfactory; S = Satisfactory; MS = Moderately satisfactory; MU= Marginally unsatisfactory; U = Unsatisfactory; HU = Highly unsatisfactory.

The project supported community based-lagoon ecosystem degradation risk management by incorporating activities like updating Integrated Environment Management plan, evidence based planning, infrastructure development, awareness generation, capacity enhancement of institutions involved in environment management, rainwater harvesting, sanitation improvement, solid waste management, plantation and management of mangrove and ecotourism promotion. Most the project outputs are ranked individually as **Moderately Satisfactory**; hence overall the achievement of outputs and activities is evaluated as **Moderately Satisfactory**. Some of the project outcomes are achieved as per planned while others were below target or had shortcoming, hence achievement of outcomes of the project is also rated as **Moderately Satisfactory** and overall project is also rated as **Moderately Satisfactory**.

Outcome 1.1 Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)

Output 1.1.1 Capacity of NECC and FLC Stakeholders enhanced to more effectively plan and implement an integrated lagoon ecosystem management approaches

- Project hosted capacity building trainings on tree planting, mangroves planting, monitoring skills, waste management, and communication at national and local level engaging almost 300 people.
- To build capacity and strengthen water quality control of Fanga'uta Lagoon, the project has completed the set-up of a Water Testing laboratory to monitor the water quality of Fanga'uta lagoon periodically. The Department of Environment, Fisheries, Health and Natural Resources will be responsible for carrying out these periodic water testing which is communicated quarterly to relevant stakeholders to assist with decision-making process. Due to limitation of equipment and human resources, the project could not accomplish target of training community members in water quality testing to prepare communities to be water quality monitors within their community for detecting water hazards within Fanga'uta Lagoon.
- A participatory 3D model workshop conducted involving local and national level stakeholders to determine zoning options and recommendations and to increase knowledge among themselves from the interactions.

Output 1.1.2 Measures delivered to fully engage the Fanga'uta Lagoon Catchment (FLC) communities in lagoon ecosystem management

- Multi-stakeholder mechanism “FLC Management Committee” established and operational. Also sub-committee formed from the project steering committee to assist FLC Management Committee. Similarly, a national level Management Committee is formed with representation of 26 Town Officers, 5 District Officers, 2 Private Sector, 2NGO and 2 line ministries and are operational to provide management support to Fanga'uta Lagoon. These structures are endorsed by the cabinet and also gazetted. Some villagers expressed dissatisfaction in selection process of community management committee members and views that there should be more community representation in the community committee and selection should not be biased.

Outcome 1.2 Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for

Output 1.2.1 FLC IEMP prepared and completed; establishing technical, biophysical, oceanographic, socioeconomic and demographic baselines; updating the EMP completed in 2001 with additional parameters to be established

- Baseline studies were conducted in FL and information used to establish baseline for the FLC IEMP. The EMP is updated with these information and additional parameters. IEMP were endorsed by the Cabinet in May 2017 and also gazetted.

Output 1.2.2 FLC IEMP adopted, mainstreamed and funded

- FLC IEMP endorsed by the Cabinet and funding for 5year action plan of the revised IEMP is also solicited as Environment, Fisheries, Lands, Natural Resources, Forestry and Agriculture departments already included the annual monitoring of the catchment ecological health as part of their sector plans for the next 5years. But the representatives from these institutions mentioned that funding from regular government budget is not sufficient to implement IEMP so they are expecting support from development partners and INGOs.

Output 1.2.3 Multi-stakeholder participatory mechanisms conducted to ensure adaptive management during the preparation, implementation, monitoring and evaluation of FLC IEMP

- A participatory 3D model workshop conducted which determined zoning options and recommendations involving stakeholders from local to national levels. Developed 3D model of Fanga'uta lagoon.
- Multi-stakeholder mechanism “FLC Management Committee” established and operational. Also sub-committee formed from the project steering committee to assist FLC Management Committee. Similarly, Community Management Committees in 26 communities have been established and are operational to provide management support to Fanga'uta Lagoon. These structures are endorsed by the cabinet and also gazetted. There was dissatisfaction among villagers regarding selection of members for Community Management Committees and they expected more representation from the community in such committee and also process of selection should be transparent and unbiased.

The outputs have achieved most of its major targets, and yielded some global environmental benefits, with few shortcomings. These outputs can be presented as “good practice” and is rated as **Satisfactory**. The project has accomplished most of the activities that were required to make Lagoon Environment management sustainable by providing a viable long-term security to livelihoods and local ecology from environmental risks; hence the outcome achievement is rated as **Satisfactory**.

Outcome 2.1 Improved conditions of critical lagoon habitats, productivity, water quality and fish production through the implementation of priority interventions identified in the IEMP

Output 2.1.1 Areas of approximately 80 ha of the lagoon's major coastal habitats (mangroves stands) restored

- Planted almost 20ha of mangroves and rehabilitated about 69ha of mangroves cover through the waste clean-up campaign removing pollution pressure at these coastlines vegetation. But a large area of mangroves were cleared for making a park in Papua and also in Hoi village nursery and plantation was damaged, fence removed and gravel spread for making road. In our interaction, Town officer was found unaware of the incident means monitoring from his level is weak. The mangroves were damaged due to erosion in few places while in several due to pigs.

Output 2.1.2 Mechanisms set up to guarantee participatory fishing area and sustainable fisheries resources management by the FLC communities

- 20% of marine environment designated for sustainable fisheries and conservation in Fanga'uta Lagoon and for this 3 villages (Nukuleka, Lapaha and Holonga) were proposed for community based managed areas for sustainable fisheries. The draft management plans for these selected communities were completed and Special Management Area (SMA) plan has been approved. Two of these were endorsed by the parliament but the one of the Nukuleka village was not endorsed due to conflict between villagers (with neighboring village) and to resolve it further consultation with neighboring communities was in going on. Some members of the community were not happy with the formation

of SMA management committee as they said member selection was biased. Some Town Officers and also community members were not in favor of SMA approach and this indicates that project is not able to convince communities on benefits and management practices of SMA. Moreover, the two SMAs that were approved and endorsed were also not functioning as per plan because due to lack of boat they were not able to monitor and trespassing for fishing was going on.

Output 2.1.3 Eco-tourism awareness to FLC community conducted and local initiatives demonstrated

- Over 295 people from 26 communities (73% women) were trained in eco-tourism training. The project contributed to renovate historical sites and the water springs, fenced the area, planted trees of economic value, developed infrastructure and also provided equipment to maintain the sites. Then Ancient Tonga, Vaini and Capt. Cook Landing sites were identified for eco-tourism activities. In the Vaini site, fence was damaged, gate and sign post were removed by the Town Officer and weeds and garbage were not managed due to conflict between women group and Town Officer. The Ancient Tonga activities was not completed.

Output 2.1.4 Activities based on sustainable land and forest management demonstrated in the FL catchment areas

- Fruit tree plantation (afforestation) carried out in the schools, private land and the coastal line using saplings of fruit trees. However, the afforestation could not meet the target of 50ha and also more than 75% of the saplings of the school afforestation were dead and damage of the saplings in the private and the coastal plantation was also high due to lack of close monitoring and timely technical backup. Most of the saplings purchased from the private nursery died due to high ratio of sand in the polybag and this happened due to weak monitoring by technical person. In few coastal afforestation sites, saplings were also damaged by erosion. No enrichment planting was carried out to address the problem in any of the sites. Planning of the afforestation work was weak and there was no provision of protection of saplings though threats were known and fencing in few sites took place only after request from community (but not based on knowledge of technical expert). This indicates that afforestation work was affected due to poor planning and weak monitoring.
- Training and awareness programs were conducted on agro-forestry, tree cropping and sustainable land management which was participated by 222 men and women and 300 students.

Output 2.1.5 Capacity for Fanga'uta Lagoon water quality control strengthened and on-site activities demonstrated

- To build capacity and strengthen water quality control of Fanga'uta Lagoon, the project has completed the set-up of a Water Testing laboratory to monitor the water quality of Fanga'uta lagoon periodically. The Department of Environment, Fisheries, Health and Natural Resources took responsibility for carrying out these periodic water testing which is communicated quarterly to relevant stakeholders to assist the decision-making process. The project was not able to conduct training for communities to monitor the water quality within their community to detect water hazards within Fanga'uta Lagoon. It was told that the lack of time and money was the cause for not conducting water testing training for communities.

The outcome of Knowledge based land use planning for improving ecosystem services for environment protection and economic development is achieved to some extent and the outcome is rated as Moderately Satisfactory. Similarly, outputs under this outcome have achieved some of its targets, and expected to yield some environmental benefits of local and global value through capacity enhancement and knowledge based planning. The outputs can be presented as “moderate practice”, hence is evaluated as Moderately Satisfactory.

Outcome 3.1 Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon

Output 3.1.1 Awareness programs conducted through the production and dissemination of awareness materials

- Nine different brochures were produced and used in various national level awareness programs. Nine videos of 30mins duration aired on TV, produced 9 mini-video in local language with English subtitles, launched project website under the Dept. of Environment and uploaded 130 news releases, quarterly newsletters produced, the project news updated on project Facebook page which has 1139 followers, Outreach programs to 27 schools engaged more

than 6485 students and staff on waste management and sanitation, produced weekly SMS blast using Digicel services for awareness reminders of better care of environment and good land-base management activities reaching over 22,000 devices, hosted capacity building trainings on tree planting, mangroves planting, monitoring, waste management and communication at the national and the local level engaging 300 people. Despite these activities, awareness has improved but the attitude of the people has not changed and people continued throwing litter everywhere. Even close to garbage bins, litter were thrown on the ground instead of throwing inside the bin. During evaluation mission, evaluator saw very few sign posts and it was told that more than 80 percent of the sign posts were damaged by the cyclone, I was also told that many of them were recovered but not replaced to the place where they belonged. As per proposed activities, Project supposed to evaluate periodically the impact or result and identify gaps and needs. It seems evaluation of impact of awareness program is not conducted otherwise would have changed the approach to make it effective.

- The Project also hosted spaces for the South to South learning between Nauru and Tonga and also involved students from the University of the South Pacific studying mangrove ecosystem and High School students and PhD candidates from the Canterbury University studying ciguatera.

The project was able to achieve the outcome of increasing awareness on ecosystem services of the Fanga'uta Lagoon through production of various promotional materials and disseminating through various means but not able to change attitude hence outcome is rated as **Moderately Satisfactory**. Similarly, the outputs under this outcome have achieved all of the targets, and generated awareness among some of the target population on water management, water quality, health issues, mangrove protection etc. but littering attitude has not changed. The outputs can be presented as "average practice", hence it is evaluated as **Moderately Satisfactory**.

3.3.5 Country Ownership

This project was developed with the lessons from several projects related to sustainable environment management. The project was implemented by the Department of Environment (DoE) of the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC) and executed by UNDP. The project outcomes are expected to bring Tonga a step closer to achieving Sustainable Development Goals: Clean water and Sanitation, Climate Action, Life below water and life on land.

The Government of Tonga, through an AusAid funded project, did a comprehensive study on Fanga'uta Lagoon in the late 1990s which culminated in the adoption of Fanga'uta EMP in 2001. One of the main components of this project is to update this EMP through a participatory approach to engage stakeholders and communities who are residing and using the lagoon catchment area. The participatory approach was used to design and formulate this project document through engaging various stakeholders in the process. A number of consultations were held by means of a workshop, as well as one-to-one meetings with community leaders, government and non-government organisations, politicians and the private sector. With this approach, it is ensured that the participation of the stakeholders and communities are the basis for driving this project to achieve the desirable outputs relevant to the communities. Sustainability and ownership was the core thinking in this process. Involvement of the communities in the planning process to its implementation has given people a sense of ownership and the incentive to drive the project in the direction they feel will be more beneficial to them to improve their standard of living in the medium and long term. In addition, fundamental principles and guidelines from the NBSAP, POWPA, UNCBD, JNAP, other related action plans and legislations aided the development of this document to ensure its coherence and complementary to other plans for a successful implementation of the project.

3.3.6 Mainstreaming

One of the key areas for successful implementation of a project is to have an appropriate and effective public awareness, communication and mainstreaming strategy that will deliver the message to the people in order to achieve the project objectives. This proposed MSP delivered global environmental benefits by supporting the Kingdom of Tonga in the transition towards mainstreaming biodiversity conservation and sustainable use into production landscapes and sectors.

The project promoted cooperative action among agencies concerned, thereby combining sustainable use and conservation with economic development objectives, and fostering joint planning of the sustainable use of the globally and nationally significant lagoon ecosystems. The project contributed in enhancing an enabling environment for integrated landscape management in the Fanga'uta Lagoon and catchment areas while facilitating the adoption of integrated and adaptive management approaches by the government as well as the local communities.

The mainstreaming of integrated environment Management into development planning by the district local government and capacity enhancement by this project is very important for mitigation of risks related to lagoon catchment management. Enhancing knowledge and involving local government and community based institutions in the project implementation has helped to mainstream climate change and disaster management. Development of a knowledge base and information supports evidence based planning. Enhancing knowledge and making community aware of benefits of using information from monitoring and various practises to minimise damage from land degradation contributes to minimising risks and safeguarding livelihoods and is in line with the UNDP Country Program Action Plan (CPAP).

As per project document, the project development process involved analysis of various options of management by utilising scientific knowledge, indigenous knowledge and lessons learned from past projects. The project's efforts were focused on identifying policy gaps and recommending policy needs, development participatory monitoring system to support community decision making and rehabilitation of ecosystem and sustainable ecosystem management practices to prevent deforestation and pollution and enhancing capacity of the local government and community based institutions and networking with like-minded national, regional and international institutions for fostering mainstreaming of IEM in development planning and implementation. The IEM approach to address land and water degradation and environment risk was relevant as people had a clear vested interest due to the direct contribution to their livelihoods.

The fundamental principle of the project was to address policy gaps, enhance knowledge of planners and the local communities and establish knowledge base and mainstreaming land management into the development planning. For effective management of multi-use areas, the environment issues will be mainstreamed to contribute to conservation and sustainable development into the national strategic development plans, institutional operational plans, and reflected in the community development plans.

3.3.7 Sustainability

The project results are likely to be sustainable beyond the project life. As will be seen below, the sustainability at the project level is actually very strong.

Financial: The outlook for the long-term financial sustainability of the project appears good but it is connected to the interest of the local government and the national government. MEIDECC mentioned that they are committed to continue their support to these project activities. Similarly, the local government also mentioned that they will continue their support and will utilise information in planning exercises to help mitigate risks to the lagoon and its catchment areas. There are several other projects being implemented in these areas which will be utilising the community groups formed by this project to implement their activities so this will directly or indirectly support the continuation of some of the project activities. Similarly, all line ministries provisioned activities to support IEM of lagoon and also allocated budget for the coming five years. These also assure financial sustainability at project site level. The Department of Environment is planning to develop proposal for second phase of this project. Financial sustainability is therefore Likely.

Socio-economic: The social sustainability of the project appears very promising in case of mangrove, afforestation of other trees and the coastal protection. The awareness-raising activities have certainly been beneficial and undoubtedly changed people's minds at the community level but it is still lacking in action as littering is still ongoing and no expected behavioural change occurred. There is need of more campaign and use of alternative tools to change behaviour of the people. But the project has created a supportive environment and as a result enjoys a very wide support base which is being used to help in replicating the approach in other vulnerable areas. As a result, the socio-economic sustainability is adjudged to be Moderately Likely.

Institutional and Governance: The institutional sustainability of the project is good. Those agencies directly involved appear strongly committed towards its aims and the impacts that it has had. Clearly, the decision to route all activities directly through the local government institutions and the local communities has paid dividends in this respect, and the local government officials at the pilot sites are not only extremely supportive of what has been accomplished but are also strong advocates of its activities. Implementation of community monitoring system for supporting communities from various occupation in decision making and practicing of evidence based development planning and enhanced capacity of the local communities and the local government will also assure sustainability of the project outcomes. Moreover, government authorities are sensitised on ecosystem management issues so they may prioritise future outputs of this project. Therefore, the institutional sustainability is ranked as Likely.

Environmental: Environment sustainability is one of the important elements of the project strategy. The project achievements will directly reduce vulnerability of lagoon ecosystem, life and property of the communities living around it and also ecological resources of the Fanga'uta Lagoon Catchment areas. The capacity development, policy formulation and evidence based planning to mainstream IEM and climate change will make project outcomes sustainable. Moreover, involvement of local communities and community based organisations assures adaptation to land and water degradation and makes the project achievements sustainable. Possible precautions are taken to safeguard the ecosystem degradation and pollution problem through increasing green coverage (though target was not met), improved agriculture practices, controlling erosion and the waste management. Similarly, creation of woodlots will help to create carbon sinks and improved use of ecosystem services will improve livelihood of people and decrease pressure on the forest and sea. These will address potential environmental risks so there is less possibility of environmental risks associated with the sustainability of this project, hence the environmental sustainability is deemed to be Likely.

The overall sustainability of the regional component is ranked as **Likely**.

3.3.8 Catalytic Role and Replication

Discussion of replication in relation to the R2R Project has to be undertaken at two levels – the macro-level of replicating it as a national-scale project to cover a wide area, and the micro-level with regard to replication at site-based interventions. Belief on success developed on IEM due to enthusiasm generated among the community and at the government level in controlling pollution, deforestation and other environmental issues of the vulnerable sites has indicated that the approach can work in Tonga and could be replicated in broad area including all other vulnerable parts of the country. The integrated nature of the policy-level mainstreaming, awareness generation on IEM and land and water degradation, arrangement of knowledge base to inform policy makers and development planners and facilitate evidence-based planning, capacity building of government agencies, promotion of increased enforcement, research and monitoring provide a solid model of success and that it may influence future project design in the country.

At the micro-level, the project's performance was good in some activities while lessons learned to improve in others. Most outputs of the project fall under the middle two levels of catalytic role, i.e. demonstration and replication. It also creates environment for economic development in these areas. Creation of environment for economic development will also provide incentives for mainstreaming IEM into National Development Plans.

Lessons learned with up-scaling needs to be replicated in other vulnerable areas within the Fanga'uta Lagoon involving more communities. The project contributed to development of manuals, policy documents and trained local government staffs and community members. These will help to strengthen IEM efforts and also make replication easier.

Government agencies, the local government institutions and the community based organisations and the local communities expressed interest to replicate lessons learnt from this project in wide areas.

Besides Tonga, the learning from this project could be useful for other countries with similar problems. Hence for the benefit of the projects and for replication in other areas, the project disseminated lessons learned to a wide audience through various means like report distribution, information sharing through different networks, participated in regional

and global meeting to share this project works, hosted site visits for personalities from different organisations, shared with other GEF and UNDP projects and other institutions.

The project conducted meetings and workshops with government officials and other stakeholders. Similarly, exposure visits were conducted for the line departments and the stakeholder representatives. The awareness generation among line department, government agencies and other stakeholders will play a catalytic role to replicate lessons in other vulnerable areas. In addition, GoT and UNDP is interested to develop second phase project to replicate lessons addressing shortcomings, especially to support issues of the lagoon and its catchment areas. The project is also developing an exit strategy.

3.3.9 Ratings

104. As per UNDP guidelines, the TE ratings are consolidated in Table 9 below.

Table 11: Terminal Evaluation's Rating Project Performance

Criterion	Comments	Rating
Monitoring and Evaluation		
Overall quality of M&E	The design of M&E was up to standard with a fully itemised and cost plan included in the Project Document covering all the various M&E steps including the allocation of responsibilities. But the monitoring and feedback mechanism on technical aspects was weak at the ground.	Satisfactory
M&E design at project start up	The design of M&E was up to standard with a fully itemised and cost plan included in the Project Document covering all the various M&E steps including the allocation of responsibilities	Highly Satisfactory
M&E Implementation Plan	M&E implementation was satisfactory in case of internal monitoring while monitoring of progress and impact was weak. Weak progress monitoring affected adaptive management with impact on decisions making.	Moderately Satisfactory
IA & EA Execution:		
Overall Quality of Project Implementation/Execution	The Project implementation was slow at the beginning and was improved from the second year so overall implementation was average which resulted in incomplete implementation of some of the activities. Procurement of staffs and equipment, establishment of implementing team, building cooperation with the partner ministries and other institutions took time which resulted delay in implementation in the beginning. Similarly, technical feedback was weak which caused some damages to output. Due to weak monitoring, issues at the field were not timely address and this has affected the activities and also quality of the results. Lack of feedback from the monitoring also affected adaptive management practice.	Moderately Satisfactory
Implementing Agency Execution	The Department of Environment's integrated team exhibited drive to meet the targets and able to achieve to some extent while some of the targets could not be met and some were still ongoing and not completed due to late initiation. Activities planning and implementation was weak and due to that some of the work was damaged and others are also in risk. Monitoring and technical support to the community was weak and was not available on time to address the problem. Technical staffs of the relevant government institutions mentioned that the weak monitoring was due to limitation of the number of staffs and also mentioned that they are working to increase the number of staff to improve monitoring and technical support for the future. There is room for up scaling activities and also need of technical improvement.	Moderately Satisfactory
Executing Agency Execution	The MEIDECC the executing agency linked very well with other relevant government institutions & UNDP; and was very actively involved in project guidance especially at the project steering Committee level and provided some level of supervision and backstopping to the Project. But there were some weaknesses in identifying constraints and providing technical feedbacks for addressing issues faced at the field level and also procurement was very slow which affected the project implementation.	Moderately Satisfactory
Outcomes		

Overall Quality of Project Outcomes	Overall quality is of the average order (for those that were complete).	Moderately Satisfactory
Relevance	The project intervenes to conserve globally important biodiversity rich area i.e. lagoon and catchment, is congruent with GEF and national priorities, and remains pertinent in light of the current levels of threats.	Relevant
Effectiveness	A review of outcomes to impacts (ROtI) shows the overall likelihood of impacts being achieved is Likely.	Likely
Cost-effectiveness (Efficiency)	Project management costs were not higher (if only GEF contribution is considered) than the allocated budget and if co-financing is also considered then it becomes higher. The expected outcomes were not completely achieved by the time of terminal evaluation. Similarly, activities implementation was slow in the beginning due to procurement, team set-up and coordination arrangement etc. and due to that some activities were delayed, some only partially done and some were found not functioning well (e.g. SMA and Eco-tourism) so efficiency was weak. Technical support also affected efficiency and even in some cases gap in communication was observed between technical staff and project manager. Besides, towards the end of the project, cyclone also affected program implementation.	Moderately Satisfactory
Sustainability:		
Overall likelihood of risks to Sustainability	There are some risks but since stakeholders are aware, strengthened and committed it is assumed that these risks will not take place or could be handled.	Likely
Financial resources	Good – Central government, local government and community based groups showed long-term commitment to the area and there is evidence of considerable technical, policy and some financial commitments from the government.	Likely
Socio-economic	Moderate – beneficiaries showed increased awareness but behaviour is not much changed in waste management and other pollution related activities.	Moderately Likely
Institutional framework and governance	Institutionally good through strengthened capacity and support from senior staff in the government both at local and central levels. Community institution and local government strengthened.	Likely
Environmental	The project itself is designed to address environmental risks and other than unpredictable ones there are no evident risks. Some risks related to climate change exist but that is beyond control of project. The project had activities to address coastal protection, increase green coverage, sanitation and waste management and erosion control.	Likely
Impact:		
Environmental Status Improvement	Improved lagoon and catchment management; generation of information on water quality, sedimentation, erosion, mangrove and other vegetation coverage and sustainable agricultural practices and development of knowledge base and enhancing of capacity of government and other agencies for evidence based planning was satisfactory. Similarly, policy recommendation on Ecosystem conservation and development of SMA plans selected areas of the lagoon will support long term management of lagoon environment. But target of vegetation coverage and eco-tourism was not met, so the desired level in environmental status was not improved.	Average

Environmental Stress Reduction	Construction of physical structures like wall construction in the coastal line, and afforestation along with physical structure development in eco-tourism sites and sanitation program will help to control erosion and pollution and capacity enhancement of local government and community based organisations reduces environmental stress. Similarly, mangrove plantation, plantation of other fruit trees in coast line and private land close to lagoon and cleaning of mangrove and surrounding areas, sanitation programs will decrease pressure on lagoon environment. Moreover, awareness generation on local communities and at government level also creates an environment for proper management of land degradation and maintain ecological benefits of lagoon. But the project was not able to meet the target and some of the activities were either facing problem due to conflict of damage by development activities and due to these, the project was able to reduce stress only to some extent.	Average
Progress towards stress/status change	Average – construction of walls along coast line, Afforestation of mangrove and other trees species, distribution of water tank and garbage bins helps to address environmental stress while water quality and sedimentation study helps to understand to problem situation for addressing them. But green coverage could not attain the target, mangroves destroyed in two places due to human activities while in some due to natural reason like erosion. Hence, project could not meet the target, so expected level of stress and status change was not made within the project life but may show in the future.	Minimal
Overall Project Results		Moderately Satisfactory

4. Conclusion, Recommendation & Lessons Learned

4.1 Conclusion

The project was able to accomplish several activities and the remaining ones (boats, one SMA, financial arrangement for IEMP implementation, Ancient Tonga eco-tourism activities etc.) have been initiated and will contribute towards meeting the targets with follow up and support from the implementing and executing agencies. To address the IEM related problems, the project intervened in five main areas: review and improvement of policies, awareness generation, infrastructure development, afforestation in degraded/eroded coastal and watershed areas, biodiversity conservation, improvement of fishing practices and household income generation. The policy development approaches included revision of policies and plans to incorporate IEM issues. Similarly, District level Land Management plans were developed to mainstream IEM. Likewise, policy recommendations were made for IRM and sustainable ecosystem services. Project established Committees (Multi-stakeholders committee at national level, sub-committee formed by steering committee and community communities in 26 communities) to guide updating of EMP and also to implement IEMP. To encourage evidence based planning, the project conducted studies and generated knowledge on biophysical and socio-economic aspects and made these available to the local and national government officials. Infrastructures facilities like water tank, compost toilet, infra-structures for eco-tourism sites, water quality monitoring station and stone walls along the coast line to control erosion were completed. Without addressing livelihoods of the people it is not possible to address environment issues as poverty is one of the root causes. Hence, the project trained communities in ecotourism, sustainable fisheries, agro-forestry (fruit trees) and handicraft promotion etc. which provided the dual benefit of improving household economy while also supporting environment protection. Provision of water tanks for communities helped to store water from rain water harvest and sanitation programs like toilet and garbage bin distribution helped to address water stress and waste and sanitation management. To reach a large audience, the information generated by the project was uploaded in websites of the implementing Ministry and UNDP and also networking with like-minded institutions within the country. Awareness

trainings, radio, television programs, brochure distribution, poster and campaign programs also helped to make large audience aware on the project activities and understand the environmental issues. Similarly, exchange visits for policy makers and also communities and participation by the project staffs in international seminars also helped to share outcomes of the project.

For sustainable fisheries, project arranged monitoring of lagoon at national level by marine team. Similarly for community based management it established Special Management Area (SMA) in three places (Nukuleka, Lapaha and Holonga) through community group/committee but due to conflict between communities the Nukuleka one was not accomplished. Planning of SMA program was unable to realise the need of boat for monitoring by community members so was not provisioned in the program but latter on request from communities it was ordered but without motor and also boats were not arrived by the time of TE. Similarly, target of increasing green coverage was not completed and survival rate of seedlings in reforestation (mangrove, coastal, school/private afforestation) activates was very low. Poor monitoring and planning had affected afforestation and survival rate of the samplings. Mangrove plantation program was carried out involving youth groups. This encourage them in conservation and environment improvement activities and also enhance their knowledge. Planning of afforestation lacked minimum protection arrangements and monitoring and fencing in some areas took place only latter after request from the communities while in others it was lacking and in some of these areas saplings were damaged either by pigs or due to erosion or due to poor quality of saplings. The Project conducted various programs and clean-up campaigns to generate awareness. Understanding on pollution and sanitation was generated among community members through different awareness programs but it was not manifested in action as still rubbish were disposed on the ground of historical sites, mangrove habitat, coastal line and roadside. Even in the areas where rubbish bins were placed, rubbish were thrown outside the bin. Moreover, the delay in initiation of procurement for hiring staffs and equipment caused limitation of time which also limited the achievement of activities. Project Manager was efficient but weak monitoring by the technical staffs and gap in technical feedback affected project performance. But despite these difficulties, the project has managed to deliver a series of interventions that have reduced the environmental threats to some extent. This has partly been achieved through generation of awareness from local to the national level, mainstreaming IEM in development planning through developing IEM plans, creating a knowledge base and facilitating access to it, as well as construction of physical structures to combat soil erosion, pollution and deforestation. Though the project has been underpinned by good science, a technical back up was weak and there is still room for further technical improvement. One of the important achievement of this project is that it has enhanced capacity to incorporate ground information related to lagoon water, socio-economic condition, environmental threats and management approach into the development planning process of the local government in the pilot areas; and improved environmental awareness and raised concerns about environmental risk and ecosystem services at the local communities and government.

To make the outcomes and interventions sustainable, the project formed community groups and trained them to use various technologies. The community members were made aware of the benefits of practicing sustainable harvest of ecosystem services, managing wastes and other sources of pollution, managing nurseries for afforestation activities and monitoring water, soil and biodiversity. The project tested participatory planning and implementation approaches. Since these approaches showed some positive impacts, the lessons learned from this should be replicated in other areas of the lagoon.

4.2 Recommendations

Corrective actions for the design, implementation, monitoring and evaluation of the project

- I. Program planning and implementation was technically very weak. In the project document threat of pig was identified but afforestation program didn't make arrangement to address the threat and no provision of fencing included in the program but only done in few places after request from the communities. It is recommended to fence plantation area to protect saplings from the pig and also make arrangement to protect saplings from erosion.
- II. Afforestation in private land was carried out without any proper agreement with the land owner in paper but only based on verbal understanding. In Hoi village land owner stepped back from the understanding and destroyed

nursery and mangrove afforestation and also removed fence. The money wasted in this area could otherwise use for another site. Agreement papers should be made for all project afforestation sites which were carried out in private land. Future project should not repeat such mistake.

- III. This project had limitation due to budget and also activities planning was weak. The activities planning was not able to realise importance of regular monitoring in SMA, hence no boats for monitoring were provisioned. Only after request from the community two boats were ordered but again without motor. Hence future program should do sufficient homework to develop details of each activities so that no gap will remain and sufficient budget is allocated. Similarly, procurement of staff and equipment should be done immediately following the inception workshop or immediately after development of annual work plans. This will help to initiate activities on time and work will not be hampered.
- IV. Communication within project team and also with stakeholders need to be improved and strengthened. In this project, mangrove expert planned additional plantation and clean-up activities without consultation with Project Manager and due to that money was not allocated for payment of the additional mangrove plantation. Such mistake could build mistrust and could affect future programs also.

Actions to follow up or reinforce initial benefits from the project

- V. Enrichment afforestation should be carried out to replace the dead saplings. Similarly, fencing should be done to protect saplings from pigs. Regular technical backup should be provided by respective departments so outcome of this project will not suffer due to limitation of technical assistance. Monitoring of plantation and other activities should be done regularly so that problems could be address in early stage and stop big damage.
- VI. It is learned that selection of members of SMA management committee and other community groups was not transparent and biased. Such could cultivate conflict between community members and will also harm future of the outcomes of the project. Hence, such issues should be resolved by calling general meeting involving all community members and resolve the problem either discussing acerbities among them or re-elect members democratically.
- VII. Marine monitoring has covered only physical aspect of water quality (salinity, temperature, and acidity/alkalinity) and biodiversity but population study of species is not carried out. Hence population study of biodiversity should be carried out regularly because this information is very important to decide protection need for any specific species or plan sustainable harvest.
- VIII. Though it was in the plan, water testing training to communities was not conducted. Training for communities on water testing should be organised and testing kits should be provided to them and arrange for sharing findings with the respective institutions of the government.

Proposals for future directions underlying main objectives

- IX. Quota system in fishing in SMA curtail people's unlimited access that they enjoyed in the past and curtailing may affect their livelihood as many of their household economy is dependent on fishing. It is also learned that people from other areas are fishing in SMA and surroundings areas. It is also learned that people destroyed rope placed to demarcate boarders of SMA. Since SMA designation is not based on home-range study of fish and sea animals, fish from SMA will move outside its boundary (as area is not so big) and communities from neighbouring areas or from other side of the lagoon could enjoy fishing protected fish. This could bring dissatisfaction among those restricted communities. To avoid conflict, it is recommended to expand SMA (area) and also include all communities of the lagoon so that everyone from lagoon will have equal fishing access. SMA will not succeed without support from all inhabitants from lagoon and to attract them in the program and generate their support, project should develop programs to provide alternative livelihood. To make sustainable fishing only designing SMA is not sufficient but also need to maintain lagoon ecosystem and for that it is necessary to facilitate recharging of biodiversity of lagoon from the sea. The movement of large fish and sea animals at present is obstructed due to heavy sedimentation near Nukunukumotu-Nukuleka area. Hence, sediments should be removed to maintain depth of up to 3-4m so that fish and other sea animals could easily visit lagoon. SMA programs were initiated in Tonga since 2006 and by 2015 already

11 SMA was established. Lessons from there should be utilised to improve the SMA activities but while doing that settlement pattern and practices of fishing in Fannga'uta lagoon need to be considered as there are differences between this lagoon with other islands.

- X. Energy is one of the reason for deforestation, future project design should consider use of biogas production and solar energy use.
- XI. It is recommended to upscale and replicate lessons learned from this project by GoT, UNDP and other agencies involved in this project. This project has piloted community-based management approaches of the Lagoon and catchment area and have generated a lot of practical knowledge. Still large area of lagoon needs activities to maintain lagoon's ecological functions and services. Hence, second phase should be developed to cover all areas of lagoon and activities planning should include all necessary components of each activities. Besides, monitoring from the implementing agency, executing agency should also arrange monitoring from its side to provide regular technical back-up.
- XII. As communities' economy is not so strong, it is difficult for them to maintain livelihood expenses when their source of income i.e. fishing is curtailed or limited through programs like SMA. Similarly, when people have to devote more time in conservation and protection activities it will affect their livelihood. Hence, project should include alternative livelihood program to encourage them in biodiversity and ecosystem function conservation.

4.3 Lessons Learned

Best and worst practices in addressing issues relating to Relevance, Performance and Success

Lessons learned are arranged under project-related headings. Further discussions and key points for future projects have been added in this section. Some of the lessons learned listed below have arisen from discussions with persons interviewed during the evaluation and the team thank them for their insights.

Strategic

- Community organisations lack scientific knowledge and are ill-equipped for handling such projects so support to enhance their knowledge and strengthen their capacity will help to encourage them to continue in adapting risk of climate change and thereby facilitate a cooperative approach for reducing damage from risks to ecosystem function. Moreover, Local adaptation knowledge is easily adapted by the rural communities. Local knowledge should be promoted together with scientific knowledge to respond to local situation as they are more easily adapted by the rural communities. Local communities were good in identifying signs of deforestation, land degradation, effect to ecosystem function and proposing suitable and feasible mitigation measures.
- The community exchange visits promoted community to community learning and technology transfer from one community to another. This is the best way for transferring technology to farmers as farmers could explain by simplifying the technical terms more appropriately to another farmer making learning more effective.

Design

- Working directly through existing government structures brings dividends
- The project chose to work directly with the Ministry of Land, Environment, Climate Change and Natural Resources (MEIDEC), other line ministries and local government, rather than setting up parallel implementation structures. This decision has proved very successful not only in empowering government by providing experience and training, but also in developing effective government "ownership", engagement, participation and motivation, thereby promoting long-term sustainability of the project's achievements.
- Designing a project linking various institutions from grassroots level institutions, government agencies, local authorities and communities generates huge benefits for sustainability, and through the synergies developed provides the intervention with much greater effectiveness than that which can be achieved by stand-alone projects.
- Community participation in the project design, formulation of implementation modality, implementation and monitoring is very important. This will help to implement projects effectively and also make activities sustainable. In this project, the inclusion of local communities SMA was weak and due to that implementation is weak and still conflict exists.

- Local communities understand impact of damage of vegetation of the coastal and catchment areas but due to lack of livelihood alternatives they are forced to continue unsustainable practices so if project designs consider alternatives for betterment of livelihood by improving their practices then locals will cooperate.

Project Management

- *Constant contacts with communities are vital to community-based ecosystem management projects.* Good communication and regular technical backups to project activities with the communities helps to promote successful, community-based projects as they built trust and motivation of the targeted local communities. To achieve this, the quality and commitment of those employed at the sites are key attributes of a project. This project has suffered from gap in technical feedback from technical staff of the project office and from other partner organisations. Moreover, gap in technical feedback and consultation affected mangrove plantation and relation with the youth groups.
- *High participation of women in groups and forming women's groups will assure more success.*
- Women were found more serious in R2R activities. It was observed that the groups with more women and women groups were more efficient in implementation and functioning and able to generate expected results. This also helped to generate leadership and develop decision making authority among them and also increased income through income generating activities improving their livelihoods.

Annex 1- Terms of Reference

TERMINAL EVALUATION TERMS OF REFERENCE

INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the *Integrated Environmental Management of the Fanga'uta Lagoon Catchment (Tonga R2R)* (PIMS 5219)

The essentials of the project to be evaluated are as follows: (*fully complete the table below*).

PROJECT SUMMARY TABLE

Project Title:	Integrated Environmental Management of the Fanga'uta Lagoon Catchment			
GEF Project ID:	5219		<i>at endorsement (Million US\$)</i>	<i>at completion (Million US\$)</i>
UNDP Project ID:	00088096	GEF financing:	\$1,756,880	1,756,880
Country:	Tonga	IA/EA own:	\$500,000	
Region:	Asia and the Pacific	Government:	\$650,000	
Focal Area:	Biodiversity, Land Degradation and Integrated Water	Other:	\$5,500,000	
FA Objectives, (OP/SP):		Total co-financing:	6,650,000	
Executing Agency:	UNDP	Total Project Cost:	8,406,880	
Other Partners involved: MEIDECC, MLNRS, MAFFF, MIA,		ProDoc Signature (date project began): (Operational) Closing Date:	04 September 2014 Proposed: March 2018	Actual: March 2018

OBJECTIVE AND SCOPE

The project was designed to conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach to protect livelihoods, improve food production and enhance climate resilience. To achieve this objective, intervention have been implemented at two interconnected levels; national and site level which are: helping address critical gaps in environmental and ecosystem service conservation in the Fanga'uta Lagoon catchment through the establishment of an effective governance system and sustainable management of the lagoon ecosystem (component 1); creating an integrate an environmental management approach to help improve conditions of critical habitats productivity, water quality and fisheries in the lagoon catchment (component 2); and strengthening knowledge and awareness of the Fanga'uta Lagoon ecosystem functions and associated socio-economic benefit with national stakeholders and local communities (component 3). The focus of creating an enabling environment for governance (under component 1) is to ensure that an effective governance structure and function is in place. In doing so, a

committee will be established to ensure that Fanga'uta Lagoon is managed in an integrated manner. The implementation of an integrated environmental management plan for Fanga'uta Lagoon (under component 2) is to assist in the improvement of the IFC IEPM to reduce pressure to the lagoon's ecosystem and their services while enhancing the livelihood of local communities. The strengthening of knowledge and awareness is to improve communication and education of the FLC communities on IEPM and ecosystem services for promoting sustainable development in the lagoon catchment.

The TE will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects. It will cover the entire programme under this project. The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

EVALUATION APPROACH AND METHOD

An overall approach and method¹ for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact**, as defined and explained in the [UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects](#). A set of questions covering each of these criteria have been drafted and are included with this TOR (*fill in Annex C*) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.

The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is expected to conduct a field mission to Tonga, including the following project sites within the vicinity of Fanga'uta Lagoon. Interviews will be held with the following organizations and individuals at a minimum: (Ministry of Fisheries; Department of Forestry from Ministry of Agriculture, Food and Forestry; Ministry of International Affairs (Local Governance Department), MEIDECC – Department of Environment; Department of Geology/Natural Resources from Ministry of Lands, Natural Resources and Survey).

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in [Annex B](#) of this Terms of Reference.

EVALUATION CRITERIA & RATINGS

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see [Annex A](#)), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact**. Ratings must be provided on the

¹ For additional information on methods, see the [Handbook on Planning, Monitoring and Evaluating for Development Results](#), Chapter 7, pg. 163 following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in [Annex D](#).

Evaluation Ratings:			
1. Monitoring and Evaluation	<i>rating</i>	2. IA& EA Execution	<i>rating</i>
M&E design at entry		Quality of UNDP Implementation	
M&E Plan Implementation		Quality of Execution - Executing Agency	
Overall quality of M&E		Overall quality of Implementation / Execution	
3. Assessment of Outcomes	<i>rating</i>	4. Sustainability	<i>rating</i>
Relevance		Financial resources:	
Effectiveness		Socio-political:	
Efficiency		Institutional framework and governance:	
Overall Project Outcome Rating		Environmental:	
		Overall likelihood of sustainability:	

PROJECT FINANCE / COFINANCE

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co-financing (type/source)	UNDP own financing (mill. US\$)		Government (mill. US\$)		Partner Agency (mill. US\$)		Total (mill. US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Actual	Actual
Grants								
Loans/Concessions								
• In-kind support								
• Other								
Totals								

MAINSTREAMING

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

IMPACT

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.²

² A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF Evaluation Office: [ROTI Handbook 2009](#)

CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of **conclusions, recommendations** and **lessons**. Conclusions should build on findings and be based in evidence. Recommendations should be prioritized, specific, relevant, and targeted, with suggested implementers of the recommendations. Lessons should have wider applicability to other initiatives across the region, the area of intervention, and for the future.

IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in Suva, Fiji. The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

EVALUATION TIMEFRAME

The total duration of the evaluation will be 30 days over a period of 7 weeks according to the following plan:

Activity	Timing	Completion Date
Preparation	4 days	<i>8 August 2018</i>
Evaluation Mission	15 days	<i>23 March 2018</i>
Draft Evaluation Report	9 days	<i>9 April 2018</i>
Final Report	2 days	<i>18 April 2018</i>

EVALUATION DELIVERABLES

The evaluation team is expected to deliver the following:

Deliverable	Content	Timing	Responsibilities
Inception Report	Evaluator provides clarifications on timing and method	No later than 2 weeks before the evaluation mission (8 August)	Evaluator submits to UNDP CO
Presentation	Initial Findings	End of evaluation mission (21 March 2018)	To project management, UNDP CO and Board Members
Draft Final Report	Full report, (per annexed template) with annexes	Within 3 weeks of the evaluation mission (9 April 2018)	Sent to CO, reviewed by RTA, PCU, GEF OFPs.
Final Report*	Revised report	Within 1 week of receiving UNDP comments on draft (18 April 2018)	Sent to CO for uploading to UNDP ERC.

*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

TEAM COMPOSITION

The evaluation team will be composed of 1 international evaluator. The consultants shall have prior experience in evaluating similar projects. Experience with GEF financed projects is an advantage. The international consultant will work with the local consultant to finalize the report. Roles and responsibilities of the consultant will need to be discussed and agreed amongst the team members. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

EVALUATOR ETHICS

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the [UNEG 'Ethical Guidelines for Evaluations'](#)

PAYMENT MODALITIES AND SPECIFICATIONS

%	Milestone
20%	At contract signing
30%	Following submission and approval of the final draft terminal evaluation report
50%	Following submission and approval (UNDP-CO and UNDP RTA) of the final terminal evaluation report

ANNEX A: PROJECT LOGICAL FRAMEWORK

TABLE 1: Project Indicators and End-of-Project Targets

Indicator	End-of-Project Target
At Objective Level	
Status of completion and implementation of the FLC IEMP Plan	FLC IEMP has been formulated by Year 2, accepted and implemented in Year 3 to recognize and promote the conservation and adaptive management of the ecosystem services of the Fanga'uta Lagoon and its catchment
Tracking Tool BD 1: Improved management effectiveness of existing and new protected area	About 80 hectares of mangroves and other biodiversity resources in the FL protected areas conserved and managed mainly for the sustainable use of natural ecosystems
Tracking Tool BD 2: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation	Around 50 hectares of FLC area of production systems with increased vegetation cover
Tracking Tool LD 1: Sustained flow of services in agro-ecosystems	Application of enhanced capacity demonstrated (i.e., FLC IEMP, inter-agency governing body, awareness and communication strategy)
Tracking Tool LD 3: Integrated landscape management practices adopted by local communities	At least 5 of FLC awareness and communication materials produced and disseminated A knowledge management website created & maintained
Tracking Tool IWs 3: IW portfolio capacity and performance enhanced from active learning/KM/ experience sharing	Water quality improved through small demonstrations and monitoring mechanisms in place for project related indicators
At Outcome Level	

1.1. Functional enabling environments for conservation and integrated management of the Fanga'uta Lagoon Catchment (FLC)	Creation of a nationally recognized FLC Management Committee by Year 1 By Year 3 the feasibility of conversion of a FLC Management Committee into a National Interagency Council with a statutory mandate has been assessed and implemented as appropriate
1.2 Amendments to the environmental management plan of the Fanga'uta Lagoon Catchment	By mid-term, the existing EMP FLS has been updated incorporating IEM concepts and adaptive management approaches. By Year 3, updates/amendments to EMP FLS have been approved and adopted By the end of the project, the concerned authorities will institutionalize integrated ecosystem management and conservation objective for the FLC within the national development system.
Indicator	End-of-Project Target
2. Decline in negative development pressure on surrounding habitats and ecosystem services in the Fanga'uta Lagoon	By project end, key habitats (mangroves) and ecosystem services in FLC improved compared to baseline level
3. Number of awareness and communication materials produced and disseminated concerning the ecosystem services of the Fanga'uta Lagoon	Production of around 5 awareness and communication materials in various formats, which have been disseminated in relevant Agencies/ institutions (expanded NECCC sitting as Catchment Committee) as well as in all lagoon villages and nearby urban center of Nuku'alofa

TABLE 2:STRATEGIC RESULTS FRAMEWORK

LIST OF OUTPUTS PER OUTCOME AS PART OF THE SRF

Project's Development Goal: To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.	
Project's Immediate Objective: To conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience.	
Outcomes:	Outputs:
Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)	<ul style="list-style-type: none"> • Capacity of NECC and FLC Stakeholders enhanced to more effectively plan and implement an integrated lagoon ecosystem management approaches • Measures delivered to fully engage the Fanga'uta Lagoon Catchment (FLC) communities in lagoon ecosystem management

Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for	<ul style="list-style-type: none"> • FLC IEMP prepared and completed; establishing technical, biophysical, oceanographic, socioeconomic and demographic baselines; updating the EMP completed in 2001 with additional parameters to be established • FLC IEMP adopted, mainstreamed and funded • Multi-stakeholder participatory mechanisms conducted to ensure adaptive management through monitoring and evaluation of FLC IEMP development and interventions
Improved conditions of critical lagoon habitats, productivity, water quality and fish production through the implementation of priority interventions identified in the IEMP	<ul style="list-style-type: none"> • Areas of approximately 50 ha of the lagoon's major coastal habitats (mangroves stands) restored • Mechanisms set up to guarantee participatory fishing area and sustainable fisheries resources management by the FLC communities • Eco-tourism awareness to FLC community conducted and local
	initiatives demonstrated <ul style="list-style-type: none"> • Activities based on sustainable land and forest management demonstrated in the catchment areas • Capacity for Fanga'uta Lagoon water quality control strengthened and on-site activities demonstrated
Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon	<ul style="list-style-type: none"> • Awareness programs conducted through the production and distribution of awareness materials

TABLE 3: INDICATOR FRAMEWORK AS PART OF THE SRF

Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		

<p>Objective: To conserve the ecosystem services of the Fanga'uta Lagoon and Catchment (FLC) through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience</p>	<p>Status of completion and implementation of the FLC IEM Plan</p>	<p>The Fanga'uta Lagoon and Catchment faces two major barriers for its conservation and sustainable management at present: i) degradation of ecosystem services and ii) acquiring new approach, method, knowledge and tool.</p>	<p>FLC IEMP has been formulated by Year 2, accepted and implemented in Year 3, to recognize and promote the conservation and adaptive management of the ecosystem services of the FLC</p>	<p>Existence of a functional lagoon management authoritative body and meeting reports Government publications and communication materials from Outcome 3 Project Reports and publications</p>	<p>The Tonga Government is willing to designate, support, and promote IEM and ecosystem services concepts within FLC. MEECCDMMIC is prepared to undertake efforts to coordinate and enhance its support to conserve and manage the ecosystems of FLC. Collaboration among concerned government agencies and other stakeholders is achieved in order to create a national policy environment conducive for</p>
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Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
					integrated management of FLC.
	Tracking Tool BD 1: Improved management effectiveness of existing and new protected area	The Fanga'uta Lagoon marine reserve and catchment covers 2,835 ha of water and 8,000 ha of land having significant agricultural, coastal biodiversity, and other ecosystem services value	About 80 hectares of mangroves and other biodiversity resources in the FLC protected areas conserved and managed mainly for the sustainable use of natural ecosystems	Reports from project annual M&E activities GEF BD Tracking Tool reports	There is effective involvement of all institutions and stakeholders who have a role to act in conserving and sustainable use of lagoon biodiversity and ecosystem services.
	Tracking Tool BD 2: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation		10,800 hectares of the FLC landscape / seascape directly or indirectly contribute to biodiversity conservation or sustainable use of its ecosystem services		
	Tracking Tool LD 1: Sustained flow of services in agro-ecosystems	The Fanga'uta Lagoon has been facing pressures on agro-ecosystems and natural resources from competing land uses in the wider landscape.	50 hectares of FLC area of production systems with increased vegetation cover	Reports from project annual M&E activities GEF LD Tracking Tool reports	Continued political commitment at the national and local levels in incorporating SLM into development plans and practices

Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
	Tracking Tool LD 3: Integrated landscape management practices adopted by local	practices are currently	Application of enhanced capacity demonstrated (i.e., FLC IEMP, inter-agency governing body, awareness		

	communities implemented in the lagoon catchment areas.	and communication strategy) Production of a series of FLC awareness and communication materials produced and disseminated A project website or webpage created & maintained							
	Tracking Tool IWs 3: IW portfolio capacity and performance enhanced from active learning/KM/ experience sharing	Limited local capacity exists for overseeing and monitoring of water quality in the lagoon	Water quality improved through small demonstrations and monitoring mechanisms in place for project related indicators	Reports from project annual M&E activities GEF TWs Tracking Tool reports					
Project Components/Outputs:									
Component 1: Appropriate Governance of Fanga'uta Lagoon Catchment Areas and Integrated Management of Lagoon Ecosystems									
Outcome 1.1 Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)									
Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions				
	Indicator	Baseline	Target						
Output 2.1.2	Mechanisms set up to guarantee participatory fishing area and sustainable fisheries resources management by the FLC communities								
Output 2.1.3	Eco-tourism awareness to FLC community conducted and local initiatives demonstrated								
Output 2.1.4	Activities based on sustainable land and forest management demonstrated in the FL catchment areas								
Output 2.1.5	Capacity for Fanga'uta Lagoon water quality control strengthened and on-site activities demonstrated								
Component 3: Knowledge Management									
Outcome 3.1 Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon									
Output 3.1.1	Awareness programs conducted through the production and dissemination of awareness materials								

Outcome 1.1: Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)	Functional enabling environments for conservation and integrated management of the Fanga'uta Lagoon Catchment (FLC)	Integrated multi-stakeholder mechanism is not established to the existing FLC management.	Creation of a nationally recognized FLC Management Committee by Year 1 By Year 3 the feasibility of conversion of a FLC Management Committee into a National Interagency Council with a statutory mandate has been assessed and implemented as appropriate	Existence of a functional lagoon management authoritative body and meeting reports Project reports and publications	IEM is based on long-term strategic visions and links different policies at different administrative and stakeholder levels to ensure coherency, this carries the risk that its application will be given different interpretation in each of the management systems and may cause conflicts in implementation
Output 1.1.1: Capacity of NECC and FLC Stakeholders enhanced to more effectively plan and implement an integrated lagoon ecosystem management approaches	Status of a multi-stakeholder FLC management authority with dedicated staff and sufficient budget	Department of Environment and Climate Change (DECC) has been designated by the Cabinet to implement the EMP FLS, but no clear provision on financial and other	Concerned departments, ministries, partners and stakeholders have all set up contact points to implement IEM concept for FLC and have adopted ecosystem services consideration in key development policies and	Government reports and interagency communication FLC Management Committee meetings and reports Project reports and	Clearly defined sets of key stakeholders and their engagement Political commitment to designate, support, and promote multi-stakeholder management
Output 1.1.1 Capacity of NECC and FLC Stakeholders enhanced to more effectively plan and implement an integrated lagoon ecosystem management approaches					
Output 1.1.2	Measures delivered to fully engage the Fanga'uta Lagoon Catchment (FLC) communities in lagoon ecosystem management				
Outcome 1.2 Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for					
Output 1.2.1	FLC IEMP prepared and completed; establishing technical, biophysical, oceanographic, socioeconomic and demographic baselines; updating the EMP completed in 2001 with additional parameters to be established				
Output 1.2.2	FLC IEMP adopted, mainstreamed and funded				
Output 1.2.3	Multi-stakeholder participatory mechanisms conducted to ensure adaptive management during the preparation, implementation, monitoring and evaluation of FLC IEMP				
Component 2: Implementation of the Integrated Environmental Management Plan for the Fanga'uta Lagoon Catchment					
Outcome 2.1	Improved conditions of critical lagoon habitats, productivity, water quality and fish production				

through the implementation of priority interventions identified in the IEMP	
Output 2.1.1	Areas of approximately 80 ha of the lagoon's major coastal habitats (mangroves stands) restored

Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
		commitments required for plan implementation.	legislation. By the project end, establishment of a statutory mandate for the long-term management of FLC	publications Existence of FLC Interagency Council Secretariat and office	system Potential local and international donors will engage in project implementation and provide necessary support to ensure long-term achievements.
Activities:					
<ul style="list-style-type: none"> a) Establish a Project Management Unit (PMU) to execute all project activities at national and local levels and support the Fanga'uta Lagoon Catchment Management Committee (FLCMC) for the duration of the project; staff recruitment and hiring b) A review of FLCMC composition, mandates and functions; a ToR of FLCMC, with additional ToR for FLCMC as the Project Steering Committee, formulated and agreed during its first meeting; the FLCMC formally established to convene its duties within first three months of project and regular biannuals scheduled c) Establish project advisory (or expert) groups or sub-steering committees as deemed necessary and their ToR formulated, as needed d) PMU to assess and service national and local training needs in environmental policy, legislation, lagoon and catchment management, ecosystem services assessment, and communication skills e) Develop training courses and materials on Integrated Environmental Management (IEM) to improve awareness of IEM of FLCMC members and senior management in the government sector; trainings conducted within 6 months of project inception f) Formulate a draft statutory mandate of a 'Tonga Interagency Council on FLC' to be assessed by Year 3 and adopted before the end of the project 					

Output 1.1.2: Measures delivered to fully engage the Fanga'uta Lagoon Catchment (FLC) communities in lagoon ecosystem management	Number of FLC villages and concerned entities involved in EMP updating and implementation Number of individuals and/or organizations engaged in design and implementation of mini-projects from Outcome 2	The existing EMP FLS was prepared in collaboration with 11 government agencies, three NGOs, and more than 20 communities around FL.	By mid-term, all of FLC villages and concerned entities participate in EMP updating and implementation of relating mini-projects.	Lists of FLC community participants in project activity reports Stakeholder survey demonstrates that FLC communities are fully engaged in the updating and implementation processes.	Continued political support and commitment for engaging FLC communities into the planning and implementation processes. Land and lagoon resource tenure issues will not providing
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Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
				Mid-term and Final project evaluation reports	negative motivation discouraging active participation in IEM process. Clearly defined and recognition of stakeholder (FLC community) groups Sufficient interested, receptive individuals available for capacity building activities

Activities:	a) Consolidate identification of key FLC stakeholders b) Initiate the consultative process in FLC c) Develop a draft strategy for community action, approaches and functions d) Sponsor and organize bi-annual lagoon and catchment NGO and stakeholder forums e) Undertake a selection of demonstrations (or mini-projects) in FLC areas; mini-projects undertaken within 12-18 months of project inception to test replicability and for taking to scale during the FLC IEMP implementation (after Year 3) f) By Year 2, establish a FLC community-based research and knowledge management center to generate lagoon community action and positive social change through the use of multiple knowledge sources and networks			
Outcome 1.2: Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for	Amendments to the environmental management plan of the Fanga'uta Lagoon Catchment The EMP FLS, a multi-zoning plan, was approved by the cabinet, but limited implementation due to administrative and budget constraints.	By mid-term, the existing EMP FLS has been updated incorporating IEM concepts and adaptive management approaches. By Year 3, updates/amendments to EMP FLS have been approved and adopted By the end of the	Publication of the EMP FLS Update (or FLC IEMP) Government publications and communication materials from Outcome 3 Project Reports and publications	Continued political and administrative commitment for integrating IEM into medium- and long-term FLC planning as well as in national development planning Key stakeholders at

Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
			project, the concerned authorities will institutionalize integrated ecosystem management and conservation objective for the FLC within the national development system.		the national and local levels maintain their support and involvement during plan updating, reviewing, and endorsement processes. Institutions receptive to adaptive change
Output 1.2.1: FLC IEMP prepared and completed; establishing technical, biophysical, oceanographic, socioeconomic and demographic baselines; updating the EMP completed in 2001 with additional parameters to be established	Status of FLC IEMP baseline review and findings completed with key parameters described	The EMP FLS was prepared during 1988-2001 based on scientific information and community consultation.	By Year 1, updating on situation analysis of ecosystems degradation and ecosystem services management in FLC completed	EMP FLS Update reports Draft FLC IEMP (or EMP FLS Update) available for review and endorsement Preparatory Task Force meeting minutes and reports	Sufficient networking among regional, national and local experts for exchange of technical information, knowledge and experience across disciplines

<u>Activities:</u>
a) Conduct a detailed review on the existing EMP FLS, update data, and identify information gaps on demand for and supply of the key ecosystem services in FLC
b) Consolidate the network of FLC environmental and socio-economic experts
c) Link the FLC management initiative to national development planning and programs and the activities of national and local NGOs as well as the private sector
d) Evaluate current national policy, legal, institutional and human resource arrangements and utilization in respect to FLC coordination and joint management
e) Formulate national and local policy initiatives to facilitate FLC coordination and joint planning
f) Compile demographic framework for FLC from published sources
g) Commission socio-economic surveys in FLC areas to assess current and future patterns of demand for ecosystem services in FLC
h) Establish area-wide patterns of demand; assess opportunity costs of ecosystem services across FLC areas

Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
i) Produce working socio-economic framework to integrate demographic and demand characteristics					
j) Identify environmental hot spots and define environmental system limits and parameters; evaluate limits of sustainable use in space and time					
k) Convene expert group meetings on FLC environmental policy, legislation and management and publish the results					
l) Draft a detailed FLC IEMP setting strategic functional priorities and fostering multiple uses					
m) Present the final draft of FLC IEMP to local and national fora; dissemination of draft FLC IEMP to wider audiences					
Output 1.2.2: FLC IEMP adopted, mainstreamed and funded	Status of adoption, endorsement and funding of the FLC IEMP	Implementation of the EMP FLS has been a challenge due to the lack of financial commitment and sectoral differences.	By Year 3, the FLC IEMP adopted By project end, an annual budget request of key concerned ministries has reflected the Administration's priorities in support of the FLC IEMP.	Notification of the Plan in Official Gazette or policy documents Minutes of meetings Project M&E reports	Continued political support and commitment to materialize the Plan Collaboration among concerned government agencies and other stakeholders is achieved.

Activities:

- Prepare and negotiate an updated EMP FLS (FLC IEMP) on the basis of FLC community and stakeholder consultation
- Clearly delineate responsibilities in implementation of the FLC IEMP across government agencies and other stakeholders
- Solicit commitments from the government (national and local levels)
- Develop guidelines on implementing the FLC IEMP (an updated EMP FLS), including lagoon-specific and broader governmental policy commitments and financial obligations, with well-designed ecosystem service and sector indicators
- Organize biannual capacity building activities for development policy makers and the wider public on FLC IEMP mainstreaming
- Confirm government's commitments
- Major agency-donor conference to discuss the final draft of the FLC IEMP and solicit support for implementation
- Consensus on timetable for FLC IEMP implementation
- Confirm donors' commitments
- Present the Final Draft FLC IEMP to the FLCMC for adoption
- Prepare draft FLC management agreements and protocols for consideration by the FLCMC and concerned departments/ministries

Output 1.2.3: Multi-stakeholder	Regular monitoring of current status of	There exists neither clearly defined	By Year 2, monitoring data and information	Project reports and technical	Adaptive Management is conceptually
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Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
participatory mechanisms conducted to ensure adaptive management during the preparation, implementation, monitoring and evaluation of FLC IEMP	lagoon environment and ecosystem services through a set of measurable key indicators and a response system established that enables modifying key indicators	monitoring indicator nor response system in FLC management.	prepared By mid-term, a monitoring plan developed and implemented to track FLC system status and uncertainties including climate change impacts By end of project, FLC system monitoring established and fully functioned	documents Annual monitoring reports Communication materials and website from Outcome 3	concerned with learning, knowledge integration, and experimentation. This requires from start improvement of the understanding of the lagoon system by initiating discussions among the concerned stakeholders and FLC communities. FLC communities and other stakeholders are ready and willing to participate in adaptive management activities.
Activities:					
	<ul style="list-style-type: none"> • Engage concerned government ministries and statutory authorities in identifying related issues and priorities, as well as adaptation options, to address climate change in the FLC IEMP (during the EMP FLS updating processes) • Develop monitoring and evaluation procedures; planning for implementation • Confirm commitments to schedule and allocate resources for timely monitoring and assessment of the status of the Fanga'uta Lagoon and catchment areas • Identify key monitoring indicators and locations • Implement community-based activities to conduct regular monitoring of the status of the Fanga'uta Lagoon and catchment areas • Produce annual reports on FLC IEMP implementation and progress; communicate M&E results through the FLCMC and project-related meetings 				
Outcome 2.1: Improved conditions of critical lagoon habitats,	Status of surrounding habitats and ecosystem services in the Fanga'uta	Baselines to be quantified and updated per system in Year 1	By project end, key habitats (mangroves) and ecosystem services in FLC improved	Field survey data and technical reports using rapid	Local communities and key stakeholders will actively

Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
productivity, water quality and fish production through the implementation of priority interventions identified in the IEEMP	Lagoon		compared to baseline level	assessment of ecological change methods Activity reports and communication materials Reports from project annual M&E activities GEF TWs Tracking Tool reports	engage in assessment and management of the target ecosystems and their services.
Output 2.1.1: Areas of approximately 80 ha of the lagoon's major coastal habitats (mangrove stands) restored	Areas of mangroves in FL	Baselines to be quantified and updated in Year 1	About 80 hectares of mangroves and other biodiversity resources in the FL remained stable, protected areas conserved and managed mainly for the sustainable use of natural ecosystems	Technical reports and government publications	Awareness improvement activities conducted Political commitment at the national and local levels
<u>Activities:</u>					
<ul style="list-style-type: none"> • Develop criteria and indicators for sustainable management of mangrove resources and ecosystem services in FL • Develop monitoring and evaluation procedures • Identify key mangrove conservation hot spots and necessary actions to rehabilitate and maintain conditions • Produce a Manual on Mangrove Nursery Techniques • Organize biannual on-site trainings for ecological mangrove rehabilitation • Sponsor and organize community-based mangrove restoration programs involving local youth and women in raising mangrove saplings and maintaining the mangrove nursery • Evaluate the results and define limits of sustainable use in space and time 					

Output 2.1.2: Mechanisms set up to guarantee participatory fishing area and sustainable fisheries resources management	Status of lagoon fisheries (as contributing to increased fish harvests, improved livelihoods, and healthy lagoon ecosystems)	Quantity and quality of fish and shellfish catches in the lagoon have been delineated for fisheries conservation and sustainable fisheries management (to be determined during implementation)	A total area inside the lagoon have been delineated for fisheries conservation and sustainable fisheries management (to be determined during implementation)	Stakeholder meeting minutes and reports Technical reports and government documents Project reports	Government support and commitment to manage lagoon fisheries resources for sustainability of ecosystems and for livelihood improvement
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Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
by the FLC communities		among different user groups		and communication	Local stakeholders are ready and willing to share information, discuss issues and agree on solutions
Activities:					
<ul style="list-style-type: none"> Review of current status of supply of and demand for fisheries resources in the lagoon through participatory survey and assessment Review of existing legal frameworks that govern fisheries activities in the lagoon; consolidate expert opinions on sustainable fisheries management in FL Organize technical workshops and consultative meetings to be participated by concerned government agencies and local communities aiming to define and identify managed areas for fish conservation and sustainable utilization. Evaluate the results and define limits of sustainable use in space and time 					
Output 2.1.3: Eco-tourism awareness to FLC community conducted and local initiatives demonstrated	Status of eco-tourism activities in FLC	Baselines to be quantified and updated in Year 1	At least 2 proposals to promote eco-tourism in FLC have been received from local tourism service providers At least 200 women and 200 youth have been engaged in eco-tourism activities	Business proposals Community surveys reports Project reports, publications, and communication materials from Outcome 3	The economy will support increased returns on investment in eco-tourism practices. Sufficient interested, receptive individuals and organizations available for training/capacity building

<u>Activities:</u>					
<p>g) Prepare a detailed report on the participatory FLC eco-tourism program development strategy and implementation plan</p> <p>h) Identify and execute demonstration and pilot projects to promote eco-tourism in FLC involving experienced tour organizers, local entrepreneurs and community association</p> <p>i) Organize and/or sponsor trainings, workshops, and awareness campaigns for engaging FLC communities in sustainable eco-tourism, focusing on female villagers and youth living in the FLC areas</p> <p>j) Evaluate the results and define limits of sustainable eco-tourism business practices</p>					

Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
demonstrated in the FL catchment areas	Number of trainings and participants	use practices which include cash cropping and free-ranging domestic animals developments.	replanted Biannual trainings on sustainable land management practices conducted and reported with at least a total of 60 participants attended	materials	motivation discouraging adoption of improved practices. Sufficient interested, receptive individuals and organizations available for training/capacity building

<u>Activities:</u>					
<p>g) Commission community surveys to identify areas and methods of tree planting along the lagoon's shores and watershed areas</p> <p>h) Organize an annual campaign to plant trees and raise public awareness and soil conservation</p> <p>i) Conduct biannual trainings on sustainable land management practices to minimize pollution loadings into the lagoon targeting villagers and landowners living in the lagoon watershed areas</p> <p>j) Evaluate the results and define limits of sustainable land management practices in space, method and time</p>					

Output 2.1.5: Capacity for Fanga'uta Lagoon water quality control strengthened and on-site activities demonstrated	Measures to control pollution discharged from domestic and other sources adopted and enforced Number of demonstration/pilot activities as well as on-site trainings and participants	Water quality in the lagoon has decreased and the amount of floating debris has increased over the years, potentially from agriculture, domestic sources, and other development activities in the surrounding lagoon catchment.	A set of recommendations for improvement of water quality in the lagoon have been prepared and adopted for FLC IEMP At least one training course on sanitation improvement and related technical knowledge targeting FLC communities conducted At least one on-site demonstration/pilot activity implemented	Technical review reports and fact findings Project reports, publications, and communication materials from Outcome 3	Collaboration among concerned government agencies and other stakeholders is achieved. Authorities, politicians, and land owners commit to support land-use planning/zoning methods as assumed Sufficient interested, receptive individuals and organizations available for training/capacity building
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Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		

<p>Activities:</p> <ul style="list-style-type: none"> a) Review the current situation on the nature and extent of agricultural chemical fertilizer/pesticide usage and urban wastewater discharge (including domestic, commercial and industrial sources) in the FLC areas b) Select a methodology for identifying the nature and extent of pollution discharged into the Fanga'uta Lagoon, and issue scoping c) Analyze historical water quality monitoring data relative to prevailing environmental conditions to identify links between off-site movement of pollution and factors such as: vegetation cover (height and density of trees); landscape (soil, slopes, buffer strips); climatic conditions (rainfall events, soil dryness index); and methods of chemical pesticide/fertilizer application (broad-acre, point, aerial, ground based) as well as waste disposal from point sources and non-point sources; define information and data gaps d) Identify appropriate technologies and systems for controlling pollution from domestic sources in FLC areas e) Identify and execute demonstration and pilot projects to minimize impacts of domestic sources of pollution in target FLC villages f) Organize on-site trainings and workshops on sanitation improvement and related technical knowledge targeting key FLC communities g) Conduct a detailed review and evaluation of the use existing legal and institutional instruments for control of water quality in the lagoon; identify key compliance issues and constraints; and recommend appropriate ways to mitigate the existing and potential impacts of non-compliance h) Organize annual trainings for key concerned decision-makers and community leaders as well as other stakeholders on land-use zoning/planning i) Evaluate the results and define limits of sustainable land development in FLC 						
Outcome 3.1: Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon [Output 3.1.1: Awareness programs conducted through the production and dissemination of awareness materials; lessons learned shared with the PICs through the regional program support project]	Number of project brochures, media releases, video documentary in local dialect, feature press article, and website produced, distributed and used in training and capacity building activities concerning the ecosystem services of the Fanga'uta Lagoon	No awareness and communication materials in existence There is a need to involve stakeholder groups in all stages of FLC IEEMP process; limited channels to educate people on benefits of improving FLC conditions.	Production of a series of selected awareness and communication materials, which have been disseminated in all relevant Agencies associated with the NECCC as well as in all lagoon villages and the nearby areas of Tongatapu	Project reports Reports from project annual M&E activities GEF TWs Tracking Tool reports Technical documents and communication materials produced and disseminated	Technical information, knowledge and experiences available from Outcome 1 and Outcome 2	

Project Strategy	Objectively Verifiable Indicators			Sources of Verification	Risks and Assumptions
	Indicator	Baseline	Target		
<u>Activities:</u>					
n)	Consolidate the network of key stakeholders in assessing the production and distribution of FLC awareness materials				
o)	Commission stakeholder surveys and interviews to define needs and gaps				
p)	Design key substances created for the FLC awareness and communication purposes				
q)	Select and produce effective awareness and communication materials				
r)	Publish and disseminate IEM and FLC IEMP information and communication materials and share these with the regional Pacific R2R program support project				
s)	Establish, update and improve web access				
t)	Create public awareness and ecosystem services education campaigns				
u)	Evaluate periodically the results and identify remaining needs and gaps				

ANNEX B: LIST OF DOCUMENTS TO BE REVIEWED BY THE EVALUATORS

No.	Document
1	GEF Project Information Form (PIF), Project Document and Log Frame Analysis
2	Project Implementation Review Report 2016
3	Fanga'uta Stewardship Plan: Action Plan 2017-2021
4	Tonga R2R Quarterly Progress Report 2015, 2016 and 2017
5	Community Consultation Report 2015
6	Revised Environmental Management Plan for Fanga'uta Lagoon System (Fanga'uta Stewardship Plan) & its annexes
7	Fanga'uta Lagoon Monitoring Manual
8	List and contact details for project staff, key project stakeholders, including Project Steering Committees, and other partners to be consulted
9	Project budget and financial data
10	Technical Working Group Meeting Minutes 2015-2017
11	Project Steering Committee Meeting Minutes 2015-2017
12	Community Management Committee Meeting Minutes 2015-2017
13	Inception Workshop Report
14	Policy Review for IEMP-FLC 2016
15	Fanga'uta Status Report 2015-2016
16	Quarterly Newsletter 2015-2017
17	R2R Summary of Progress 2015- 2017
18	R2R Communication Plan
19	Special Management Plans for 4 villages in Fanga'uta
20	GEF Tracking Tools at baseline, mid-term, and terminal

ANNEX C: EVALUATION QUESTIONS

This is a generic list, to be further detailed with more specific questions by CO and UNDP GEF Technical Adviser based on the particulars of the project.

Evaluative Criteria Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?			
a) To what extent is the project suited to local and national development priorities and policies?	•	•	•
a) To what extent is the project in line with GEF operational programs?	•	•	•
a) To what extent are the objectives and design of the project supporting regional environment and development priorities?	•	•	•
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
a) Has the project been effective in achieving the expected outcomes and objectives?	•	•	•
a) To what extent has the project increased institutional capacity (at national and island level) to increase the resilience of coastal areas and community settlements in Tuvalu?	•	•	•
a) How was the project able to influence monitoring and evaluation for coastal resilience?		•	•
j) What were the risks involved and to what extent were they managed?		•	•
a) What lessons have been learned from the project regarding achievement of outcomes?		•	•
•What changes could have been made (if any) to the design of the project in order to improve the achievement of the project's expected results?		•	•
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
• How cost-effective were project interventions? To what extent was project support provided in an efficient way?	•	•	•

• How efficient were partnership arrangements for the project and why?	•	•	•
• Did the project efficiently utilize local capacity in implementation?	•	•	•
<ul style="list-style-type: none"> • What lessons can be drawn regarding efficiency for other similar projects in the future? • Was project support provided in an efficient way? 	•	•	•
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
<ul style="list-style-type: none"> • What risk have affected/influenced the project and in what ways? • How were these risks managed? • What lessons can be drawn regarding sustainability of project results? • What changes could have been made (if any) to the design of the project in order to improve the sustainability of the project results? 	•	•	•
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?			
<ul style="list-style-type: none"> • To what extent has the project contributed to, or enabled a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements? • What lessons can be drawn regarding contributions towards reduced environmental stress and/or improved ecological stress? • What changes could have been made (if any) to the design of the project in order to improve the reduction of environmental stress and/or improve ecological status? 	•	•	•

ANNEX D: RATING SCALES

Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution	Sustainability ratings:	Relevance ratings
<p>6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS) 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major problems 1. Highly Unsatisfactory (HU): severe problems</p>	<p>4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks</p>	<p>2. Relevant (R) 1.. Not relevant (NR)</p> <p>Impact Ratings: 3. Significant (S) 2. Minimal (M) 1. Negligible (N)</p>
<p><i>Additional ratings where relevant:</i> Not Applicable (N/A) Unable to Assess (U/A)</p>		

ANNEX E: EVALUATION CONSULTANT CODE OF CONDUCT AND AGREEMENT FORM

Evaluators:

- Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
- Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
- Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals and must balance an evaluation of management functions with this general principle.
- Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
- Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
- Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
- Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form³ Agreement to abide by the Code of

Conduct for Evaluation in the UN System

Name of Consultant: _____

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at **place** on **date**

³www.unevaluation.org/unegcodeofconduct

ANNEX F: EVALUATION REPORT OUTLINE⁴

- i. Opening page:
 - Title of UNDP supported GEF financed project
 - UNDP and GEF project ID#s.
 - Evaluation time frame and date of evaluation report
 - Region and countries included in the project
 - GEF Operational Program/Strategic Program
 - Implementing Partner and other project partners
 - Evaluation team members
 - Acknowledgements
- ii. Executive Summary
 - Project Summary Table
 - Project Description (brief)
 - Evaluation Rating Table
 - Summary of conclusions, recommendations and lessons
- iii. Acronyms and Abbreviations
(See: UNDP Editorial Manual⁵)
- 1. Introduction
 - Purpose of the evaluation
 - Scope & Methodology
 - Structure of the evaluation report
- 2. Project description and development context
 - Project start and duration
 - Problems that the project sought to address
 - Immediate and development objectives of the project
 - Baseline Indicators established
 - Main stakeholders
 - Expected Results
- 3. Findings
(In addition to a descriptive assessment, all criteria marked with (*) must be rated⁶)
- 3.1 Project Design / Formulation
 - Analysis of LFA/Results Framework (Project logic /strategy; Indicators)
 - Assumptions and Risks
 - Lessons from other relevant projects (e.g., same focal area) incorporated into project design
 - Planned stakeholder participation
 - Replication approach
 - UNDP comparative advantage
 - Linkages between project and other interventions within the sector
 - Management arrangements
- 3.2 Project Implementation
 - Adaptive management (changes to the project design and project outputs during implementation)
 - Partnership arrangements (with relevant stakeholders involved in the country/region)

⁴The Report length should not exceed 40 pages in total (not including annexes).

⁵ UNDP Style Manual, Office of Communications, Partnerships Bureau, updated November 2008

⁶ Using a six-point rating scale: 6: Highly Satisfactory, 5: Satisfactory, 4: Marginally Satisfactory, 3: Marginally Unsatisfactory, 2: Unsatisfactory and 1: Highly Unsatisfactory, see section 3.5, page 37 for ratings explanations.

- Feedback from M&E activities used for adaptive management
- Project Finance:
- Monitoring and evaluation: design at entry and implementation (*)
- UNDP and Implementing Partner implementation / execution (*) coordination, and operational issues

3.3 Project Results

- Overall results (attainment of objectives) (*)
- Relevance(*)
- Effectiveness & Efficiency (*)
- Country ownership
- Mainstreaming
- Sustainability (*)
- Impact

4. Conclusions, Recommendations & Lessons

- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives
- Best and worst practices in addressing issues relating to relevance, performance and success

5. Annexes

- ToR
- Itinerary
- List of persons interviewed
- Summary of field visits
- List of documents reviewed
- Evaluation Question Matrix
- Questionnaire used and summary of results
- Evaluation Consultant Agreement Form
- Report Clearance Form
- Annexed in a separate file: TE Audit Trail
- Annexed in a separate file: Terminal GEF Tracking Tool

ANNEX G: EVALUATION REPORT CLEARANCE FORM

(to be completed by CO and UNDP GEF Technical Adviser based in the region and included in the final document)

Evaluation Report Reviewed and Cleared by UNDP
Country Office

Name: _____

Signature: _____

Date: _____

UNDP GEF RTA

Name: _____

Signature: _____

Date: _____

ANNEX H: TE REPORT AUDIT TRAIL

The following is a template for the evaluator to show how the received comments on the draft TE report have (or have not) been incorporated into the final TE report. This audit trail should be included as an annex in the final TE report.

To the comments received on (date) from the Terminal Evaluation of (project name) (UNDP PIMS #)

The following comments were provided in track changes to the draft Terminal Evaluation report; they are referenced by institution ("Author" column) and by comment number ("#" column):

Annex II: Itinerary of Activities of the Final Evaluation Mission

<i>Departure from home – 22 May 2018</i>			
<i>Arrival to Tonga – May 24, 2018</i>			
Had Meeting with the Project Manager to discuss on mission plan.			
<i>Day 1: May 25, 2018 – Gov't institutions</i>			
Time	Topic	Objective and expected outcomes	Meeting participants
9am	Face to Face interviews with 5 District Officers of Fanga'uta Lagoon Catchment	To consult with Heads of communities district on project implementation and lesson learnt	R2R Project Coordinator, Mr. Arun Rijal (Consultant), D/O of Kolomotu'a, Kolofo'ou, Vaini, Lapaha and Tatakamotonga
12.40pm	Briefing with Project Coordinator and A/Director	To review and reconfirm mission schedule, evaluation approach, methodologies, work plan and key milestones.	R2R Project Coordinator, Mr. Arun Rijal (Consultant), A/Director of DoE
4pm	Face to Face interviews with CEO of Internal Affairs (Mr 'Onetoto 'Anisi) & Technical Focal Point (Evaipomana Tuuholoaki, Samuela Pohiva)	To consult with CEO on project implementation and lesson learnt	Consultant, CEO of Internal Affairs & Technical Focal Points
<i>26 May 2018, Site visits to some of the project sites and consultation with communities</i>			
9-12am	Site visits to project sites		
2pm	Communities from Tatakamotonga District (3 villages – Tatakamotonga, Holonga, 'Alaki/Pelehake)	To consult with communities on project implementation and lesson learnt	Consultant, Project Coordinator (for translation)
<i>28 May 2018, Communities and Government Institutions</i>			
9am	Debriefing with UNDP representative, consultant and project coordinator	Update on mission schedule, preparation of the report for Tuesday, Evaluation approach, methodologies, work plan and key milestones	Consultant & Project Coordinator, UNDP representative
12	Face to Face interviews with Project Management Unit Team	To consult with Project Management Team on project implementation and lesson learnt	R2R Project Coordinator, Mr. Arun Rijal (Consultant), PMU Team
2pm	Courtesy call to the Minister of MEIDECC (Hon. Poasi Tej), Chair of R2R Project Steering Committee	To brief CEO on purpose of the mission, expected outcomes	R2R project coordinator, Consultant, Director of Environment (DoE)
3pm	Courtesy Call to the CEO MEIDECC & GEF Focal Point (Mr Paula Ma'u)	To brief CEO on purpose of the mission, expected outcomes	R2R Project Coordinator, Consultant, Director of Environment (DoE)
<i>May 29, 2018 – Communities & Government Institutions</i>			
9am	Face to Face interview	To consult with CEO on	Consultant, CEO of Fisheries &

	with CEO of Fisheries (Dr. Tu'ikolongahau) & focal point for Technical Committee (Dr. Siola'a Malimali)	project implementation and lesson learnt	Technical Focal Point
11am	Face to Face interview with CEO of Waste Authority (Mr Malakai Sika) & focal point for Technical Committee (Ms Lola Liava'a)	To consult with CEO on project implementation and lesson learnt	Consultant, CEO of Waste & Technical Focal Point
3pm	Board Meeting for the R2R Steering Committee	To consult on project update and hear preliminary results from consultant	Consultant, Board members
May 30, 2018, Government Institutions			
9 am	Face to Face interview with CEO of Lands & Natural Resources (Ms Rosamond Ping) & focal point for Technical Committee (Mr Taaniela Kula, Mr Tevita Fotu, Mr Tukua Tonga)	To consult with CEO on project implementation and lesson learnt	Consultant, CEO of Lands & Natural Resources & Technical Focal Point
11am	Face to Face interview with CEO of Agriculture (Dr. Viliami Manu) & focal point for Technical Committee (Mr Steven Hamani)	To consult with CEO on project implementation and lesson learnt	Consultant, CEO of Agriculture & Technical Focal Point
2pm	Face to Face interview with CEO of Tourism (Ms. Emeline Tuita) & focal point for Technical Committee (Ms Teisa Fifita)	To consult with CEO on project implementation and lesson learnt	Consultant, CEO of Tourism & Technical Focal Point
4pm	Face to Face interview with CEO of Health (Dr. Siale Akau'ola) & Technical Focal Point (Sela Fa'u)	To consult with CEO on project implementation and lesson learnt	Consultant, CEO of Health & Technical Focal Point
May 31, 2018 - Government Institutions			
9am	Face to Face interview with Solicitor General (Sione Sisifa)	To consult with CEO on project implementation and lesson learnt	Consultant, Solicitor General
11am	Face to Face interview with Ministry of Finance & National Planning	To consult with Ministry on project implementation and lesson learnt	Consultant, Focal Points from Ministry
2pm	Face to Face interview with Tonga Civil Society Forum	To consult with CSFT on project implementation and lesson learnt	Consultant, Focal Points Tonga Civil Society Forum
June 1, 2018 – Key communities			

10am	Communities from Kolomotu'a District (3 villages – Kolomotu'a, Haveluloto, Tofoa)	To consult with communities on project implementation and lesson learnt	Consultant, Project Coordinator (for translation)
12pm	Communities from Kolofo'ou District (4 villages – Kolofo'ou, Ma'ufanga, Popua, Nukunukumotu)	To consult with communities on project implementation and lesson learnt	Consultant, Project Coordinator (for translation)
2pm	Communities from Vaini District (8 villages - Vaini, Folaha, Nukuhetulu, Longoteme, Pea, Ha'ateiho, Veitongo Malapo)	To consult with communities on project implementation and lesson learnt	Consultant, Project Coordinator (for translation)
<i>June 2, 2018 – Site Visits to project site</i>			
9am	Communities from Tatakomotonga District (3 villages –Tatakomotonga, Holonga, Alaki/Pelehake)	To consult with communities on project implementation and lesson learnt	Consultant, Project Coordinator (for translation)
11pm	Representatives from from Youth Groups (Selekä Art Group, Tatakomotonga Youth Groups)	To consult with Youth Groups on project implementation and lesson learnt	Consultant, Project Coordinator (for translation)
12	Communities from Lapaha District (9 villages- Lapaha, Talasiu, Hoi, Nukuleka, Makaunga, Talafo;ou, Navutoka, Manuka, Kolonga)	To consult with communities on project implementation and lesson learnt	Consultant, Project Coordinator (for translation)
<i>June 3, 2018 – Key communities</i>			
10am	Environment Day program in the Church	Participate in environment day program of the church.	Minister of Environment and Environment Department/project office staffs.
<i>June 4, 2018 – Project team</i>			
9- 9.30am	Brief meeting with the Prime Minister of the Kingdom of Tonga.	Briefed project activities and achievements.	
9.30- 11am	Meeting with Project Manager	Wrap up meeting	
2.40pm	Departure form Tonga		
<i>June 5, 2018</i>			
2pm	Kathmandu arrival		

Annex III: Persons Interviewed

Stakeholder	Title	Names
Communities Representatives	Town Officer of Kolomotu'a	Sio Tu'iano
	Town Officer of Tofoa	'Usaiasi Fifita
	Town Officer of Ma'ufanga	Paea'i Vaha Filimoehala
	Town Officer of Popua	Tevita Fatai
	Town Officer of Nukunukumotu	Samuela Fangupo Latu
	Town Officer of Vaini	Inoke Fotu Teisi
	Town Officer of Nukuhetulu	Sione Fakahau
	Town Officer of Longoteme	Soane Taula
	Town Officer of Pea	Siope Lolo Tu'i'onetoa
	Town Officer of Veitongo	'Otuhouma Nepote
	Town Officer of Tatakamotonga	Tevita Kaufana Fakatou
	Town Officer of Holonga	Aloisio Finau
	Town Officer of 'Alaki/ [Pelehake]	Lavakei'aho Tu'ipulotu
	Town Officer of Lapaha	Saimone Tupou Toutai
	Town Officer of Hoi	Taniela Veatoutai Kuluka
	Town Officer of Nukuleka	Sitiveni Fe'ao
	Town Officer of Makaunga	Tevita Poteki
	Town Officer of Manuka	Taniela Mateaki Takitaki
	Town Officer of Kolonga	Tai Langi
Youth Group	Tatakamotonga	Mohajir Pulini
Women Group	Sanitation project (Siesia)	Town Officer wife
Line Ministries		
Environment	Director	Lupe Matoto
	CEO	Paula Ma'u
	Minister & Chair of Steering Committee	Hon. Poasi Tei
Project Management Unit for the the Ridge to Reef Program and Support Staff from Environment Department	Technical Officer	Oto'ota To'oa
	Information/Comms Officer	Iliesa Tora
	Project Coordinator	Ta'hirih Hokafonu
	Finance Support staff (Env)	Saia Fonokalafi
	Clerk/Driver	Vivien Sika
	Support staff from Env	Malini Teulilo
Internal Affairs	A/CEO	Onetoto 'Anisi
	Head of Local Governance	Evaipomana Tu'uholoaki
	Senior Officer	Samuela Pohiva
Fisheries	CEO	Dr. Tu'ikolongahau
	Director for SMA Program	Dr. Siola'a Malimali
	Senior Officer	Latu 'Aisea
	Senior Officer	Hulita Fa'anunu
Lands & Natural Resources	CEO	Rosamond Bing
	Director of Geology/NRs	Taaniela Kula
Agriculture, Food, Forestry	CEO	Dr. Viliami Manu
	Forestry Director	Viliami Kato
	Forestry Senior Officer	Sitiveni Hamani
Tourism	CEO	Emeline Tuita
	Technical Officer Focal Point	Teisa Fifita
Health	CEO	Dr. Siale Akau'ola
	Technical Focal Point	Sela Fa'u

Attorney General Office	Technical Officer Focal Point	Leotrina Macoomber
Civil Society Forum of Tonga	Director	Siale Ilolahia
	Technical Officer Focal Point	Anitelu Toe'api Sesimani Lokotui
Private Sector		
Waste Authority Limited	CEO	Mr Malakai Sika
	Waste Manager	Lola Liava'a
UNDP staff	RSD Program Analyst	Loraini Sivo
	RSD Communications Officer	Merana Kitione

Meeting with District based stakeholders

Annex IV: Summary Evaluation of Project Achievements by Objectives and Outcomes

The Project logframe in the Project Document was revised in the Inception Report. The present evaluation matrix uses the version contained in the Inception Report.

KEY:

GREEN = Indicators show achievement successful at the end of the Project.

YELLOW = Indicators show achievement nearly successful at the end of the Project.

RED = Indicators not achieved at the end of Project.

HATCHED COLOUR = estimate; situation either unclear or indicator inadequate to make a firm assessment against.

Project Objective: To conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience.

Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
Objective: To conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience.	Status of completion and implementation of the FLC IEM Plan	The Fanga'uta Lagoon and Catchment faces two major barriers for its conservation and sustainable management at present: i) degradation of ecosystem services and ii) acquiring new approach, method, knowledge and tool.	FLC IEEMP has been formulated by Year 2, accepted and implemented in Year 3, to recognize and promote the conservation and adaptive management of the ecosystem services of the FLC	FLC IEM is developed and implementation initiated. Environment, Fisheries, Lands and Natural Resources, Forestry and Agriculture have included the annual monitoring of the catchment ecological health as part of their sector plans for the next 5 years. But the officers from different ministries/ departments mentioned that the national budget is very limited and not possible to support implementation of IEM programs so external financial support is needed to implement IEM activities. No funding arranged was made to implement IEM activities and no commitment was received from any development partners or donors by the time of TE.	S

Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
	Tracking Tool BD 1: Improved management effectiveness of existing and new protected area	The Fanga'uta Lagoon marine reserve and catchment covers 2,835 ha of water and 8,000 ha of land having significant agricultural, coastal biodiversity, and other ecosystem services value	About 80 hectares of mangroves and other biodiversity resources in the FL protected areas conserved and managed mainly for the sustainable use of natural ecosystem	<p>Plantation of mangrove accomplished in 20.1ha and additional 69ha mangrove areas in the coastline is cleaned for management of mangrove and other coastal vegetation. But some of the mangrove destroyed for creation of Park in Papua (0.6ha) and also access road in Hoi area. Besides in some other areas mangrove and also tree seedlings destroyed by pigs and in some areas by erosion due to lack of protection arrangement.</p> <p>Mangrove plantation design was weak as there was no provision of fencing to threats of pig and also no protection measures to protect from erosion. Risk of pig was known and also mentioned in the project document but it was not considered while designing mangrove or tree plantation program. Community members mentioned that they requested project office many times for the fencing materials and if it were provided to them then the damage to the saplings would have been controlled.</p> <p>Risk related to land tenure was identified at the project development phase and also during annual risk review. Measures to address this risk was also suggested but project implementation didn't paid much attention on it and without any agreement on paper, mangrove and tree plantation conducted in private land. As a result, mangrove nursery and replanting was damaged in Hoi village by the land owner. Similar could happen in other sites also in the future because there is no binding</p>	MS

Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
				agreement.	
	<p>Tracking Tool LD 1: Sustained flow of services in agro-ecosystems</p> <p>Tracking Tool LD 3: Integrated landscape management practices adopted by local communities</p>	<p>The Fanga'uta Lagoon has been facing pressures on agro-ecosystems and natural resources from competing land uses in the wider landscape.</p> <p>No sustainable agricultural practices are currently implemented in the lagoon catchment areas</p>	<p>50 hectares of FLC area of production systems with increased vegetation cover</p> <p>Application of enhanced capacity demonstrated (i.e., FLC IEMP, interagency governing body, awareness and communication strategy) Production of a series of FLC awareness and communication materials produced and disseminated A project website or webpage created & maintained</p>	<p>Tree Plantation and management activities took place in 8 communities and 27 schools. School afforestation does not cover the claimed 277.5acres area. It is mentioned in the final report of the project that they planted a total of 7151 (4321+2830) seedlings including fruit trees and sandalwood. But survival rate was less than 20% in the areas visited by TEC.</p> <p>Awareness training, poster/brochure distribution, clean-up campaign, webpage development and updating, airing informative program on TV and FM radios completed. But impact could not be seen and still people throwing rubbish in historical sites, coastal lines, roadsides etc. (rubbish mentioned here is other than spread by cyclone) and even seen not throwing in the rubbish bin but on the ground close to it. Very few awareness sign posts were observed during field mission and project staff mentioned that 80% of the sign posts were destroyed by the cyclone. It was also mentioned that many of them were recovered but not placed where they belonged.</p> <p>There was no monitoring of impact of awareness programs to see if the activities were effective or not. If periodic monitoring of such activities were carried out then that could provide feedback to modify programs for improving effectiveness.</p>	MS

Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
	Tracking Tool IWs 3: IW portfolio capacity and performance enhanced from active learning/KM/experience sharing	Limited local capacity exists for overseeing and monitoring of water quality in the lagoon	Water quality improved through small demonstrations and monitoring mechanisms in place for project related indicators	Water quality testing lab established and testing conducted. Water quality tests indicated increase in chemicals and decrease in sea biodiversity. Test results does not justify impact of sanitation and conservation activities conducted by the project on lagoon and its catchment. It is learned that the training planned for the community members could not take place due to limitation of equipment and human resource.	MS
Outcome 1.1: Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated Environmental Management Plan (IEMP)	Functional enabling environments for conservation and integrated management of the Fanga'uta Lagoon Catchment (FLC)	Integrated multi-stakeholder mechanism is not established to the existing FLC Management.	Creation of a nationally recognized FLC Management Committee by Year 1 By Year 3 the feasibility of conversion of a FLC Management Committee into a National Interagency Council with a statutory mandate has been assessed and implemented as appropriate	Multi-stakeholder management committee established with provision of representation of 26 Town Officers, 5 District Officers, 2 Private Sectors, 2NGOs and 2 line ministries. As most of the members of Multi-stakeholder Committee are official ones, communities were not happy on it and were of view that there should be provision of community representation. Completed in July 2017.	S

Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
Outcome 1.2: Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for	Amendments to the environmental management plan of the Fanga'uta Lagoon Catchment	The EMP FLS, a multi-zoning plan, was approved by the cabinet, but limited implementation due to administrative and budget constraints.	<p>By mid-term, the existing EMP FLS has been updated incorporating IEM concepts and adaptive management approaches.</p> <p>By Year 3, updates/amendments to EMP FLS have been approved and adopted</p> <p>By the end of the project, the concerned authorities will institutionalize integrated ecosystem management and conservation objective for the FLC within the national development system.</p>	<p>EMP FLS is updated incorporating IEM concept in November 2016 and endorsed in January 2017 by various Management Committees and finally endorsed by Project Advisory Committee in March 2017.</p> <p>Cabinet approved in May 2017 and published in Gazetted in July 2017.</p> <p>Environment, Fisheries, Lands and Natural Resources, Forestry and Agriculture have included the annual monitoring of the catchment ecological health as part of their sector plans for the next 5years. But the officers from relevant ministries/departments mentioned that the national budget is very limited and not possible to support implementation of IEM programs so external financial support is needed to implement IEM activities. No funding secured for implementing IEM activities and no commitment was received from any development partners or donors by the time of TE.</p> <p>Conducted multi-stakeholder workshop and the workshop developed P3D model.</p>	S
Outcome 2 : Improved conditions of critical lagoon habitats, productivity, water quality and fish production through the implementation of priority interventions	Status of surrounding habitats and ecosystem services in the Fanga'uta Lagoon	Baselines to be quantified and updated per system in Year 1	By project end, key habitats (mangroves) and ecosystem services in FLC improved compare to baseline level.	Mangrove plantation conducted in 20.1ha and clean-up campaign conducted in 69ha mangrove and coastal vegetation. But actual area in the field seems smaller than claimed. Moreover, mangrove in Papua was damaged for making park and in Hoi village land owner destroyed by dumping gravel to make access road. Similarly, in few other coastal areas also mangrove and tree saplings were	MS

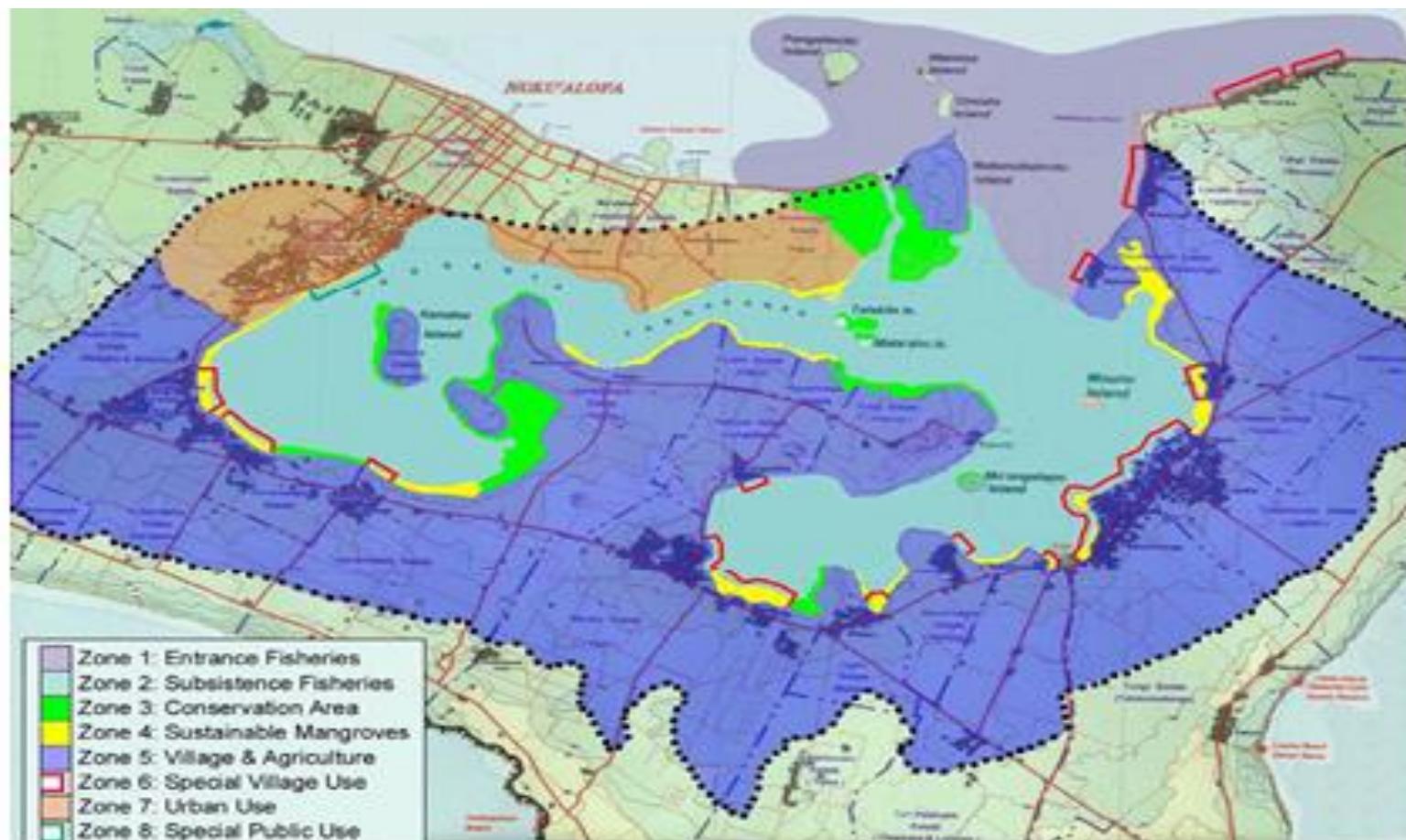
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
identified in the IEMP				<p>damaged by pigs and in some due to erosion. Fruit trees planted in school and private land were also damaged by either pigs or due to poor quality of saplings and lack of monitoring.</p> <p>Monitoring 2924.9ha of the sea environment in close collaboration with the Department of Fisheries and environment. Still monitoring has not covered all parameters, eg. Population of species.</p> <p>Planned to establish 3 SMA (Nukuleka, Lapaha and Holonga) and management plan for these SMA was approved by the cabinet and 2 of them (Holonga and Lapaha) were also endorsed by the Parliament but the one of the Nukuleka was not accomplished due to conflict with the neighbouring communities but dialogue was going on to resolve the conflict by involving both conflicting communities.</p> <p>Water testing lab established and monitoring of water quality conducted in presence of community members. Water testing result indicated increased chemicals and decrease in sea lives. But water testing training for community members was not accomplished.</p> <p>To promote Eco-tourism project supported to maintain historical sites and springs and also developed infrastructures. The Vaini village spring was in poor condition as it was not managed by the women's group as per contract due to their conflict with the town officer who took fence of certain area out,</p>	

Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
				<p>took gate out, cornered waste bind and also removed project sign post. The Ancient Tonga site work was completed.</p> <p>Conducted trainings for women, men and youth (total 295) on eco-tourism in collaboration with the Tourism Department.</p> <p>It is claimed that 277.7 acres plantation in school and 72 acres communities land were planted with a total of 7151 saplings. But areas of plantation does not meet claimed area and also saplings survival rate was very low. If it was monitored closely and technical assistance provided on time then damage would have reduced. Similarly, no enrichment plantation conducted to replace the dead saplings and no attempt made to address the cause of damage. Due to lack/poor technical supervision the saplings purchased from private nurseries were of bad quality and most of them didn't survive. Technical staffs from the forestry department mentioned that limited number of staff was the reason for weakness in monitoring and also they said they are increasing number of staff to improve the situation.</p> <p>Conducted sustainable land management training for students and community members which was participated by 522 participants.</p> <p>Following the monitoring manual, monitoring of lagoon water was conducted and information shared with the</p>	

Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
				communities and also relevant government institutions. Finding indicated increase in chemicals and decrease in sea biodiversity.	
Outcome 3 : Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon	Number of project brochures, media releases, video documentary in local dialect, feature press article, and website produced, distributed and used in training and capacity building activities concerning the ecosystem services of the Fanga'uta Lagoon	No awareness and communication materials in existence There is a need to involve stakeholder groups in all stages of FLC IEEMP process; limited channels to educate people on benefits of improving FLC conditions.	Production of a series of selected awareness and communication materials, which have been disseminated in all relevant Agencies associated with the NECCC as well as in all lagoon villages and the nearby areas of Tongatapu	<ul style="list-style-type: none"> • 5 different brochures produced and used in various national level awareness programs. 4 videos of 30mins duration aired on TV, produced 5mini-video in local language with English subtitles, launched project website under Dept. of Environment and uploaded 90 news releases, quarterly newsletters produced, project news updated on project Face Book page which has 1028 followers, Outreach programs to 26 schools engaged more than 2200 students and staff on waste management and sanitation, produced weekly SMS blast using Digicel services for awareness reminders of better care of environment and good land-base management activities reaching over 20,000 devices, hosted capacity building trainings on tree planting, mangroves, monitoring, waste management and communication at national and local level engaging 300 people. Awareness created but attitude not changed and people still littering near coastal areas. Even in the area where garbage bins are place, people were dropping solid waste outside on the floor. This indicates that activities conducted has no impact on people. More than 80% of the sign post were damaged by cyclone and some of them collected but not replaced in the sites so not much sign posting could be observed in the coastal areas and historical 	MS

Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Achievement as of May 2018	Rating
				<p>sites.</p> <ul style="list-style-type: none"> • Project also hosted spaces for South to South learning between Nauru and Tonga and also involved students from University of the South Pacific studying mangrove ecosystem and High School students and PhD candidates from Canterbury University studying ciguatera. <p>But no impact of awareness programs as still people are disposing rubbish along the coastal line, historical sites and other areas. More than 80% of the sign posts damaged by the cyclone and many of them were collected but not placed to their earlier locations. Hence the effort became incomplete.</p> <p>There was no monitoring of impact of awareness programs to see if the activities were effective or not. If periodic monitoring of such activities were carried out then that could provide feedback to modify programs for improving effectiveness.</p>	

Annex V: Map of Tonga showing Fanga'uta Lagoon



Fang'uto EMP Map.

The map shows the main ecological boundaries for the lagoon, including the watershed and mullet spawning grounds. Also shown are the eight management zones proposed for the EMP.

Annex VI: Revised Table of Project Indicators

Project Strategy	Objectively verifiable indicators				
Goal	To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.				
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Sources of verification	Risks and Assumptions
Objective: To conserve the ecosystem services of the Fanga'uta Lagoon through an integrated land, water and coastal management approach thereby protecting livelihoods and food production and enhancing climate resilience.	Status of completion and implementation of the FLC IEM Plan	The Fanga'uta Lagoon and Catchment faces two major barriers for its conservation and sustainable management at present: i) degradation of ecosystem services and ii) acquiring new approach, method, knowledge and tool.	FLC IEEMP has been formulated by Year 2, accepted and implemented in Year 3, to recognize and promote the conservation and adaptive management of the ecosystem services of the FLC	Existence of a functional lagoon management authoritative body and meeting reports Government publications and communication materials from Outcome 3 Project Reports and publications	The Tonga Government is willing to designate, support, and promote IEM and ecosystem services concepts within FLC. MEECCDMMIC is prepared to undertake efforts to coordinate and enhance its support to conserve and manage the ecosystems of FLC. Collaboration among concerned government agencies and other stakeholders is achieved in order to create a national policy environment conducive for integrated management of FLC.
	Tracking Tool BD 1: Improved management effectiveness of existing and new protected area	The Fanga'uta Lagoon marine reserve and catchment covers 2,835 ha of water and 8,000 ha of land having significant agricultural, coastal biodiversity, and other ecosystem services value	About 80 hectares of mangroves and other biodiversity resources in the FL protected areas conserved and managed mainly for the sustainable use of natural ecosystem	Reports from project annual M&E activities GEF BD Tracking Tool reports	There is effective involvement of all institutions and stakeholders who have a role to act in conserving and sustainable use of lagoon biodiversity and ecosystem services.
	Tracking Tool BD 2: Increase in sustainably managed landscapes and seascapes that integrate biodiversity				

Project Strategy		Objectively verifiable indicators			
Goal	To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.				
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Sources of verification	Risks and Assumptions
	conservation				
	Tracking Tool LD 1: Sustained flow of services in agro- ecosystems	The Fanga'uta Lagoon has been facing pressures on agro-ecosystems and natural resources from competing land uses in the wider landscape.	50 hectares of FLC area of production systems with increased vegetation cover	Reports from project annual M&E activities GEF LD Tracking Tool reports	Continued political commitment at the national and local levels in incorporating SLM into development plans and practices
	Tracking Tool LD 3: Integrated landscape management practices adopted by local communities	No sustainable agricultural practices are currently implemented in the lagoon catchment areas	Application of enhanced capacity demonstrated (i.e., FLC IEMP, interagency governing body, awareness and communication strategy) Production of a series of FLC awareness and communication materials produced and disseminated A project website or webpage created & maintained		
	Tracking Tool IWs 3: IW portfolio capacity and performance enhanced from active learning/KM/ experience sharing	Limited local capacity exists for overseeing and monitoring of water quality in the lagoon	Water quality improved through small demonstrations and monitoring mechanisms in place for project related indicators	Reports from project annual M&E activities GEF TWs Tracking Tool reports	Government, private business, and local communities actively participate and contribute in capacity building activities as assumed.
Outcome 1.1: Multi-stakeholder management system established to guide the updating of the EMP FLS and implementation of the FLC Integrated	Functional enabling environments for conservation and integrated management of the Fanga'uta	Integrated multi-stakeholder mechanism is not established to the existing FLC management.	Creation of a nationally recognized FLC Management Committee by Year 1 By Year 3 the feasibility of conversion of a FLC Management Committee into a National Interagency Council with a statutory mandate has been assessed and implemented as appropriate	Existence of a functional lagoon management authoritative body and meeting reports Project reports and publications	IEM is based on long-term strategic visions and links different policies at different administrative and stakeholder levels to ensure coherency, this carries the risk that its application will be given different interpretation in each of the management systems and may cause conflicts in implementation

Objectively verifiable indicators					
Project Strategy					
Goal	To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.				
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Sources of verification	Risks and Assumptions
Environmental Management Plan (IEMP)	Lagoon Catchment (FLC)				.
Output 1.1.1: Capacity of NECC and FLC Stakeholders enhanced to more effectively plan and implement an integrated lagoon ecosystem management approaches	Status of a multi-stakeholder FLC management authority with dedicated staff and sufficient budget	Department of Environment and Climate Change (DECC) has been designated by the Cabinet to implement the EMP FLS, but no clear provision on financial and other commitments required for plan implementation.	Concerned departments, ministries, partners and stakeholders have all set up contact points to implement IEM concept for FLC and have adopted ecosystem services consideration in key development policies and legislation. By the project end, establishment of a statutory mandate for the long-term management of FLC	Government reports and interagency communications FLC Management Committee meetings and reports Project reports and publications Existence of FLC Interagency Council Secretariat and office	Clearly defined sets of key stakeholders and their engagement Political commitment to designate, support, and promote multi-stakeholder management system Potential local and international donors will engage in project implementation and provide necessary support to ensure long-term achievements.
Output 1.1.2: Measures delivered to fully engage the Fanga'uta Lagoon Catchment (FLC) communities in lagoon ecosystem management	Number of FLC villages and concerned entities involved in EMP updating and implementation Number of individuals and/or organizations engaged in design and implementation of mini-projects	The existing EMP FLS was prepared in collaboration with 11 government agencies, three NGOs, and more than 20 communities around FL.	By mid-term, all of FLC villages and concerned entities participate in EMP updating and implementation of relating mini- projects.	Lists of FLC community participants in project activity reports Stakeholder survey demonstrates that FLC communities are fully engaged in the updating and implementation processes. Mid-term and Final project evaluation reports	Continued political support and commitment for engaging FLC communities into the planning and implementation processes. Land and lagoon resource tenure issues will not providing negative motivation discouraging active participation in IEM process. Clearly defined and recognition of stakeholder (FLC community) groups

Objectively verifiable indicators					
Project Strategy					
Goal	To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.				
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Sources of verification	Risks and Assumptions
	from Outcome 2				Sufficient interested, receptive individuals available for capacity building activities
Outcome 1.2: Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for	Amendments to the environmental management plan of the Fanga'uta Lagoon Catchment	The EMP FLS, a multi-zoning plan, was approved by the cabinet, but limited implementation due to administrative and budget constraints.	By mid-term, the existing EMP FLS has been updated incorporating IEM concepts and adaptive management approaches. By Year 3, updates/amendments to EMP FLS have been approved and adopted By the end of the project, the concerned authorities will institutionalize integrated ecosystem management and conservation objective for the FLC within the national development system.	Publication of the EMP FLS Update (or FLC IEMP) Government publications and communication materials from Outcome 3 Project Reports and publications	Continued political and administrative commitment for integrating IEM into medium- and long-term FLC planning as well as in national development planning Key stakeholders at the national and local levels maintain their support and involvement during plan updating, reviewing, and endorsement processes. Institutions receptive to adaptive change
Output 1.2.1: FLC IEMP prepared and completed; establishing technical, biophysical, oceanographic, socioeconomic and demographic baselines; updating the EMP completed in 2001 with additional parameters	Status of FLC IEMP baseline review and findings completed with key parameters described	The EMP FLS was prepared during 1988-2001 based on scientific information and community consultation.	By Year 1, updating on situation analysis of ecosystems degradation and ecosystem services management in FLC completed	EMP FLS Update reports Draft FLC IEMP (or EMP FLS) Update) available for review and endorsement Preparatory Task Force meeting minutes and reports	Sufficient networking among regional, national and local experts for exchange of technical information, knowledge and experience across disciplines

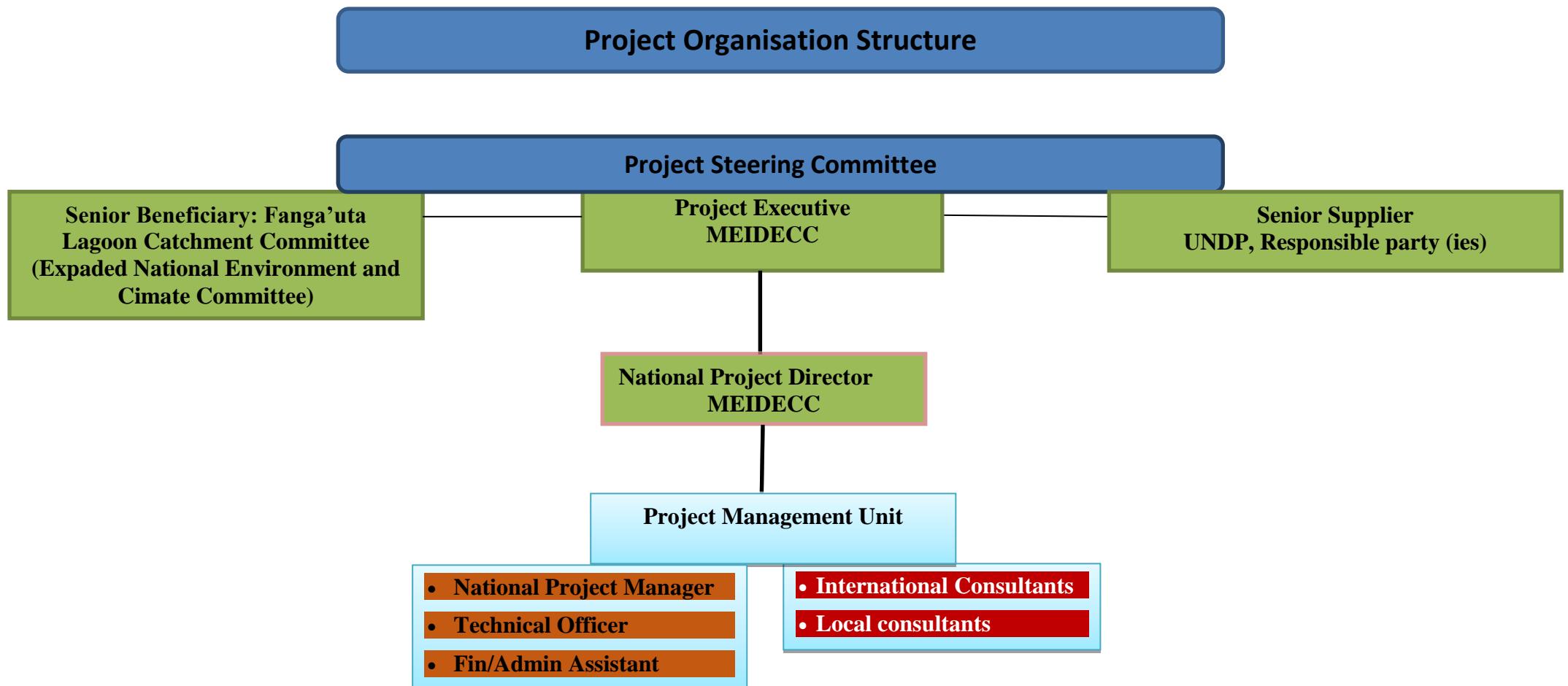
Objectively verifiable indicators					
Project Strategy					
Goal	To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.				
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Sources of verification	Risks and Assumptions
to be established					
Output 1.2.2: FLC IEMP adopted, mainstreamed and funded	Status of adoption, endorsement and funding of the FLC IEMP	Implementation of the EMP FLS has been a challenge due to the lack of financial commitment and sectoral differences.	By Year 3, the FLC IEMP adopted By project end, an annual budget request of key concerned ministries has reflected the Administration's priorities in support of the FLC IEMP.	Notification of the Plan in Official Gazette or policy documents Minutes of meetings Project M&E reports	Continued political support and commitment to materialize the Plan Collaboration among concerned government agencies and other stakeholders is achieved.
Output 1.2.3: Multi-stakeholder participatory mechanisms conducted to ensure adaptive management during the preparation, implementation, monitoring and evaluation of FLC IEMP	Regular monitoring of current status of lagoon environment and ecosystem services through a set of measurable key indicators and a response system established that enables modifying key indicators	There exists neither clearly defined monitoring indicator nor response system in FLC management.	By Year 2, monitoring data and information prepared By mid-term, a monitoring plan developed and implemented to track FLC system status and uncertainties including climate change impacts By end of project, FLC system monitoring established and fully functioned	Project reports and technical documents Annual monitoring reports Communication materials and website from Outcome 3	Adaptive Management is conceptually concerned with learning, knowledge integration, and experimentation. This requires from start improvement of the understanding of the lagoon system by initiating discussions among the concerned stakeholders and FLC communities. FLC communities and other stakeholders are ready and willing to participate in adaptive management activities.

Objectively verifiable indicators					
Project Strategy					
Goal	To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.				
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Sources of verification	Risks and Assumptions
Outcome 2.1: Improved conditions of critical lagoon habitats, productivity, water quality and fish production through the implementation of priority interventions identified in the IEMP	Status of surrounding habitats and ecosystem services in the Fanga'uta Lagoon	Baselines to be quantified and updated per system in Year 1	By project end, key habitats (mangroves) and ecosystem services in FLC improved compare to baseline level.	Field survey data and Technical reports using rapid assessment of ecological change methods Activity reports and communication materials Reports from project annual M&E activities GEF TWs Tracking Tool reports	Local communities and key stakeholders will actively engage in assessment and management of the target ecosystems and their services.
Output 2.1.1: Areas of approximately 80 ha of the lagoon's major coastal habitats (mangroves stands) restored	Area of mangroves in FL	Baseline to be quantified and updated in year 1	About 80 hectare of mangroves and other biodiversity resources in the FL remained stable, protected areas conserved and managed mainly for the sustainable use of natural ecosystems	Technical reports and government publications	Awareness improvement activities conducted Political commitment at the national and local level
Output 2.1.2: Mechanisms set up to guarantee participatory fishing area and sustainable fisheries resources management by the FLC communities	Status of lagoon fisheries (as contributing to increased fish harvests, improved livelihoods, and healthy lagoon ecosystems)	Quantity and quality of fish and shellfish catches in the lagoon have declined rapidly, leading to increasing conflict and social tension among different user groups.	A total area inside the lagoon have been delineated for fisheries conservation and sustainable fisheries management (to be determined during implementation)	Stakeholder meeting minutes and reports Technical reports and government documents Project reports and communications	Government support and commitment to manage lagoon fisheries resources for sustainability of ecosystems and for livelihood improvement Local stakeholders are ready and willing to share information, discuss issues and agree on solutions

Objectively verifiable indicators					
Project Strategy					
Goal	To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.				
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Sources of verification	Risks and Assumptions
Output 2.1.3 : Output 2.1.3: Eco-tourism awareness to FLC community conducted and local initiatives demonstrated	Status of eco-tourism activities in FLC	Baseline to be quantified and updated in year 1	At least 2 proposals to promote eco-tourism in FLC have been received from local tourism service providers At least 200 women and 200 youth have been engaged in eco-tourism activities	Business proposals Community surveys reports Project reports, publications, and communication materials from Outcome 3	The economy will support increased returns on investment in eco-tourism practices. Sufficient interested, receptive individuals and organizations available for training/capacity building
Output 2.1.4: Activities based on sustainable land and forest management demonstrated in the FL catchment areas	Areas with improved vegetation in the lagoon catchment Number of trainings and participant	There is no management scheme to regulate or monitor land use practices which include cash cropping and free-ranging domestic animals development.	A total areas of 50ha with improved vegetation cover in the FLC areas have been established or replanted. Biannual trainings on sustainable land management practices conducted and reported with at least a total of 60 participants attended	Project reports, publications and training materials	Land and resource tenure issues will not provide negative motivation discouraging adoption of improved practices. Sufficient interested, receptive individuals and organisations available for training/capacity building
Output 2.1.5: Capacity for Fanga'uta Lagoon water quality control strengthened and on-site activities demonstrated	Measures to control pollution discharged from domestic and other sources adopted and enforced Number of demonstration/pilot activities as well as on-site trainings and participants	Water quality in the lagoon has decreased and the amount of floating debris has increased over the years, potentially from agriculture, domestic sources, and other development activities in the surrounding lagoon catchment.	A set of recommendations for improvement of water quality in the lagoon have been prepared and adopted for FLC IEPM At least one training course on sanitation improvement and related technical knowledge targeting FLC communities conducted At least one on-site demonstration/pilot activity implemented	Technical review reports and fact findings Project reports, publications, and communication materials from Outcome 3	Collaboration among concerned government agencies and other stakeholders is achieved. Authorities, politicians, and land owners commit to support land-use planning/zoning methods as assumed Sufficient interested, receptive individuals and organizations available for training/capacity building

Objectively verifiable indicators					
Project Strategy					
Goal	To maintain and enhance Pacific Island countries' (PICs) (i.e., Tonga's) ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.				
Objective / Outcome	Indicator	Baseline	Target as per ProDoc	Sources of verification	Risks and Assumptions
Outcome 3.1: Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon [Output 3.1.1: Awareness programs conducted through the production and dissemination of awareness materials; lessons learned shared with the PICs through the regional program support project]	Number of project brochures, media releases, video documentary in local dialect, feature press article, and website produced, distributed and used in training and capacity building activities concerning the ecosystem services of the Fanga'uta Lagoon	No awareness and communication materials in existence There is a need to involve stakeholder groups in all stages of FLC IEMP process; limited channels to educate people on benefits of improving FLC conditions.	Production of a series of selected awareness and communication materials, which have been disseminated in all relevant Agencies associated with the NECCC as well as in all lagoon villages and the nearby areas of Tongatapu	Project reports Reports from project annual M&E activities GEF TWs Tracking Tool reports Technical documents and communication materials produced and disseminated	Technical information, knowledge and experiences available from Outcome 1 and Outcome 2

Annex VII: Organizational Structure of Project



Annex VIII: Field Visit Summary

Field study mission started from 22nd of May 2018. International Consultant (IC) departed from home on 22nd May and arrived Tonga on 24th May. On the first day IC had meeting with project manager and discussed mission plans and worked on necessary changes in the plan. On 25th IC had meeting with five District Officers of Fanga'uta Lagoon Catchment. On the same day also had meeting with CEO of International Affairs and technical staffs and also had meeting with Project Director. On the 26th May IC had site visit to Nukunukumotu, Vaini and Hoi villages. On the 27th IC had reviewed project related documents and planned for remaining days. On the 28th IC had meeting with UNDP representative from UNDP PO Fiji and then made a courtesy call to the Minister of MEIDECC and also had meeting with CEO of MEIDECC and after that had meeting with the Project Management Team. On 29th IC had meeting with CEO and technical staffs from Fisheries and Waste Authority. In the noon i.e. form 3pm IC took part in the Steering Committee meeting and shared initial findings. On 30th IC had meeting with the CEO and technical staffs of Lands & Natural Resources, Agriculture, Tourism and Health. On the 31st, of May, IC had meeting in Attorney General's Office and with tonga civil society. IC tried to meet staffs from Ministry of Finance several times but unable. On the 1st & 2nd June, IC had site visits and interaction with the remaining community leaders. On the 3rd June IC attended Environment program in the Church and spent afternoon in preparation of the wrap up meeting. In the morning of the 4th June, IC had brief meeting with the Prime Minister of Tonga and briefed on the project and its achievements followed by wrap up meeting with the Project Manager. IC left Tonga at around 3pm and reached home around 3pm of 5th June 2018.

Annex IX: Project Deliverables

- Project Brochure
- Leaflets
- T-shirt
- Training Manual
- Coffee Mug
- Pen
- Videos
- Facebook page
- Maps
- Fish ID
- Folders
- Holiday Cards
- Calendar
- Bill Boards

Annex X: List of References

- 1 GEF Project Information Form (PIF), Project Document and Log Frame Analysis
- 2 Project Implementation Review Report 2016
- 3 Fanga'uta Stewardship Plan: Action Plan 2017-2021
- 4 Tonga R2R Quarterly Progress Report 2015, 2016 and 2017
- 5 Community Consultation Report 2015
- 6 Revised Environmental Management Plan for Fanga'uta Lagoon System (Fanga'uta Stewardship Plan) & its annexes
- 7 Fanga'uta Lagoon Monitoring Manual
- 8 List and contact details for project staff, key project stakeholders, including Project Steering Committees, and other partners to be consulted
- 9 Project budget and financial data
- 10 Technical Working Group Meeting Minutes 2015-2017
- 11 Project Steering Committee Meeting Minutes 2015-2017
- 12 Community Management Committee Meeting Minutes 2015-2017
- 13 Inception Workshop Report
- 14 Policy Review for IEMP-FLC 2016
- 15 Fanga'uta Status Report 2015-2016
- 16 Quarterly Newsletter 2015-2017
- 17 R2R Summary of Progress 2015- 2017
- 18 R2R Communication Plan
- 19 Special Management Plans for 3 villages in Fanga'uta
- 20 GEF Tracking Tools at baseline, mid-term, and terminal

Annex XI: Evaluation Questions

Evaluation Criteria/Questions	Indicators	Sources	Methodology
Relevance: How does the project related to the main objective of the GEF focal area, and to the environment and development priorities at the local, regional and national level?	<ul style="list-style-type: none"> ➢ Project objectives and activities related to objective of GEF focal area and priorities at national, local and regional level ➢ Consistency and contribution to GEF focal area objectives and to national development strategies ➢ Stakeholder views of project significance and potential impact related to the project objective 	<ul style="list-style-type: none"> • Project documents, report vs GEF document • Interview with authorities at different level 	<ul style="list-style-type: none"> • Project report review in the light of GEF document • Interviews with relevant personnel
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?	<ul style="list-style-type: none"> • Level of achievement of expected outcomes or objectives to date • Long term changes in management processes, practices and awareness that can be attributable to the project • Enhanced capacity of relevant institutions • Favourable policies and effective implementation of adaptation activates • Participation of women in policy and program formulation 	<ul style="list-style-type: none"> • Change in the ground situation observed. • Policy/strategy or program formulation activities included women and their issues incorporated. • Policies/strategies/ programs effectively implemented • Institutions strengthened 	<ul style="list-style-type: none"> • Report with information on effective implementation of activities and strategies • Report on intuition setup • Interaction with the policy level people to ground level communities and field staffs. • Polity document review report. • Field verification of activities
Efficiency: Was the project implemented efficiently in-line with international and national norms and standards?	<ul style="list-style-type: none"> • Reasonableness of the costs relative to scale of outputs generated • Efficiencies in project delivery modalities Consistency and contribution to GEF focal area objectives and to national development strategies • Changes in project circumstances that may have affected the project relevance and effectiveness 	<ul style="list-style-type: none"> • Financial statements • Project structure and function • Project document and annual reports • Experience of project staffs and other relevant stakeholders 	<ul style="list-style-type: none"> • Analysis of financial statements. • Analysis of project structure and functionalities • Analysis of project circumstances in project document (past and present) • Interaction with relevant stakeholders

	<ul style="list-style-type: none"> • Degree to which outputs and outcomes are embedded within the institutional framework (policy, laws, organizations, procedures) • Implementation of measures to assist financial sustainability of project results • Observable changes in attitudes, beliefs and behaviours as a result of the project • Measurable improvements from baseline levels in knowledge and skills of targeted staffs. 	<ul style="list-style-type: none"> • Project report • Observation in the field • Interview with stakeholders 	<ul style="list-style-type: none"> • Review of project reports. • Observation in the field to see impact on the ground • Interaction with stakeholders
Impacts: Are there indications that the project has contributed to, or enabled progress towards reduced environmental stress and/or improved ecological status?	<ul style="list-style-type: none"> ➢ Favourable policies/strategies formulated/amended ➢ Improved monitoring mechanism ➢ Technically capacity of relevant institution strengthened. ➢ Regular monitoring helped to generate updated information which helped National Communication and also evidence based planning exercise. ➢ Improved level of awareness made activities sustainable. ➢ Measurable improvements from baseline levels in knowledge and skills of targeted staff/other stakeholders. ➢ Measurable improvements from baseline levels in the management functions of the responsible organizations that were targeted by the project. 	<ul style="list-style-type: none"> ➢ Project Reports ➢ Interview with stakeholders. ➢ Observation in the field. 	<ul style="list-style-type: none"> ➢ Review of project reports/documents. ➢ Interaction with local to national level stakeholders. ➢ Field observation.

Annex XII: Evaluation Consultant Agreement Document

ANNEX E: EVALUATION CONSULTANT CODE OF CONDUCT AND AGREEMENT FORM

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their products. They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form¹

Agreement to abide by the Code of Conduct for Evaluation in the UN Systems

Name of Consultant: Arun Rijal

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at placeonline



Kathmandu, 18.04.2018

Signature: _____

Annex XIII: Evaluation Criteria

i) Criteria used to evaluate the Project by the Final Evaluation Team

Highly Satisfactory (HS)	Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as “good practice”.
Satisfactory (S)	Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.
Moderately Satisfactory (MS)	Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits.
Moderately Unsatisfactory (MU)	Project is expected to achieve some of its major global environmental objectives with major shortcomings or is expected to achieve only some of its major global environmental objectives.
Unsatisfactory (U)	Project is expected not to achieve most of its major global environment objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (U)	The project has failed to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits.

ii) Scale used to evaluate the sustainability of the Project

Likely (L)	There are no risks affecting this dimension of sustainability.
Moderately Likely (ML)	There are moderate risks that affect this dimension of sustainability.
Moderately Unlikely (MU)	There are significant risks that affect this dimension of sustainability.
Unlikely (U)	There are severe risks that affect this dimension of sustainability.

iii) Rating scale for outcomes and progress towards “intermediate states”

Outcome Rating	Rating on progress toward Intermediate States
D: The project’s intended outcomes were not delivered	D: No measures taken to move towards intermediate states.
C: The project’s intended outcomes were delivered, but were not designed to feed into a continuing process after project funding	C: The measures designed to move towards intermediate states have started, but have not produced results.
B: The project’s intended outcomes were delivered, and were designed to feed into a continuing process, but with no prior allocation of responsibilities after project funding	B: The measures designed to move towards intermediate states have started and have produced results, which give no indication that they can progress towards the intended long term impact.
A: The project’s intended outcomes were delivered, and were designed to feed into a continuing process, with specific allocation of responsibilities after project funding.	A: The measures designed to move towards intermediate states have started and have produced results, which clearly indicate that they can progress towards the intended long term impact.

NOTE: If the outcomes above scored C or D, there is no need to continue forward to score intermediate stages given that achievement of such is then not possible.

iv) Rating scale for the “overall likelihood of impact achievement”.

Highly Likely	Likely	Moderately Likely	Moderately Unlikely	Unlikely	Highly Unlikely
AA AB BA BB+	BB AC+ BC+	AC BC	AD+ BD+	AD BD C	D

Annex XIV: UNDP-GEF TE Report Audit Trail

Audit Trail is separated from the final TE report and submitted as a separate file.

Annex XIV: Pictures from the Field

Picture increased volume of the file and exceeded the volume limits of the email so pictures were submitted as a separate file.