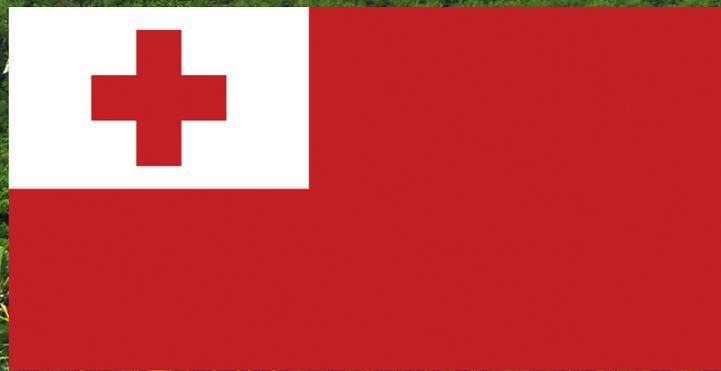


GEF PACIFIC
RIDGE TO REEF PROGRAMME

TONGA



NATIONAL R2R PROGRAMME
DOCUMENT



Pacific Community
Communauté
du Pacifique



GEF Pacific RIDGE TO REEF Programme

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 in Pacific Island Countries

FOREWORD

The Heads of States of 13 Pacific SIDS developed and in 1997 endorsed a GEF International Waters Strategic Action Programme (SAP) for Pacific Island Countries. That document identified priority areas for action in the international waters focal area as improved management of ocean and coastal fisheries, integrated watershed and coastal management, and water supply protection. On the basis of the Pacific SAP, the GEF International Waters focal area has subsequently invested in a series of regional initiatives. The first was the UNDP implemented project entitled “Implementation of the Strategic Action Program for the International Waters of the Pacific Small Island Developing States” initiated in 2000 and operated over almost 7 years to 2006.

In light of the critical water resource and sanitation issues facing Pacific SIDS, GEF support in the years following the conclusion of the IWP project has been targeted at improved coordination and planning of water resource and wastewater management to balance overuse and conflicting uses of scarce freshwater resources through the GEF Pacific IWRM Project. The latter was financed by the GEF, implemented by UNDP and UNEP, and executed regionally by the Geoscience Division of the Pacific Community (SPC) in partnership with 14 Pacific Island Countries.

The GEF Pacific IWRM Project built on achievements of previous investments via a focus on national IWRM demonstration projects aimed at providing an opportunity for participating countries to implement, and experiment with, new management models and methods. The practical on-the-ground solutions to water and sanitation issues demonstrated by the national IWRM projects acted to stimulate support at both community and national government levels for policy reform and the mainstreaming of integrated approaches as part of national sustainable development planning.

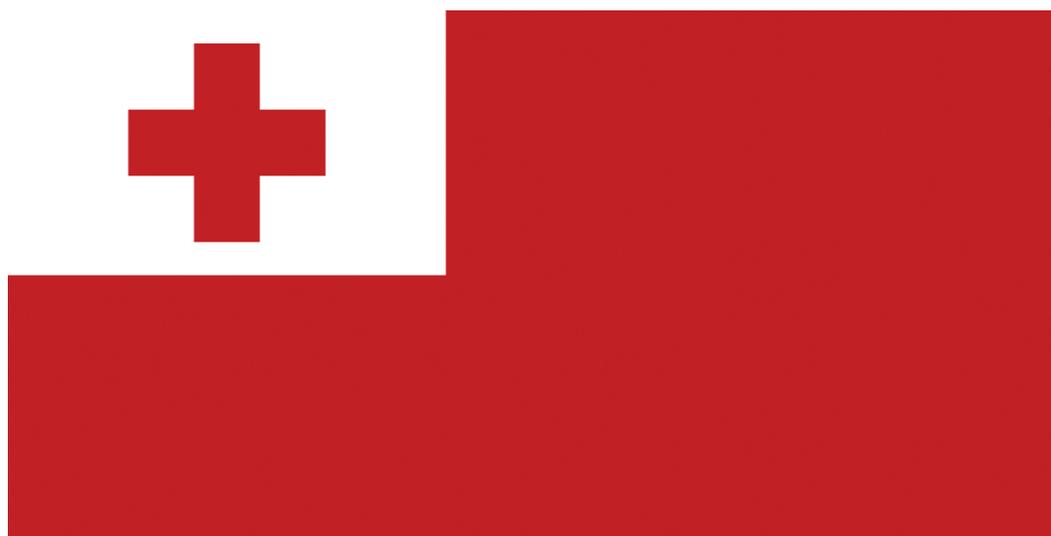
The experience and local capacity in integrated environmental and natural resource management generated through the GEF Pacific IWRM project has been recognized both regionally and within the 14 participating Pacific Island Countries as an appropriate entry point for the testing of innovative approaches and measures to integrate land, forest, water and coastal management, including climate change adaptation in Pacific SIDS. In this connection, the GEF multi-focal area, multi-GEF agency programme entitled “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” (or the GEF Pacific R2R Programme) was developed to provide an opportunity for Pacific SIDS to develop and implement truly integrated approaches for the sustainable development of island economies and communities. Programme activities are organised under the following programme components:

- National Multi-Focal Area Ridge-to-Reef Demonstrations in all Pacific Island Countries
- Improved Governance for Integrated, Climate Resilient Land, Water, Forest and Coastal Management
- Regional and National/Local Ridge-to-Reef Indicators, Monitoring and Evaluation and Knowledge Management
- Regional Programme Coordination

This National Programme Document summarizes the development of integrated approaches to water resource and coastal management in Tonga to date, including examples of specific results and lessons learned achieved through integrated approaches to environmental and natural resource management. Importantly, this document presents information about the interlinked GEF R2R STAR and GEF International Waters R2R Projects, including programme support activities which focus on science-based planning, human capital development, policy and strategic planning, results-based management, and knowledge sharing.

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INTRODUCTION

Given the close inter-connections between land, water and coastal systems in Small Island Developing States (SIDS), the integration of freshwater watershed management with coastal area management is considered essential to foster effective cross-sectoral coordination in the planning and management of land, water and coastal uses. In Pacific SIDS, such integrated approaches to freshwater and coastal area management have been termed 'Ridge to Reef' to emphasise the inter-connections between the natural and social systems from the mountain 'ridges' of volcanic islands, through coastal watersheds and habitats, and across coastal lagoons to the fringing 'reef' environments associated with most Pacific SIDS. Inherent in the approach is the philosophy of cross-sectoral coordination in the planning and management of freshwater use, sanitation, wastewater treatment and pollution control, sustainable land use and forestry practices, balancing coastal livelihoods and biodiversity conservation, hazard risk reduction, and climate variability and change.

Similarly, the integration of communities, stakeholders, and national governments within such a cross-sectoral planning framework is described by Pacific SIDS as a 'Community to Cabinet' approach. The following sections summarize achievements to date in the development of 'Ridge to Reef' and 'Community to Cabinet' approaches to integrated natural resource and environmental management in Tonga. An overview of the purpose of the Ridge to Reef Programme, its GEF R2R STAR Projects and GEF International Waters Projects is also provided.



1. RIDGE TO REEF CONTEXT

This section provides a brief background of the geography and environmental threats in Tonga. This information has been used as the basis for the identification of priority activities for the testing of 'Ridge to Reef' approaches to integrated land, water, forest and coastal management in Tonga.



2. COMMUNITY TO CABINET APPROACH

Community to Cabinet is a multi-stakeholder approach adopted in the Pacific Small Island Developing States to foster strengthened coordination and stakeholder involvement in the planning of investments in integrated natural resource and environmental management. This section outlines existing mechanisms for 'Community to Cabinet' coordination in Tonga.



3. RIDGE TO REEF RESULTS

Pacific leaders have called for a strengthened emphasis in results-oriented sustainable development planning. This section benchmarks the main results of efforts to develop integrated management approaches in Tonga to date.



4. DOING IS SEEING THE NEED

The GEF Pacific Ridge to Reef programme embraces the 'Doing is Seeing the Need' philosophy adopted by the GEF Pacific R2R Programme. A story board of images is presented to provide examples of best practices in integrated natural resource and environmental management.



5. TONGA'S R2R STAR PROJECT

A summary of Tonga's national project to be financed through the GEF System for Transparent Allocation of Resources (STAR) is provided in this section. The planned contribution of this STAR project to the achievement of the targets for the regional Ridge to Reef program is outlined. The management arrangements for this project are also provided.



6. INTERNATIONAL WATERS R2R PROJECT

Priority actions identified for testing the integration of water, land, forest and coastal management to preserve ecosystem services, store carbon, improve climate resilience and sustain livelihoods in Tonga are outlined. A brief strategy for Tonga IW R2R national pilot project is provided along with the logical framework matrix. Key assumptions and risks are summarized to guide planning during the project's inception period.

1. RIDGE TO REEF CONTEXT



Country:	Tonga
Population:	106,000
Population growth:	0.19%
Density:	144/km ²
GDP:	USD 471 million
Growth Rate:	0.8%
Gross National Income:	USD 3,820

The Kingdom of Tonga is a sovereign state and archipelago of 172 coral and volcanic islands, of which 36 are inhabited, spread over 360,000 km² of territorial seas in the South Pacific. The islands are either volcanic or uplifted coral limestone on a deep pile of sediments of volcanic origin. Tonga has a small population of approx. 100,000, and 70% of these live on the largest island Tongatapu on which Nuku'alofa, the capital, is located. Environmental issues include increasing deforestation for agriculture and settlement, invasive marines species and over fishing.

Tonga is blessed with plentiful rainfall and most water is sourced through rainwater harvesting. Otherwise freshwater is extracted from a thin freshwater lens within the highly porous limestone substrate that is present on some islands. Surface water resources are absent on most islands and when

rainwater is scarce the population relies on piped groundwater.

There is no centralised reticulated sewerage system in Tonga and communities manage all on-site wastewater systems. Groundwater resources are vulnerable to contamination from poorly constructed and inappropriate sanitation systems as well as agricultural and industrial wastes. Pathogens and excess nutrients make their way into the groundwater and their impact is now being seen in some near shore areas.

There is a range of institutions involved in the delivery and management of water in Tonga. The institutional framework for water resources is robust with a national water committee in existence and water master plans having been completed for the reticulated supply systems and for national water resource development. While substantial gains have been made in the water sector in Tonga, many institutional and governance issues still remain for resolution to protect and sustain the limited water resources of the dispersed islands.

These include lack of enforceable rules and regulatory framework for water management including hazard waste pollution and disposal; lack of clear utility operational structure over a number of islands; the need for clarifying the role of the Ministry of Environment in water conservation; water metering and tariff setting; the need for upgrading the water reticulation infrastructure; and issues of land tenure and land use as they impact on sustaining the quality of the water resource.

While there is a reasonable degree of community awareness on issues of water and the environment associated with projects including catchment management, coordination between agencies and sustaining partnerships with key stakeholders has been identified as a major issue to sustainable management of Tonga's water resources.

The above issues have begun to be addressed through the cross-sectoral planning and management initiatives of the GEF Pacific IWRM Project. Needs still exist and have been identified within a Ridge to Reef context.

These include establishing Coastal Zone Managements Plans through identification of critical fisheries habitats and coastal areas at three priority sites in Tonga; increasing donor investment of stress reduction measures and approaches for coordination and; monitoring the effectiveness of stress reduction measures and management models of the IWRM/IWCM Project

2. COMMUNITY TO CABINET APPROACH

There is a growing recognition in the Pacific region of the need for partnerships, alignment of donor support with national priorities, and country ownership in the development of results-oriented programs and projects. The Pacific leaders recently emphasized these needs noting the well-known challenges Pacific Island communities face in fashioning sustainable futures. These include geographical isolation, high levels of dependence on natural resources for nutritional security and livelihoods, and a highly variable environment characterized by numerous coastal hazards.

The above combined with considerable variation in island geomorphology, socio-economics and politics make locally-driven solutions to key issues influencing island sustainability and resilience a necessity. Of particular note are the complex land and marine tenure systems and institutional relationships between national and community-based governance structures.

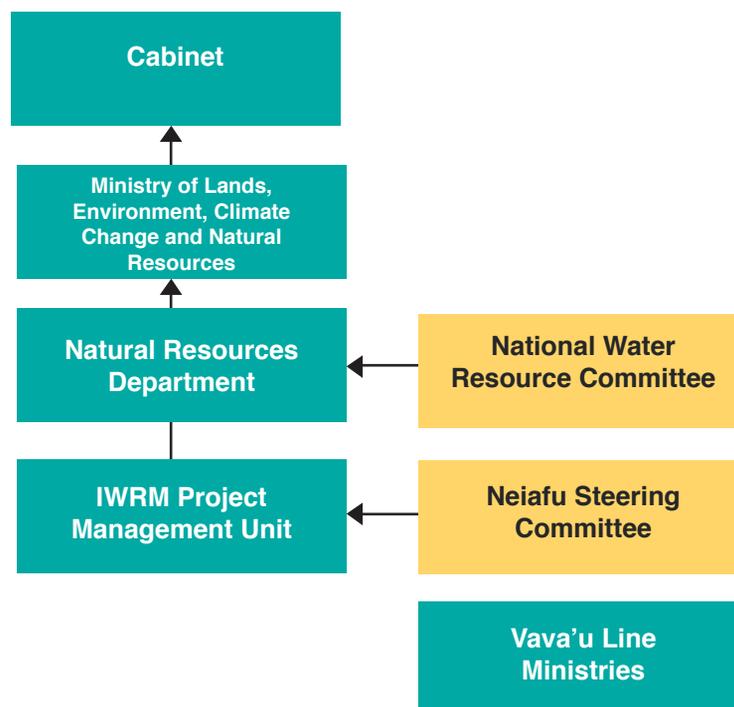
While the Pacific SIDS have largely adopted western-style constitutions and legal systems, such community-based governance and leadership arrangements remain highly influential at all levels. Accordingly, the participation of civil society organizations and community leaders in development planning is essential to increase the local relevance of management actions and their results in SIDS. The following outlines existing cross sectoral coordination arrangements and efforts to engage stakeholders in sustainable development planning.

Strengthening Cross-sectoral Coordination and Planning

The Tonga Water Board was the only body involved in the extraction and distribution of water for consumers in urban areas of Tonga. Sanitation was managed by the Ministry of Health (MOH) and coordinated with the Ministry of Works (MOW) as well as the Ministry of Environment (MECC) in the enforcement of the building code for septic tanks.

The GEF Pacific IWRM project re-invigorated the Tonga APEX body, the National Water Committee (NWC), which had not met for over a year. Members include CEO and managers of organisations and government ministries that have interest or involvement in water and related issues. The NWC reports to Cabinet via the Natural Resources Sector of the Ministry of Lands, Environment, Climate Change and Natural Resources.

The NWC has progressed the National Water Bill and National Water Policy. Regular bi-annual meetings are held for the NWC and it remains a strong influential body for the development of water management plans, including the upcoming Implementation for Water Management Bill.



National governance arrangements are shown for the water sector. National committees are highlighted in yellow

Linking Local and National Coordination

The formation in 2009 and subsequent work of the Neiafu Aquifer Management Committee has been pivotal in the changes seen through the GEF Pacific IWRM Project. With strong commitment to awareness raising and capacity building programs, this committee has raised community awareness and stakeholder engagement. This significant increase in community engagement has enabled targeted strategies to be delivered to improve household water and wastewater management and agricultural practices.

The aquifer management committee was a new concept in Tonga, as is the current development of an aquifer management plan, piloting aquifer management strategies in the Pacific region. The Neiafu Aquifer Management Committee is empowering local communities through the establishment of town water committees for each community in Neiafu, to plan their own water resources, reduce threats to groundwater, increase the safety of household drinking water and reduce waste of resources in water loss

Stakeholder Engagement

Tonga's national pilot project of the regional R2R IW project will work to: generate local and national support for integrated R2R approaches; establish linkages, synergies and mechanisms for learning exchange, particularly between and among community leaders and project stakeholders of the national GEF System for Transparent Allocation of Resources (STAR) projects planned under the broader Ridge to Reef programme; develop local experience in linking IWRM to coastal area management; and stimulate cross-sectoral participation in the planning of coordinated investments in land, forest, water and coastal management in the participating countries.

Given the range of stakeholders identified above, the preparation phase of the regional R2R IW project in Tongahas been based on a consultative process involving national government agencies, community representatives, and civil society organizations. Stakeholder inputs elicited during the preparation phase have been incorporated in the results framework for the pilot project included in the final section of this document.

Ridge to Reef stakeholders

- Ministry of Lands, Survey, Natural Resources
- Ministry of Environment
- Ministry of Health
- Meteorological Services
- Tonga Water Board
- Tonga Trust (NGO)
- Ministry of Works
- Ministry of Agriculture, Forestry and Fisheries
- Central Planning Department
- NGOs (Vava'u Environmental Protection Association)
- Neiafu District Officer
- Neiafu, Falaleu, Fungamisi, Makave, Toula Town Officers

3. RIDGE TO REEF RESULTS

The need for results-based approaches to the management of development assistance programmes and projects has received recent high-level recognition. In adopting the Paris Declaration on Aid Effectiveness in 2005, national government Ministers responsible for development from both developed and developing countries joined with Heads of multilateral and bilateral development institutions in committing to “work together in a participatory approach to strengthen country capacities and demand for results-based management”.

This commitment was reaffirmed in the 2008 Accra Agenda for Action which called for accelerated progress on aid effectiveness by better demonstrating the results of development efforts and openly accounting for them. The Pacific Islands region and its development partners have responded accordingly. For example, in 2012 the Pacific Leaders considered a review of the effectiveness of development efforts in the Pacific and called for strengthened emphasis on results in planning and financing development. The following benchmarks the main results of efforts to develop integrated management approaches in Tonga to date.

PROCESS

Multi-sectoral body established

The project reinvigorated the National Water Committee through a targeted retreat at the project site, bringing the members together and identifying strategies to increase sectoral and national coordination. During this retreat, the Neiafu Aquifer Management Committee and the NWC worked closely on strategies to improve groundwater management and increase community engagement in water management.

Aquifer Management Council established

The centralized management of Neiafu’s aquifer prior to this project meant that decisions were often made with minimal local input and in turn, the Neiafu community had minimal understanding or ownership of their water resources. Under these arrangements, there was limited understanding of how to protect the aquifer, or even the need to do so, and the lack of an aquifer management plan or an understanding of the resources had resulted in over-pumping and salinisation of many wells.

The establishment of the Neiafu Aquifer Management Committee has rapidly addressed several of these issues. The committee and community ownership of the aquifer has been fundamental in the successful re-establishment of septic pump-out and disposal systems, providing broad access to sustainable sanitation in Neiafu.

The Neiafu Aquifer Management Committee is empowering local communities through the establishment of town water committees for each community in Neiafu, to plan their own water resources, reduce threats to groundwater, increase the safety of household drinking water and reduce waste of resources in water loss (leaks and careless).

The project is supporting the Neiafu Aquifer Management Committee and town water committees in the development of an aquifer management plan and establishing a policy and funding framework to sustain these committees beyond the project. The committee not only works with freshwater resources but is now considering coastal resources as well.

Increased sectoral engagement in formal multilateral communication on water related issues

The IWRM project supports the participation from established committees, and aims to increase engagement of the water and other related sectors they represent. The project is influenced by wide formal engagement, such as the technical contribution in technical committee meetings that have supported the project in decisions about water supply and sanitation systems, the task force (Water Champions), steering committee, and National committee.

Water Safety Planning (WSP) workshop with members from all the different districts and relevant Ministries participating was held. This was a continuation of a 3 day workshop conducted in October of 2012, that covered conducting water collection and storage surveys, simple water treatment methods, septic system awareness and surveys, water wise use and water quality testing.

All the participants are now the “Water Champions” within the community. The participants of the WSP workshops also contributed to the development of a household water safety manual. The “Water Champions” have run additional water safety planning meetings within the communities and distributed the Household Water Safety Manuals available in Tongan and English.

Increased proportion of community engaged in water related issues

At the project inception, communities were not engaged in the centrally-controlled water management in Neiafu, to the point where householders were forbidden from fixing household problems without written permission from government. Household surveys indicated a lack of knowledge on the importance of managing of water resources and sanitation and there were few opportunities for communities to be engaged in water management, with no power in decision making.

The project has dramatically raised community engagement through consultative meetings, direct engagement on the Steering Committee and several community initiatives, such as household audits. Gender mainstreaming and community engagement initiatives have been met with strong positive community responses, with a demonstrable increase of about 60% in community engagement in both awareness raising and active engagement activities. People now have the opportunity to state their opinions in an open forum and to use their local knowledge and skills on managing water resources.

The World Water Day Events are the most successful engagement activity in Vava'u. All Primary Schools of Neiafu District participate with original traditional poems and songs. The Ministry of Education and Training supported the World Water Day Event through the Blue Ribbon Week. Other Ministries were wearing the IWRM Blue Ribbon or wear Blue for the whole week. Women Development Groups, NGOs, and private sectors also participated in the parade and the exhibitions.

In the first quarter of the year 2013, there was almost 100% attendance at awareness activities. NGOs, private sectors and Primary Schools have joined the project's awareness activities. Women are starting to form up more development groups and there is an emphasis on Water Safety planning at the household level. Communities have actively participated in our Water Safety Planning workshop. They are now the Water Champions and will contribute to the development of a household water safety manual. The 'Water Champions' will run additional water safety planning meetings within the communities and distribute the water safety plans with assistance of the IWRM team.

National staff across institutions with IWRM knowledge and experience

The IWRM Project has supported opportunities for the National officer to engage and participate in available training related to IWRM. The Project Assistant attended a JICA Water Resources Conversation Management workshop in Island Area Training in Japan in 2010 and a MoH Food and Water Safety Training in 2011 in Nuku'alofa. The Project Manger completed a Post Certificate study on Water Resources Management, and is currently undertaking a Master in Water Resources Management in Brisbane, Australia. These trainings have increased the knowledge of the IWRM Project team and have created an environment that is knowledgeable on IWRM processes and concepts.

STRESS REDUCTION

Reduction in water loss from leakage across Vava'u

The Neiafu town water supply (approx. 5,000 people) is groundwater sourced; however over-pumping of some wells has increased water supply salinity to levels that are approaching undrinkable. The need for the high level of pumping was thought to be high system losses; however no reliable assessment had been undertaken prior to this project.

As part of the project an assessment on Neiafu Groundwater and sustainable management has been completed, which identified 70% water losses. The assessment concluded that the majority of water loss was attributable to failing old infrastructure, including leaking pipes and valves. The Tonga Water Board is working to reduce water leakages from the system through a combination of leak detection, targeted on-ground works and system management. Additional water leakage losses are being targeted by the project at the household level, with audits being undertaken to identify household losses and improve household water use efficiency. This work is being supplemented by trial household level treated wastewater reuse schemes.

Reduced nitrogen discharged to groundwater in Neiafu

Neiafu had been without septic tank service facilities for many years, causing many of the town septic tanks to fail, creating unsanitary conditions around many tanks and dramatically increasing groundwater pollution. At the request of the Neiafu community, the project reestablished a septic pump-out management system. Trial sanitation systems have been installed to demonstrate reduced groundwater impacts, including sand filtration and compost toilets.

The pump-out service has been established with a sustainable financial model and has already been used by approximately 20% of Neiafu households, representing a 5% reduction in nitrogen and organic pollution of groundwater. The waste is disposed to a primary sewage treatment system comprised of a settling lagoon and filtration system. After participating in the Water Safety Planning Workshop, people now understand proper septic construction and how the leakages from septic tanks can affect groundwater quality.

Increase in population with access to improved sanitation

Failing sanitation systems in Neiafu meant that people needed to dig out septic tank sludge and were dealing with leaking and overflowing system. In a hilly community with relatively high rainfall, this also resulted in unsanitary conditions across much of the community.

A Household Survey on sanitation and water supply identified the high sanitation system failure rate, largely attributable to the lack of a pump out system available. Through a combination of establishing a septic pump-out and disposal system, eco-sanitation and household level treatment trials, the project is removing many of the risks associated with failing sanitation systems and also barriers to improving household sanitation. Household level guidelines are being developed in partnership with communities through this project to raise the awareness of results for uptake. Current monitoring suggest that over 60% of Neiafu systems are now sustainable.

Following the success of the composting toilets coastal communities in particular are now requesting composting toilets. People understand how sanitation systems can help reduce the unsanitary conditions across much of the hilly community.

Increase in population with access to a safe water supply

At the commencement of the IWRM project there was limited access by people to a safe water supply. Of the number of households in Neiafu 30% had unreliable access to a safe water supply (2010 Preliminary Survey Result for houses do not have rainwater tanks).

The scenarios for the estimated present water system loss showed that all scenarios are exceeding the desired sustainable pumping rate. However, in the case of an improved water loss from the piped system, the scenarios do not exceed the sustainable pumping rate over the 20 year time period.

The investigations of the scenario development have been endorsed by the steering committee and have aided in the development of the Water Resources Management Plan. Implementation of the Water Safety Planning in district level is currently ongoing.



Demonstrated Compost Toilet in Vava'u, Tonga

4. DOING IS SEEING THE NEED

The GEF Pacific IWRM project acted as a valuable entry point for strengthening integrated approaches to natural resource management in Pacific SIDS. Existing national coordination mechanisms involving operation of inter-linked national APEX bodies for IWRM and local coordinating committees for IWRM demonstration projects have been effective in guiding stress reduction in the water and sanitation sector and driving reform of national IWRM policy and planning.

That project also acted as a valuable entry point for capacity development, helping to foster application of inter-disciplinary skills and local knowledge and integrating this into monitoring and evaluation to ensure that causes of environmental stresses and the results of interventions are understood by stakeholders.

A need exists, however, to scale up the GEF Pacific IWRM approach to strengthen the integration of land, water and coastal management to better accommodate issues associated with biodiversity conservation, to build on synergies between investments in IWRM and sustainable forestry practices, and to strengthen the sustainable management of coastal 'blue forests' from the perspectives of hazard risk reduction, ICM application, and livelihoods.

The Pacific Ridge to Reef programme embraces the 'doing is seeing the need' philosophy adopted by the IWRM project via the promotion of pilot activities aimed at generating local and national support for integrated Ridge to Reef and Community to Cabinet approaches and to establish linkages, synergies and mechanisms for learning exchange, particularly between and among community leaders and project stakeholders.

Pilot activities will also develop local experience in linking IWRM to coastal area management and will stimulate cross-sectoral participation in the planning of coordinated investments in land, forest, water and coastal management in the participating countries.

The related and linked national STAR projects will deliver the targets of the overall programme relating to strategic objectives of the GEF biodiversity, climate change mitigation and adaptation, land degradation, and sustainable forestry management focal areas.



Household Survey team



Fecal Coliform Testing - Stage 1

5. TONGA'S NATIONAL R2R STAR PROJECT

Integrated Environmental Management of the Fanga'uta Lagoon Catchment	
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.	
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 for the FLC Integrated Environmental Management Plan (IEMP)
Outcome 1.2	Participatory updating of the Fanga'uta Lagoon Catchment IEMP completed, adopted, endorsed and budgeted for
Component 2: Implementation of the Integrated Environmental Management Plan for the Faga'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
Component 3: Knowledge Management	
Outcome 3.1	Increased awareness and appreciation of the ecosystem services of the Fanga'uta Lagoon

GEF Agency: UNDP
National Lead Agency: MLECCNR
Funding Source: GEF Trust Fund
GEF Focal Area: Multi-Focal Area (BD & IW)
Indicative Grant Amount: \$1,756,880
Indicative Co-financing: \$6,650,000
Approval Date: 2013

R2R Integrated Land and Agro-ecosystems Management Systems	
To strengthen the resilience of communities by enhancing land tenure systems, improving forest management, and piloting and integrated agro-ecosystem approach to rehabilitate degraded landscapes	
Component 1: Development of legal and policy frameworks to support integrated land and agro ecosystems management	
Outcome 1.1	Policies and laws are informed by land use change, assessment reports, and promote integrated land and agro-ecosystems management
Component 2: Development and implementation of integrated agro-ecosystem management systems in pilot areas.	
Outcome 2.1	Capacity of local communities strengthened to sustain integrated agro-ecosystem management plans in the long term
Outcome 2.2	Integrated agro-ecosystem management systems implemented effectively in selected communities
Component 3: Mainstreaming sustainable forest management	
Outcome 3.1	Data on changes in forest cover taken in to account in policy and development decisions.
Outcome 3.2	Forest resources in pilot and other project sites sustainable managed
Component 4: Dissemination of best practices and lessons learned, monitoring and evaluation	
Outcome 4.1	Awareness raising and communications campaign implemented
Outcome 4.2	Project implementation based on results based management and application of project findings and lessons learned in future operations facilitated

GEF Agency: UNDP
National Lead Agency: MAFFF & MLECCNR
Funding Source: GEF Trust Fund
GEF Focal Area: Multi-Focal Area (BD & IW)
Indicative Grant Amount: \$2,444,954
Indicative Co-financing: \$5,400,000
Approval Date: 2013

6. STRENGTHENING R2R INTEGRATION

Tonga's national pilot project of the Pacific R2R IW Project entitled 'Integrating watershed and coastal area management for strengthened water resource protection and coastal hazard reduction in Tonga' will: establish and strengthen linkages between ongoing national IWRM initiatives and Tonga's national STAR project under the regional Pacific R2R program; incentivize and foster cross-sectoral and community participation in broader national strategic action planning and institutional strengthening activities planned as part of the regional R2R IW project; and demonstrate best practice measures and approaches to guide the planning of replication and scaling-up. Details of planned pilot activities are described below. The section thereafter provides a detailed results framework for the pilot project.

Component 1: Monitoring the effectiveness of stress reduction measures and management models of the IWRM/IWCM Project to inform scaling up and donor investment in ICM	
National activities in this component include the development and implementation of a PM&E plan for the eco-sanitation compost toilets, sewage lagoons and improved septic systems featuring measures for quantifying inter alia nutrient loads in surrounding environment, effluent quality and pathogen survival in compost. To support this will be the development of a database for existing and new information regarding the effectiveness of different sanitation treatment options and potential impacts on the environment this will be made available online and publicly. National activities will also include the development of locally appropriate design and management of eco-sanitation systems through targeted scientific research into composting mechanisms, contaminant reductions and optimal operating conditions to enhance system efficacy. Specific outcomes from national level activities from this component include:	
Outcome 1.1	Improved data collection for monitoring effectiveness of improved sanitation systems for environmental stress reduction
Outcome 1.2	Enhanced knowledge base for decision making by agencies and communities on appropriate sanitation treatment systems in low-lying island setting
Outcome 1.3	Evidence based scaling up of eco-sanitation through optimal design and operation of systems to meet international standards for water safety and use of human compost in Tonga
Component 2: Scaling up and donor investment of stress reduction measures and approaches for coordination and management models through local and national capacity building	
In this component a functional cross-sectoral Community Sanitation Maintenance Fund (CSMF) will be established to identify financing options, featuring procedures for appropriate and timely accessing of funds. To support this innovative participatory techniques will be used to increase the proportion of target community members with awareness of and technical skills to successfully plan and manage local waste management initiatives will be increased by 30%. Operational partnerships with the GEF Small Grants Programme and international donors will be established to strengthen capacity for replication of the IWCM/IWRM model nationally and implementation of management activities locally. National activities will also include replication of improved sanitation systems at three priority sites in Tonga resulting in 10% reduction in nutrient and pathogen loads from effluent discharging directly into the receiving environment. Specific outcomes from national level activities from this component include:	
Outcome 2.1	Sustainable sources of funding available for community maintenance of improved sanitation systems
Outcome 2.2	Community capacity for accessing donor funds strengthened through innovative awareness and training
Outcome 2.3	Strengthened national replication of IWCM/IWRM coordination and management planning model
Outcome 2.4	Environmental and public health safeguarded via targeted reductions in nutrient and pathogen contamination at three priority coastal sites in Tonga

Component 3: Establishing Coastal Zone Managements Plans via identification of critical fisheries habitats and coastal areas at three priority sites in Tonga

National activities in this component will establish an operation fisheries and habitat data collection programme to identify critical areas of fisheries habitats at 3 priority sites in Tonga. Additionally, an ecosystem processes and coastal health data collection programme will be operational to identify nutrient dynamics, threats from land-based contaminants to coastal waters and impacts on fisheries habitats at 3 priority sites. To support these will be the establishment of a National Coastal Health Committee (NHLC) to oversee the development of coastal and fisheries management plans. Specific outcomes from national level activities from this component include:

Outcome 3.1	Strengthened information base for planning, monitoring and evaluation of priority coastal management areas in Tonga
Outcome 3.2	Enhanced knowledge of linkage between land based pollutants and the status of coastal fisheries habitats
Outcome 3.3	Strengthened cross-sectoral coordination in the planning of coastal and fisheries management areas to support sustainable use of in shore fisheries in Tonga

GEF Agency: UNDP
 Regional Executing Agency: SPC - GSD
 National Lead Agency: MLECCNR
 Funding Source: GEF Trust Fund
 GEF Focal Area: International Waters
 Indicative Grant Amount: \$200,000
 Indicative Co-financing: \$3,500,000

R2R IW RESULTS FRAMEWORK

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Monitoring the effectiveness of stress reduction measures and management models of the IWRM/IWCM Project to inform scaling up and donor investment in ICM	1.1 Improved data collection for monitoring effectiveness of improved sanitation systems for environmental stress reduction	Extent and continuity of the data collected through PM&E Plan	Lack of operational PM&E Plan for improved sanitation systems in Vava'u	PM&E plan developed and operational for the eco-sanitation compost toilets, sewage lagoons and improved septic systems featuring measures for quantifying inter alia nutrient loads in surrounding environment, effluent quality and pathogen survival in compost	Published PM&E plan, monitoring results, annual implementation reports, analysis and research reports, comparative studies, online database	Available resources to undertake PM&E Consistent methods applied for data collection
	1.2 Enhanced knowledge base for decision making by agencies and communities on appropriate sanitation treatment systems in low-lying island setting	Status of the database and number of dataset therein	Lack of centralised and reliable data on efficacy of sanitation options	Database of existing and new information regarding the effectiveness of different sanitation treatment options and potential impacts on the environment collated and made available online and publicly	Online and hardcopy database available	Data exists and is obtained from reliable sources
	1.3 Evidence based scaling up of eco-sanitation through optimal design and operation of systems to meet international standards for water safety and use of human compost in Tonga	Extent of uptake of the scientific recommendations for improving eco-sanitation system designs to optimise pathogen inactivation, nutrient reduction and compost suitability	Limited understanding of efficacy of eco-sanitation systems at reducing contaminants on Vava'u including dominant mechanisms, contaminant reductions and associated operating conditions	Locally appropriate design and management of eco-sanitation systems developed through targeted scientific research into composting mechanisms, contaminant reductions and optimal operating conditions to enhance system efficacy	Documents of assessments and monitoring results, analysis and research reports, comparative studies and consultation meeting reports Improved design and construction plans Published scientific paper [Yr 3]	Design and operation of eco-sanitation systems are able to be optimally improved Resources are sufficiently available for reliable analysis of eco-sanitation systems to produce robust scientific results Cost of refined design does not exceed ability to pay

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Scaling up and donor investment of stress reduction measures and approaches for coordination and management models through local and national capacity building	2.1 Sustainable sources of funding available for community maintenance of improved sanitation systems	Extent and continuity of participation at CSMF meetings Number of financing options identified and status of their availability	Maintenance is at the expense of the householder and largely out of reach	Cross-sectoral Community Sanitation Maintenance Fund (CSMF) established and functional; financing options identified featuring procedures for appropriate and timely accessing of funds	CSMF ToR, meeting documents and participation lists Sustainable financing report, agreements and plans Maintenance Fund procedures	Improved sanitation systems are worthwhile investments Willingness of community and agencies to participate in CSMF
	2.2 Community capacity for accessing donor funds strengthened through innovative awareness and training	Percent increase in target population with applied understanding of donor investment procedures Number of community-led donor projects submitted	Limited community understanding of donor proposal procedure leading to un-accessed funds	Proportion of target community members with awareness of and technical skills to successfully plan and manage local waste management initiatives increased by 30% through innovative participatory techniques	Consultation meeting and activity reports, training workshop outputs, participatory interviews Community-led donor proposal documents	Awareness and capacity building materials are sufficiently well designed to engage community members and resource users Continuity of participation of target audience in awareness raising events
	2.3 Strengthened national replication of IWCM/IWRM coordination and management planning model	Number of GEF Small Grants Programme, and international donor projects implemented to support the replication of the IWCM/IWRM model and implementation of management activities	Limited access to donor funds for developing catchment management plans and implementing catchment management activities	Partnerships with GEF Small Grants Programme and international donors to strengthen capacity for replication of the IWCM/IWRM model nationally and implementation of management activities locally	GEF Small Grants Programme and international donor project proposals and implementation reports	Suitable community based organisations to assist communities with donor project requirements
	2.4 Environmental and public health safeguarded via targeted reductions in nutrient and pathogen contamination at three priority coastal sites in Tonga	Volume reduction in untreated effluent discharged directly to the environment	Most effluent from current household sanitation systems is discharged without treatment to the receiving environment	Nutrient and pathogen loads from effluent discharging directly into the receiving environment reduced by 10% through replication of improved sanitation systems at three priority sites in Tonga	Consultation meeting documents, site selection and construction documents, Report on assessment and operational status of systems [Yr 3]	Design and operation of sanitation systems is effective in reducing untreated effluent entering the environment Adopted procedures for waste management and composting result in desired reductions of contaminants

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Establishing Coastal Zone Managements Plans via identification of critical fisheries habitats and coastal areas at three priority sites in Tonga	3.1 Strengthened information base for planning, monitoring and evaluation of priority coastal management areas in Tonga	Status of data collection programmes for 3 priority sites and uptake of recommendations	Little data is available on the status of near shore fisheries habitats	Fisheries and habitat data collection programme operational to identify critical areas of fisheries habitats at 3 priority sites in Tonga	Monitoring results, analysis and research reports, comparative studies and final evaluation report [Yr 3] Tonga Fisheries Habitats document [Yr3]	Consistent use of standardised data collection methods and procedures
	3.2 Enhanced knowledge of linkage between land based pollutants and the status of coastal fisheries habitats	Status of data collection programmes for 3 priority sites Degree to which scientific evidence demonstrates linkages to coastal ecological health	Little data available on coastal habitats, links between land-based contaminants and coastal water degradation and coastal habitat status	Ecosystem processes and coastal health data collection programmes operational to identify nutrient dynamics, threats from land-based contaminants to coastal waters and impacts on fisheries habitats at 3 priority sites in Tonga	Monitoring results, analysis and research reports, comparative studies and final evaluation report [Yr 3] Coastal Health Summary for Policy & Planning [Yr 3]	Untreated effluent disposal is negatively affecting coastal water quality Resources are sufficiently available for reliable analysis and evaluation of contaminant dynamics to produce scientific results
	3.3 Strengthened cross-sectoral coordination in the planning of coastal and fisheries management areas to support sustainable use of in shore fisheries in Tonga	Continuity of government agency participation in NHLC meetings Status of management plans	Lack of cross-sectoral involvement in management of critical coastal areas and fisheries habitats	National Coastal Health Committee (NHLC) established and functional to oversee the development of coastal and fisheries management plans	NCLC terms of reference, membership lists and meeting reports, joint planning and management decisions	Willingness of environment, fisheries and public health sectors to engage in joint decision making and planning



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