GEF Pacific IWRM Demonstration Project

Ngerikiil Watershed Restoration for Improved Water Quality

Palau

Final Report

Koror, Republic of Palau

June 2014

An Initiative of the Global Environment Facility Supported Project:
"Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries"
GEF Pacific IWRM Project

CONTENTS

PREFACE

The Republic of Palau consists of elevated volcanic islands, flat karsts islands and atolls. As with most small island states, water sources, alongside water and sanitation systems in the Republic of Palau are under pressure due to urbanization, development, climate change and other pressures. Issues with water range from watershed degradation which is affecting water quality at the source and coastal waters, groundwater contamination due to leachate from nearby landfills and poorly maintained wastewater systems, as well as saltwater intrusion into fresh water lenses for the platform islands and atolls. Added pressures come from climate variability in terms of extreme weather events; both droughts, and increased rainfall.

With the construction of the Compact Road around Babeldaob completed, increased development is expected in some parts and already starting in others. The increase in development will if left unchecked, result in increased deforestation and pesticide use in farms, and inadequate wastewater management due to lack of appropriate facilities or poor designs. With increasing population and higher tourist numbers every year water resources and wastewater management are becoming priority issues due to antiquated systems currently operating with a lack of proper annual maintenance.

In Palau, a majority of the increase in population and tourism is currently centred on the states of Koror and Airai with 75% of the population residing in both states. These two states obtain their piped water from the Koror Airai Water Treatment Plant with the government subsidizing a majority of the cost of water delivery to the households. The Ngerikiil River and the Ngerimel Dam are the main water sources for this public water supply system.

Future priority actions include improvements to the Koror-Airai Water Treatment Plant as the budget that is allocated to running the system is currently expended on electricity bills and salaries with limited funds left over for maintenance of the system. A loan with the Asian Development Bank for $16 million dollars is proposed to assist with updating the K/A public water supply system as well as the Malakal Wastewater Distribution and Treatment System. In addition, protection of the source of water is also important as this has long been neglected with a majority of the funds and efforts have been expended to treating the water after it reaches the processing plant instead of trying to maintain the quality at the source.

A lack of comprehensive water policy has resulted in Palau managing water resources on a sectored basis with protection of the source being done at the state level, water delivery being the responsibility of the Ministry of Public Infrastructure, Industry and Commerce, and the cost being collected by the Ministry of Finance. To coordinate efforts and decrease duplication of work the drafting and enacting of a comprehensive water policy is one of the future priority actions.

The Global Environment Facility (GEF) supported National IWRM Demonstration Project is central to this process. This demonstration project entitled "Ngerikiil Watershed Restoration for Improved Water Quality" is being implemented as part of the regional GEF Pacific IWRM Project by the Republic of Palau's Environmental Quality Protection Board (EQPB).

This Final report provides an overview of the project and a summary of the status and achievements of the project since the establishment of the Project Management Unit in October 2009 to the end of September 2013. During this four year period much progress has made and the purpose of this report is two-fold: (1) to assist with the timely and efficient conduct of the project's Final Evaluation; and (2) to update project partners and programs on the status and future direction of the project.

The initial concept of preparing this final report was conceived during discussions during the project's Regional Steering Committee in July 20121. At that time it was envisaged that the project's Final Review would commence in December 2013 and this report only contains information on project activities to that time

Ms Lynna Thomas

Palau IWRM Project Manager

1. Water and Sanitation Issues in the Development of the Palau GEF Pacific IWRM National Demonstration Project

The Republic of Palau is located in the western Pacific covering 189 square miles of land. The mean annual rainfall is 3.7m/yr generating an abundant supply of surface water from the streams and rivers on the main island of Babeldaob, where the largest water supply is the Ngerikiil Watershed. Palau's population was estimated at 19,907 in 2005 of which 77% live in urban areas and 23% live in rural areas.

Water is essential for human survival. It is an important resource as it is needed to ensure food security, people's livelihoods, industrial growth, and environmental sustainability. An increase in water demand of 2% per year is expected with the assumption that water demand management is implemented effectively resulting in improved Water Treatment Plant capacity and efficiency and reduced water losses result in no construction or expansion.

Filtering runoff and providing buffer zones along rivers is one of the critical ecosystem services that forests provide, particularly in development areas. Land use planning is critical to ensure that watersheds are protected from potential pollutants with sound infrastructure development, establishing effective buffer zones and limiting agricultural lands. The Drinking Water Safety Plan addresses public health risks such as bacterial or protozoal contamination related to human or animal waste, and chemical contaminants in certain special circumstances.

Palau is fortunate in having an abundant water supply 24 hours a day throughout the year for a majority of the population. The Koror-Airai Water Treatment Plant (KAWTP) produces and delivers to homes approximately 1.4 billion gallons of potable water per year. However during disasters such as the 1996 collapse of the KB Bridge and periods of drought such as the 1998 ENSO, there is a critical shortage of water. The threat to water quality from pollution is also a top concern in Palau.

Babeldaob Island has 5 major watersheds and 11 minor watersheds. Freshwater for drinking is primarily produced from surface water and treated through chlorination in the outer parts of Palau. The Environmental Quality Protection Board (EQPB) is the regulating agency supporting the Drinking Water Safety Plan and monitoring the quality of water supplied by the Koror -Airai Water Treatment Plant. The Bureau of Public Works manages the water supply and the distribution network on a daily basis.

There is a growing commitment to the protection and effective management of watersheds in Palau. In 2006 the Babeldaob Watershed Alliance was formed to help states sharing the same watershed coordinate efforts through Conservation Action Plans to better protect and manage their forests and water supplies. The financial values of ecosystem services for improved water quality are high when compared with investments in new or improved infrastructure, such as purification plants and flood control structures. In many cases it is often cheaper and more efficient to invest in ecosystem management and protection.

Climate change directly affects the water cycle and, as a result affects the quantity and quality of water resources available to meet human and environmental demands. It can lead to both floods and drought. These affects can be seen in rising sea levels that have a serious effect on coastal aquifers, which are a major source of urban and regional water supply systems. This can also influence higher water temperatures and changes in extremes can exacerbate many forms of water pollution.

The GEF Pacific Integrated Water Resources Management Project for the Republic of Palau is entitled "Ngerikiil Watershed Management for the Improvement of Water Quality." The major components of this project are to improve surface water quality in the Ngerikiil Watershed, mitigating impacts from drainage ditches coming off the compact road, improve biodiversity bio-indicators, and increase policy awareness.

2. Management of the GEF Pacific IWRM National Demonstration Project in Palau

The lead agency for the GEF IWRM Demonstration Project in the Republic of Palau is the EQPB. It is a semi-autonomous regulatory agency of the executive branch of the Government of the Republic of Palau that was created through the "Environmental Quality Protection Act," which is Title 24 of the Palau National Code (Title 24 PNCA). The EQBP is responsible for the protection and proper conservation of the quality of the environment and its resources so that sound and sustainable economic and social development proceeds in a manner that will not jeopardize Palau's future possibilities or opportunities.

In order to fulfil its mandate, the EQPB implements essential environmental programs whose successes rely on the establishment of a cooperative, coordinated and effective working relationship with other national government agencies and bodies, state governments as well as private entities within the republic. Under the Title 24 PNCA EQPB's role is to promulgate and enforce regulations addressing, earthmoving, marine and fresh water quality, toilet and wastewater disposal facilities, solid waste management, pesticides, public water supply systems, environmental impact statements, air pollution control, and ozone layer protection. EQPB issues permits which are based on these regulations to mitigate the impacts of development activities on water quality.

Lead Agency

Environmental Quality Protection Board

Memorandum of Agreement Signed 30th June 2009

National IWRM Focal Point

Metiek K. Ngirchechol

Laboratory Supervisor, EQPB

National IWRM Project Manager

Ms Lynna Thomas

EQPB

3. Establishment of a Coordinating Body for the Operation of the GEF Pacific IWRM Demonstration Project in Palau

Before the GEF Pacific IWRM Project the Republic of Palau had various laws, regulations, policies and plans with regards to water and sanitation issues for the Republic of Palau that were adopted under varying circumstances usually on an as needed basis. Indicated in the November 2007 IWRM Diagnostic Report, there is a lack of overarching policy, with the legal, governance and managerial framework for water resources done on a sectoral basis. The current status of the water policy landscape is, in large part, no different than what was indicated in the diagnostic report written before the IWRM Project.

The Bureau of Public Works under the Ministry of Public Infrastructure, Industry & Commerce were in charge of the extraction, treatment and delivery of water as well as the maintenance of the system. In addition, they were also responsible for the waste water treatment facilities in the state of Koror and the Environmental Quality Protection Board which was tasked with ensuring the protection of the fresh and marine water resources and the proper installation of wastewater systems in the areas of Palau that do not have a centralized wastewater treatment plant are examples of this sectoral approach to water management.

During the proposal phase of the project an ad-hoc committee had been previously set up to provide guidance on the development of a water safety plan in 2005. This committee consisted of the main agencies involved with different aspects of water management in the Republic of Palau. When the proposal for the Palau IWRM project was being drafted it was noted that a steering committee was a requirement of the project. At that point the National Environmental Protection Council was inactive and other environmental committees were otherwise unavailable. It seemed logical at that time to the partner agencies who dealt with different aspects of water management and who were current members of the Water Safety Plan committee to transition into the committee for the IWRM project with the addition of Airai State and others as deemed appropriate.

As can be seen inthe diagram below, the organizational structure that was decided at that time was to have the project management unit reporting to the National Water Committee (NWC) with partner agencies working together with coordination from the project management unit on the implementation of the Project. This has largely remained unchanged except for the lack of representation from the National Weather Service (NWS) office.

The current make up of the committee is excellent in that a majority of the members are also representatives of their respective agencies on other project or planning committees in the Republic of Palau. This has helped contribute to the exposure of the project in those other committees as well as the access to information that would otherwise not be available to people outside of the project or planning committees. The list of members and Terms of Reference for the Committee are included in Annex 1 and Annex 2 respectively.

4. Planning Stakeholder Participation in the Execution of the Palau GEF Pacific IWRM Demonstration Project

A list of relevant stakeholders for GEF Pacific IWRM Demonstration Project in the Republic of Palau was completed during the project proposal phase. During the inception phase of the project a letter of invitation was sent out to relevant stakeholders or their representatives to attend a meeting to discuss the implementation of the IWRM Demonstration Project in the Republic of Palau. There were those who were asked to join the steering committee, which guided the implementation of the project and those whose involvement needed to be engaged throughout the project in order for its successful implementation. When the Project Manager was hired for the project this list was reviewed with the help of the Regional Project Coordinating Unit and a stakeholder engagement plan was decided upon based on how influential each stakeholder was to the successful implementation of the project and how supportive he or she would be. Stakeholder engagement was organised so as to involve the right people at the right time. The table on the following page highlights key stakeholders with the full stakeholder analysis and engagement planincluded as Annex 3.

By and large the stakeholder engagement strategies have been focused mostly on awareness raising and involving different stakeholders in the implementation of the project. For example, the project management unit (PMU) through the lead agency has helped facilitate the past four Earth Day celebrations in the Republic of Palau. This has been a way to engage the younger generation of Palauans and actively raise their awareness on the importance of water and how their actions can impact the quantity and quality of water available to them. Additionally, promotional videos have been developed for the project and these have brought added interest about what the project aims to do as well as a greater understanding about the importance of communities involvement in water issues.

The stakeholder analysis was instrumental in generating the support needed to implement the IWRM demonstration project. It allowed us to identify the groups that we need to engage in order to fully implement the project. In Palau, we used different engagement strategies to try and increase awareness of the IWRM project and bring water issues into the forefront of discussions. These activities included Earth Day Celebrations, Blue Ribbon Water Awareness Month, Drawing Contest, School Visits, and Community Visits. These engagement activities have allowed us to bring the message about water out to the general public with different activities targeting different age groups. The Earth Day has allowed us to provide targeted engagement of school aged children. In 2013 we tried for the first time an Environmental Challenge Bowl targeted specifically for the high school students.

This particular activity received a good response from participants and we hope to replicate in future projects. In addition, to ensure active participation of committee members we ensured that we were active participants in their projects and that we were able to work collaboratively with them to ensure that there was no duplication of efforts across projects. One engagement strategy does not suit all situations or projects; this needs to be modified to take each group into consideration and tailor activities to their needs.

4.1 Gender Mainstreaming

During stakeholder engagements the project made concentrated efforts to take into consideration gender equality. In Airai State, we were lucky enough to work with Governor Victoria Kanai. Because of her past work with the Palau Historical Society and her role in the community she was able to bring in the older generation to the meetings. This included the Airai State Women's, men's, youth and church groups. The project was able to capture their participation in the meetings due to the nature of the quarterly reporting template. This allowed us to identify meeting attendees, take note of their gender, age group, and ethnicity.

Initial Stakeholder List from ProDoc	Key Stakeholders	
○ Airai State Government ○ Ministry of Resources and Development ○ Belau National Museum ○ Bureau of Agriculture ○ Bureau of Public Works ○ Environmental Quality Protection Board ○ Palau Automated Lands and Resources Information Systems (PALARIS) ○ Palau Conservation Society ○ Public Health (Division of Environmental Health, DEH) ○ Various community groups ○ US Forestry Service ○ National Steering Committee ○ WHO	○ Airai State Government ○ Airai State Public Land Authority ○ Airai Zoning Commission ○ Ministry of Natural Resource, Environment & Tourism ○ Belau National Museum ○ Bureau of Agriculture ○ Bureau of Public Works ○ Environmental Quality Protection Board ○ Palau Automated Lands and Resources Information Systems (PALARIS) ○ Palau Conservation Society ○ Public Health (Division of Environmental Health, DEH)	○ Various community groups ○ Women's groups ○ Youth groups ○ Men's groups ○ Palau Community College-Cooperative Research Extension ○ Office of Environment Response & Coordination (OERC) ○ SPC/SOPAC ○ Palau Community Action Agency ○ Grants Office ○ PPUC-Water and Wastewater Operations

5. Results Oriented Planning and Implementation of the GEF Pacific IWRM Demonstration Project in Palau

5.1 Logframe Development

During the inception period the project scope remained largely unchanged, as the partner agencies believed that the project scope that was submitted during the proposal phase of the project was still relevant. During the inception period the original project logframe taking into account the project scope as proposed by the partner agencies was revised under the guidance of the IWRM Regional Project Management Unit. This was then further revised during an in-country visit by regional project management unit staff to include measurable indicators for each component of the project. The status of each demonstration project activity as at December 2013 was assessed by the demonstration project coordinating committee. The following table summarises the priority objectives and activities of the IWRM project. The full project logframe is included with this report as Annex 4.

Project Objectives	Activity
Goal:	
Component 1: Improvement of Surface Water Quality in the Ngerikiil Watershed	
Output 1.1 Survey pollutant sources	1.1.1 Pollutant source and sanitary survey of the lower section of the Ngerikiil River
	1.1.2 Land use, pollutant sources (current and potential), riparian zones, and water uses in the lower Ngerikiil River mapped
	1.1.3 Establishment of buffer zones for pollutant reduction in the Ngerikiil Watershed
	1.1.4 Best Management Practices to reduce pollutant loading trialed in the Ngerikiil Watershed and upscaling plan agreed with landowners
Output 1.2 Revegetate riparian zones to minimize sedimentation levels in the Ngerikiil River	1.2.1 Priority riparian zones of the Ngerikiil River identified and revegetated with native tree species
	1.2.2 Removal of invasive plant species from priority riparian zones in the lower Ngerikiil Watershed
Output 1.3 Establish long-term monitoring program	1.3.1 Compilation of water quality and water treatment data from the Koror-Airai Water Treatment Plant in a centralised database
	1.3.2 Operational water quality monitoring program for the Ngerikiil River and receiving coastal waters
	1.3.3 Operational water quantity monitoring program for the Ngerikiil watershed
	1.3.4 Quality of storm water runoff from the Compact Road assessed and monitored
Component 2: Drainage Mitigation	
Output 2.1 To improve the quality of water draining to the Ngerikiil River	2.1 Survey of storm water drainage lines from the Compact Road in the Ngerkiil Watershed, and identification of options for reducing impacts of runoff
	2.2 Recommendations from 2.1 regarding management of storm water drainages followed through
	2.3 Awareness of the impacts of storm water runoff and mitigation measures raised among construction contractors
Component 3 Improvement of Biodiversity Bioindicators	
Output 3.1 Monitoring of ecosystem health through bioindicators	3.1.1 Bio-indicator programme, including sampling protocols, developed for the Ngerikill Watershed
	3.1.2 Capacity built for bio-indicator data collection, management, and analysis
	3.1.3 Review and compilation of existing data sources for bio-indicators and development of bio-indicators database
	3.1.4 Monthly collection of bio-indicators data for the Ngerikiil Watershed, including aquatic and terrestrial invertebrates and bird population surveys to establish baselines

Component 4 Policy Awareness	
	4.1 Feasibility study including options and recommendations for the development of a "Payment for Ecosystem Services" scheme for the Ngerikiil Watershed
	4.2 Study of socio-economic impacts of recommended options for a "Payment for Ecosystem Services" (PES) scheme for the Ngerikiil Watershed, including identification of barriers to the uptake of the PES concept
	4.3 Scoping study of necessary institutional and legislative reforms required to implement "Payment for Ecosystem Services" scheme in the Ngerikiil Watershed
	4.4 Operational Payment for Ecosystem Services scheme for the Ngerikiil Watershed
Component 5 To develop and implement a strategy to replicate outcomes in other parts of Palau and the Pacific	
Output 5.1 Replication strategy developed and implemented	5.1.1 Replication strategy developed with input from key stakeholders
	5.1.2 Recommendations from 5.1.1 regarding replication from the Ngerikiil Watershed Demonstration Project transmitted to the appropriate agencies
Component 6 Establish Long-term Sustainable Governance Body	
	6.1.1 Community catchment committee reviewed and reactivated
	6.1.2 Management plan for Ngerikiil watershed
	6.1.3 Establish sustainable funding mechanism
	6.1.4 Establish long-term National support for the Ngerikiil Working Group
Component 7 Successfully deliver the Palau demonstration project	
	7.1 Establish Project Management Unit for the GEF Funded Ngerikiil Watershed Demonstration Project
	7.2 Ngerikiil Watershed Stakeholders and their roles and responsibilities identified
	7.3 GEF Funded Ngerikiil Watershed Demonstration Project Reports
	7.4 Develop and Implement Engagement Strategy that facilitates increased engagement, identifying mechanisms for communicating issues, outputs and outcomes to key stakeholders and incorporates approaches targeting engagement opportunities and capacity building strategies for the whole community
	7.5 Develop and implement Communication Strategy
	7.6 Develop and implement capacity building strategy
	7.7 Manage budgets, deliverable and timelines

5.2 Priority Areas of Work and Results

The purpose of the GEF IWRM Demonstration Project in the Republic of Palau is to promote proper watershed and integrated management practices in the Ngerikiil Watershed. The promotion of proper watershed practices will reduce land degradation while preserving ecosystem stability, functions and services such as soil and watershed protection, water purification and nutrient retention. Its objective is to improve the quality of water in the Ngerikiil River, decrease the amount of chemicals needed to treat the water, and establish effective institutional arrangements to protect the Ngerikiil Watershed. Priority areas of work include re-vegetation and removal of invasive species in riparian areas, establishing long term watershed monitoring plans and mitigating impacts of water coming off of the compact road.

The following table highlights some of the key national IWRM results to date. The full Results Notes can be found in Annex 5.

	Key results
1	Substantially increased political awareness and support for IWRM, evidenced by His Excellency President Johnson Toribiong participating in Palau's 1st National Water Summit (2011) and endorsing the Palau National Water Policy and national coordination mechanism (2012).
2	Protection and Rehabilitation Ngerikiil Watershed including increase in land area rehabilitated, establishment of buffer zones, mitigation of pollution sources, and leveraging of financing for ongoing watershed conservation.
3	Increased collaboration between agencies that manage water, which is driving strengthened coordination of investments in water and sanitation activities at National and State levels, resulting in inter alia Palau's first Watershed Management Plan for Ngerikiil in Arai State.

5.2.1 Co-financing

The following tables highlights the co-financing that was realised and the additional funding that was leveraged from success of the project activities.

Source	Amount (USD)	Cash or In-kind	Description
Government	28125	Cash	Communications
Government	28125	Cash	Utilities
Government	12187.50	Cash	Office supplies
Government	129,600	Cash	25% of full-time salary of water quality lab staff
Government	28125	Cash	10% of full-time salary for administrative support staff
Government	93750	Cash	10% of full-time salary for intake support staff
Government	25,000	Cash	Monitoring and travel for pollutant surveys
Government	5,000	Cash	Chemical survey of river water
Government	140,400	Cash	Monthly water quality monitoring
Government	96000	In-kind	Rental of office space @$2000/month
Government	5,000	In-kind	Equipment
Government	30000	In-kind	Monitoring and travel for pollutant surveys
Government	281,500	In-kind	Monthly water quality monitoring
Government	5,000	In-kind	Mapping and modelling of ecosystem health
EU-SOPAC IWRM	50,000	Cash	Legislation for watershed protection
EU-SOPAC IWRM	10,000	Cash	Water safety plan
EU-SOPAC HYCOS	298,000	Cash	Development of a water quality monitoring programme
EU-SOPAC HYCOS	5,000	In-kind	Development of a water quality monitoring programme
US Forestry Service	280,000	Cash	Connections between forests and rivers
Palau National Museum	50,000	Cash	Bioindicators and monitoring ecosystem health
Palau National Museum	100,000	In-kind	Bioindicators and monitoring ecosystem health
Palau Conservation Society	35,000	Cash	Awareness raising materials, community workshops
Palau Conservation Society	125,000	In-kind	Awareness raising materials, community workshops

Other Funding Sources (US$)		Description of Co-Financing Raised
Cash	In-Kind	
12000		SLM Project provided money for IWRM Watershed Video
	10000	OTV provided support for UAB Climate Change Video for IWRM
	5000	Palau Conservation Society facilities and staff time
	5000	Airai State Staff time
2000		PREL- Water for Life Project

6. Strengthening National Coordination and IWRM Policy and Planning in Palau

6.1 Linkages of Demonstration Activities with IWRM Planning

To be completed.

6.2 Improving National Coordination for IWRM

The IWRM demonstration project worked with the key IWRM principles in mind to strengthen national coordination as a part of the IWRM process. Stakeholder engagement was done on a regular basis to discuss the different challenges and goals that exist to inhibit the institutionalization of IWRM. We worked also to ensure increased awareness, from the community to the President of the Republic on the importance of water, how we need to be concerned about the projection of the source, and how additional efforts need to be made on water conservation not just at the state where the project site is located but throughout the Republic of Palau. The demonstration project through its steering committee worked hard to ensure that there is coordination and cross sectoral management of water resources in Palau with efforts made under the IWRM project to institutionalize IWRM and ensure that the sharing of information that would otherwise not be available to certain partner agencies will continue after the project is completed.

Progress was made towards the creation of a national APEX water body. The original plan was to have the president create a National APEX Water Body through an executive order. With efforts from the EU IWRM policy planning project, the support of the Ministry of Natural Resources, Environment and Tourism and the Ministry of Public Infrastructure, Industry and Commerce meetings were held between relevant partner agencies to discuss the formal establishment of a National Water Task Force. Future water projects in Palau would have to go through this committee before their implementation. Below is a schedule of the steps taken to implement the National Water Policy and the institutionalization of IWRM during 2011-2012.

Efforts to create an APEX body were delayed as the year we planned to finish the work there were elections and a change in Government. In 2013 we focused on educating members of the current leadership and encouraging them to adopt an APEX water body. It was decided that instead of having a stand alone committee the APEX water body would be a subcommittee under the National Environmental Planning Council. This body will then coordinate future water projects.

6.3 National IWRM Planning

Through the collaborative efforts of the EU IWRM Project and GEF IWRM Project Palau was able to conduct two water summits and various stakeholder meetings to work to draft the Palau National Water Policy. His Excellency President Johnson Toribiong endorsed this Water Policy in April of 2012. The Water Policy was taken to the current administration and has been endorsed by His Excellency President Tommy Remengesau Jr. in 2013. The work done to inform the drafting of the policy was used to create an IWRM Plan.

The draft IWRM Plan was informed by the work done through the EU IWRM project. There are five components for the Palau IWRM plan. The first part of the plan is the status of water and sanitation in the Republic of Palau. It then introduces coordinating mechanisms that currently exist. The third part of the plan is the overarching policy statement with regards to water that is provided by the Palau National Water Policy. The bulk of the plan is the identification of current and future needs of the water sector and providing actions that are being taken to address these needs. The final part of the plan is trying to link priority actions to costs and how Palau might be able to provide funding for these actions.

7. Capturing Lessons Learned for Replication and Scaling-up of IWRM Best Practice in Palau

7.1 Lessons Learned

The project has learned a lot over the course of the 4 years of implementation. The first lesson learned has to do with ensuring that the project is successfully delivered with all of its finances in order. For future project success the Ministry of Finance and the Project Management Unit need to work together to reconcile UNDP reporting process with the Ministry of Finance reporting process. There has to be synergies between both of these processes so that financial matters do not delay the project. In addition, for future projects templates for requisition would probably need to be created specifically for the project with the project logo that way they are easily identifiable to the project staff and to the finance staff.

The second was the importance of the having a Water Champion. In Palau's case we have been fortunate to have the governor of Airai as our "champion." She has been able to help generate the community support needed to have the project successfully implemented.

7.2 Replication and Scaling-up

The implementation of GEF IWRM Demonstration Project in the Republic of Palau has been a learning experience. The importance of stakeholder engagement in a project is an important lesson learn in this particular demonstration project. In the Republic of Palau, water is often taken for granted and only paid attention too when there is a shortage of water. Since the inception of the project we have only had one dry period in 2010 lasting 3 months. Even during this period water was still available a majority of the day only getting turned off from 10 pm to 4am. It is important to getting people interested and engaged during the entire project so that they know the importance of water and that what they are doing makes a difference.

The second major lesson learnt is the importance of engaging the right stakeholder participation. For the project, getting the Governor of Airai State in which the project site is located involved in decision making for the project has made it easier to receive permission to implement on the ground work in the Ngerikiil Watershed. Furthermore, with the implementation of the project it is important to make sure that the PMU during the inception phase irons out the issues with in-country financial mechanisms for ease of getting funding from the Regional Project Management Unit to the Lead Agency and out to the implementing partners so that the work is not delayed. An initial summary of replication and scaling-up strategies are included in Annex 5.

8. Planning the Transition from IWRM to the Regional Ridge to Reef Initiative

8.1 Scaling-Up to broader Integrated Land, Water and Coastal Management

The Project Coordinating Units for the Palau Ridge to Reef program for both the STAR project and the IW project will be under the Ministry of Natural Resources, Environment and Tourism, which is the GEF Political Focal Point. These two projects will have the same steering committee, which will be a subcommittee of the National Environmental Planning Council (NEPC). This will allow for transfer of information from the projects to the steering committee, up to the NEPC and onward to the President of Palau. In addition, with funding support from both the STAR project and the IW project a GEF Projects Coordinator whose responsibility will be to coordinate both of these GEF projects will be hired and seated at the Office of Environmental Response and Coordination. This is the office where the GEF Operational Focal Point is seated and will add another layer of communications so that all the key stakeholders are kept informed.

The proposed Palau IW project is going to be building from the work done by the GEF IWRM project and increasing the scope of the project so that it truly integrates water, land and coastal management. The major components of the proposed project are as follows:

- Supporting Ngerikiil Mgmt plan implementation, including sustaining local coordination efforts with focus on leveraging of funding to scale up efforts in Ngerikiil and replication of the planning approach elsewhere. Building links with ongoing coastal environmental monitoring currently undertaken by coral reef center.

- Strengthening capacity for PM&E of implementation management plan impact, including building capacity for terrestrial monitoring of terrestrial environment, and looking to build this PM&E approach into efforts of STAR project to revitalize the Protected Areas Network and SLM

- Public-private partnership for tourism sector investment in IWLCM

Annexes

Annex 1: Palau National Steering Committee

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Annex 2: Palau IWR Project Committee

Palau Integrated Water Resource Project Committee

TERMS OF REFERENCE

COMMITTEE PURPOSE
1. To serve as a steering committee for the IWRM Project for the implementation of the National Demonstration Project entitled ***Ngerikiil Watershed Restoration for Improvement of Water Quality***
2 . To consider issues pertinent to the Palau IWRM demonstration Project.
3. To decide protocol for committee operation, establish operational procedures for internal committees, develop meeting agenda
4. To serve in an advisory capacity

MEETING SCHEDULE
The committee shall meet quarterly at a time and place determined by the committee. Additional committee meetings may be convened by the committee chair to deal with special items of business.

MEMBERSHIP
3.1 The committee shall consist of a senior staff member from EQPB, DEH, BPW, PCS, BFA, BITTA, PALARIS, SLM Coordinator, BOA, Airai State Governor's Office, Ngerikiil stakeholders, and others as deemed necessary by a consensus of the committee. Each agency will designate an alternate who will serve in the absence of the Member the. The committee shall be assisted by experts and advisors from all agencies concerned.
3.2 Each agency representative shall have authorization to make decisions on behalf of their respective agencies.
3.3 A quorum of members must be present before a meeting can proceed. At least ½ of the committee must be present for the meeting to proceed.
3.4 Internal or external persons may be invited to attend the meetings at the request of the Chairperson on behalf of the committee to provide advice and assistance where necessary. They have no voting rights and may be requested to leave the meeting at any time by the chairperson.
3.5 Decisions will be made by consensus.
3.6 Committee members will cease to be a member of the Committee if they:

- resign from the committee
- fail to attend 3 consecutive meetings without notice
- resign from their employment
- breach confidentiality

CHAIRMAN
1. Chair: The chair shall be an independent Chair as selected by the committee to serve for the duration of the project.

ADVISORS
The committee may request, as the need arises, expert advice or study on problems identified by the committee.

SECRETARIAT
The IWRM Project Manager shall serve as the Secretariat for the Committee, with support from EQPB as the hosting Agency.

DECISIONS
Decisions will be reached by a consensus of the membership. When consensus cannot be achieved, the concerns of all agencies shall be described in the committee's report.

SUB-COMMITTEES
The committee may, as it deems necessary, establish sub-committees.

REPORTING
The committee shall transmit to SOPAC, prior to the regional Steering Committee annual meeting, a report of the committee's quarterly meeting including reports of special committees.

AMENDMENTS
The terms of reference shall be reviewed annually from the date of approval. They may be altered to meet the current needs of all committee members, by agreement of the majority.

The above Terms of Reference for Palau IWRM Steering Committee have been agreed to on this day.

SIGN BY CHAIR

Annex 3: Stakeholder Analysis and Engagement Action Plan

Stakeholder Analysis and Engagement Action Plan for the Republic of Palau's National IWRM Demonstration Project

	Stakeholder Analysis						Action plan for stakeholder engagement			
	Stakeholder (Organisation/post/ name/contact)	Key interests, concerns	How does the project affect them?	How support-ive will they be? ++; +; =; -; --	How much influence Very 5 – 0	6 Priority to engage Top 5 - 0	What do we need /want them to do?	What (& how) do we do to engage them? (to get what we need)	When do we engage them?	1Who leads?
1.	Airai State Govt	Owns the watershed, concerned about being able to fully utilize it to bring income to the state.	The project might be able to leverage through the payment for ecosystem services money for the state so that if they set aside the upper watershed they would still be able to generate income for the state.	+	5	5	Project buy in and ownership		'Throughout the project'- as they are members of the steering committee which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	Project Manager
2.	EQPB	Water quality	Improvement of water quality	++	3	2	As a lead agency we want them to pave the way for the implementation of the project	Joint planning and involvement in project workplan, water quality and quantity	Throughout the project'- as they are members of the steering committee which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	Head of Lead Agency
3.	BPW	Water Quality, Cost of treatment, and the cost of delivery of water	Improved water quality will eventually decrease the cost of treatment	+	4	4	Road drainage mitigation, water quality	Participation with water awareness campaign, Joint planning and involvement in project work plan	Throughout the project'- as they are members of the steering committee which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	Project Manager/Head of Lead Agency
4.	BOA	Vegetation, Invasive species and its affect on water quality	Types of vegetation suitable for the Ngerikiil Watershed Area	+	3	3	Revegetation of priority areas	Participation with water awareness campaign, Joint planning and involvement in project work plan, revegetation, invasive species removal	Throughout the project'- as they are members of the steering committee which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	Project Manager
5.	PALARIS	Creation of better maps of Ngerikiil watershed	Will provide funding necessary to	+			Maps for Ngerikiil		Throughout the project'- as they are	Project Manager

	Stakeholder Analysis						Action plan for stakeholder engagement			
	Stakeholder (Organisation/post/ name/contact)	Key interests, concerns	How does the project affect them?	How support-ive will they be? ++; +; =; -; --	How much influence Very 5 – 0	6 Priority to engage Top 5 - 0	What do we need /want them to do?	What (& how) do we do to engage them? (to get what we need)	When do we engage them?	1Who leads?
			complete the work they need to get done						members of the steering committee which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	
6.	Public Health	Health of the public	improved water quality will decrease incidents of water borne illnesses	++			Help with project oversight and implementation	?	Throughout the project'- as they are members of the steering committee which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	Project Manager
7.	Belau National Museum	Finding Biological indicators of the health of Palau's Environment.	Helps continue the work that they are doing on identifying biological indicators in	+			Biological monitoring indicators	?	Throughout the project'- as they are members of the steering committee	Project Manager

	Stakeholder Analysis						Action plan for stakeholder engagement			
	Stakeholder (Organisation/post/ name/contact)	Key interests, concerns	How does the project affect them?	How support-ive will they be? ++; +; =; -; --	How much influence Very 5 – 0	6 Priority to engage Top 5 - 0	What do we need /want them to do?	What (& how) do we do to engage them? (to get what we need)	When do we engage them?	1Who leads?
			Palau						which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	
8.	PCS	The conservation or preservation of the Palau environment	a field site for dem-onstration/learni ng, increased awareness of importance of watershed	+			Help with awareness campaign and support		Throughout the project'- as they are members of the steering committee which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	Project Manager
9.	PCC-CRE		a field site for demonstration/le arning new and innovative farming or piggery practices	=			Development of BMP's for farmers		Throughout the project'- as they are members of the steering committee which meets quarterly as	Project Manager

	Stakeholder Analysis						Action plan for stakeholder engagement			
	Stakeholder (Organisation/post/ name/contact)	Key interests, concerns	How does the project affect them?	How support-ive will they be? ++; +; =; -; --	How much influence Very 5 – 0	6 Priority to engage Top 5 - 0	What do we need /want them to do?	What (& how) do we do to engage them? (to get what we need)	When do we engage them?	1Who leads?
									well as specific activities such as earth day in which we'll engage the community.	
10.	NEMO	Availability of water to the public	ability to know when to declare droughts	=	4	5	In charge of drought management plans so availability of resource to them is important		Throughout the project'- as they are members of the steering committee which meets quarterly as well as specific activities such as earth day in which we'll engage the community.	SCM, Project Manager
11.	Community Groups [Different interest groups or all same?]	Only water interest or also land management	Change of practices with regards to how they treat the watershed and their surroundings	+	5	5	As decision makers + actions as well as more knowledge	Project videos, awareness campaigns, community meetings, project implementation		SCM, Project Manager
12.	Private individuals [Varying interests?]	Quality of water and cost of delivery	Change of practices with regards to how they treat the watershed and	+	5	5	project support and lobbying of lawmakers	As above		SCM, Project Manager

	Stakeholder Analysis						Action plan for stakeholder engagement			
	Stakeholder (Organisation/post/ name/contact)	Key interests, concerns	How does the project affect them?	How support-ive will they be? ++; +; =; -; --	How much influence Very 5 – 0	6 Priority to engage Top 5 - 0	What do we need /want them to do?	What (& how) do we do to engage them? (to get what we need)	When do we engage them?	1Who leads?
			their surroundings							
13.	PCOC	Quality and Quantity of water and the cost of delivery and how that will affect business		+	4	4	project support and lobbying of lawmakers			SCM, Project Manager
14.	Students	May be interested in env'tl or livelihood or business activities	Increased knowledge Awareness? Env'l club Possible internship opportunities in the field	+	2	3	project support and learn the importance of water	site visits, mentoring, maybe inclusion of water quality into curriculum		SCM, Project Manager
15.	Local Farmers	Or change in farming practice		+	3	3	project support and lobbying of lawmakers, use of bmp's	Meetings with audio-visuals, workshop, training etc.		PCC-CRE, Project Manager
16.	Airai State Public Land Authority	Public land is used for the benefit of Airai State	Development of watershed is part of their interest	+	5	3	project support and lobbying of lawmakers creation of watershed committee	community meetings, one on one consultation, involvement in committee for watershed		Airai State
17.	Airai Zoning Commission	Airai is zoned appropriately for development	Development of watershed is part of their interest as its a major part of the state	+	5	3	project support and lobbying of lawmakers creation of watershed committee	community meetings, one on one consultation, involvement in committee for watershed		Airai State

Palau Project LogFrame 2013

Goal The purpose of this project is to promote proper watershed and integrated management practices in the Ngerikiil Watershed. The promotion of proper watershed practices will reduce land degradation while preserving ecosystem stability, functions, and services such as soil and watershed protection, water purification and nutrient retention.

Purpose By improving the quality of water in the Ngerikiil River the project will improve water quality, decrease the amount of chemicals needed to treat the water, and establish effective institutional arrangements to protect the Ngerikiil watershed.

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
	Component 1: Improvement of Surface Water Quality in the Ngerikiil Watershed				
1	**To improve surface water quality in the Ngerikiil Watershed**			That the water source is potentially at risk. This is the water supply that supplies water to 80% of the population of Palau.	
1.1	***Survey pollutant sources***				
1.1.1	Pollutant source and sanitary survey of the lower section of the Ngerikiil River	Land use, pollutant sources, riparian zones, river water use, and water quality (DO, pH, Salinity, coliform) in the lower section of the Ngerikill River identified to establish Year 1 baselines by 30 June 2010	Report on land use, pollutant sources, riparian zones, river water use, and water quality in the lower Ngerikill Watershed reviewed and endorsed by Palau's IWRM Steering Committee	Capacity and access to consultants. Sampling strategy provides data representative of baseline conditions in the Ngerikill River	Environmental Quality Protection Board and Bureau of Agriculture
	Audience: Airai State and National Government Product: Press release and briefing paper, reference to photos collected during survey, particularly those depicting pollution Distribution: Local media and project website				
1.1.2	Land use, pollutant sources (current and potential), riparian zones, and water uses in the lower Ngerikiil River mapped	ArcInfo GIS map of land uses (market gardens, household farms, aquaculture, piggeries, hatcheries), pollutant sources (current and potential), distribution and extent of riparian zones, and water uses/sites in the Ngerikiil River produced by 31 December 2011	GIS map of land use, pollutant sources (current and potential), riparian zones, and water uses in the lower Ngerikiil River reviewed and endorsed by Palau's IWRM Steering Committee	Capacity and access to GIS mapping specialist Survey provides data and information representative of existing land uses, pollutant sources, riparian zones, and water use	Environmental Quality Protection Board and Palau Automated Land and Resources Information System (PALARIS)
	Audience: everyone Products: map and Google Earth kmz file Distribution: public display of map, TV news story, project website				
1.1.3	Establishment of buffer zones for pollutant reduction in the Ngerikiil Watershed	Buffer zones planted adjacent to key pollutant sources in the lower Ngerikiil Watershed by end 2012 Increased buffer zone area in the Ngerikiil Watershed	Length, breadth, and percent cover of buffer zones adjacent to the pollutant sources identified during EQPB's 2010 pollutant and sanitary survey	Willingness of landowners to use land for buffer areas Availability of seedlings and suitable climatic and soil conditions for planting	Environmental Quality Protection Board, Bureau of Agriculture, and Landowners
	Communications Event: Micronesian games athletes tree planting				

	Communications Event: Micronesian games athletes tree planting Audience: sub-regional (Micronesia) Product: media advisory (all media in Micronesia), press release, web stories, video cast Distribution: all media (TV, radio, print)				
1.1.4	Best Management Practices to reduce pollutant loading trialed in the Ngerikiil Watershed and upscaling plan agreed with landowners	One year trial of pollution reduction initiative at one market garden/livestock area, and comparison of pollutant loading with control farm completed by June 2012 Results of trial used as basis for development of best pollution management practices amongst landowners by December 2012	Report on the trial of best pollution management practices reviewed and endorsed by the IWRM Steering Committee by end 2011 Up-scaling plan for pollution management agreed amongst landowners and adoption of best management practices by farmers	Trial design provides significant reduction in pollutant loading Control and trial sites are representative of existing land use and farming practices	Environmental Quality Protection Board, Bureau of Agriculture, Landowners, and Palau Community College Cooperative Research Extension Office
	Audience: land owners, farmers, other GEF IWRM demonstration projects Product: report, flyer/poster and brochure (possible press release based on findings) Distribution: web story, handouts, media (based on findings)				
1.2	***Revegetate riparian zones***				

Output No.	**Output**	**Key Indicators**	**Means of Verification**	**Assumptions / Risks**	**Responsible Partner(s)**
	to minimize sedimentation levels in the Ngerikiil River				
1.2.1	Priority riparian zones of the Ngerikiil River identified and revegetated with native tree species	Priority riparian zones of the Ngerikiil River identified and agreed by IWRM Steering Committee by September 2010. Priority zones revegetated by June 2012. Trial of Best Revegetation Materials by January 2013	Ground-truthed GIS maps of riparian zones of the Ngerikiil River pre and post revegetation. Percentage increase in cover and width of the Ngerikiil's riparian zones. Report on Best Revegetation Materials	Availability of native plant species and ability to propagate seedlings Native plant species provide adequate bank stability and assist with reducing sedimentation	Environmental Quality Protection Board and Bureau of Agriculture
1.2.2	Removal of invasive plant species from priority riparian zones in the lower Ngerikiil Watershed	Invasive plant species in the lower Ngerikiil Watershed identified and percent cover estimated by September 2010. Physical removal of invasive plants from priority zones by end 2010.	Ground-truthed GIS maps of riparian zones of the Ngerikiil River pre and post invasive plant removal. Percentage reduction in cover of invasive species.	Physical removal of invasive plants and replanting of native species is effective in reducing cover of invasive species	Bureau of Agriculture and Community Volunteers
	Event: Earth Day 2011 (Billion Acts of Green), 2012 (Sustainability), Earth Day and World Water Day 2013 (Water Cooperation) (Activities 1.2.1 and 1.2.2) Audience: Public Product: Press Release, photographs, video footage Event: Earth 2012 (Sustainability) (Activities 1.2.1 and 1.2.2) Audience: Public Product: Press Release, photographs, video footage				
1.3	***Establish long-term monitoring program***				
1.3.1	Compilation of water quality and water treatment data from the Koror-Airai Water Treatment Plant in a centralised database	Database of water quality data and water treatment data developed, maintained, and updated. EQPB laboratory staff and Koror-Airai Water Treatment Plant staff trained in data collection and management by January 2013	Database containing all available water quality data for the Ngerikiil River Laboratory staff trained	Capacity to populate database with historic datasets Sufficient buy-in from EQPB and water treatment plant staff to ensure regular database updating Expertise to maintain database	Environmental Quality Protection Board and Bureau of Public Works

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
1.3.2	Operational water quality monitoring program for the Ngerikiil River and receiving coastal waters	Water quality sampling strategy developed, reviewed, and endorsed by the IWRM Steering Committee Monthly water quality monitoring visits and necessary laboratory analysis undertaken Water quality database updated monthly with new and additional data	Agreed water quality sampling strategy Monthly water quality data and updated database	Capacity of EQPB to make staff available for monthly sampling Availability of sampling and laboratory equipment	Environmental Quality Protection Board
1.3.3	Operational water quantity monitoring program for the Ngerikiil watershed	Water quantity data collected monthly	Data compiled by EQPB staff	Externally funded activity, with associated risks, including ongoing drivers to deliver monitoring program that is consistent with the needs of this activity	Pacific Hydrological Cycle Observing System Project (HYCOS)
1.3.4	Quality of storm water runoff from the Compact Road assessed and monitored	Annual water quality data (metals, petroleum, inorganics) from Compact Road runoff collected	Water quality data compiled by EQPB staff	That the sampling strategy provides representative data	Environmental Quality Protection Board and Design and Engineering Office, Bureau of Public Works
	Audience: Koror and Airai residents, politicians Product: public water gauge billboard, press release for launch, monthly media update, water bottle labels Distribution: billboards at key locations (e.g. EQPB, Airport)				
	Component 2: Drainage Mitigation				
2	**To improve the quality of water draining to the Ngerikiil River**			We assume that the existing conditions are contributing to decreased water quality. Increased development (additional contributing factors) presents a risk	
2.1	Survey of storm water drainage lines from the Compact Road in the Ngerikiil Watershed, and	Survey conducted and report reviewed and endorsed by IWRM Steering Committee by 30 September 2010. Report to	Report and agreed recommendations for storm water management from the Compact Road	Survey period is representative of conditions affecting storm water drainage in the Ngerikiil Watershed	Environmental Quality Protection Board and Design and Engineering Office,

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
	identification of options for reducing impacts of runoff	include recommendations regarding management of storm water from Compact Road.			Bureau of Public Works
2.2	Recommendations from 2.1 regarding management of storm water drainages followed through	Management strategies to reduce impacts of storm water drainages from the Compact Road in place by December 2011	Management plans for all Compact Road Storm water drainages in the Ngerikiil Watershed	Need for management of storm water drainage from the Compact Road Financial and human resources to meet recommendations from Activity 2.1	Environmental Quality Protection Board, Design and Engineering Office, Bureau of Public Works, Bureau of Agriculture, and Airai State
2.3	Awareness of the impacts of storm water runoff and mitigation measures raised among construction	Storm water management workshop convened by December 2009 Examples of inappropriate and	Workshop convened and participated in by key construction contractors operating in Airai State Public awareness materials on best	Adequate participation by construction contractors	Environmental Quality Protection Board

	contractors	best practices compiled into public awareness materials and distributed to constructed contractors by December 2010 80 percent of Airai State construction projects following recommended best practice principles	practices in managing storm water runoff from constructed sites produced		
	Audience: construction contractors Product: PowerPoint presentation, brochure, and manuals Distribution: delivered as part of licensing provisions				
	Component 3: Improvement of Biodiversity Bioindicators				
3	**To sustain biodiversity in the Ngerikiil Watershed**			We assume that we have the capacity and access to consultants. Coordinating finances with availability of consultant presents a risk	
3.1	***Monitoring of ecosystem health through***				

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
	bioindicators				
3.1.1	Bio-indicator programme, including sampling protocols, developed for the Ngerikill Watershed	Report outlining planned indicator species groups, sampling techniques, study sites, data collection and analysis, and data management discussed and endorsed by the IWRM Steering Committee by end January 2013	Report outlining selected species groups, methodology, and data management IWRM Steering Committee members familiar with use and limitations of bio-indicators in assessing effectiveness and limitations of management interventions	Availability of specialists with Palau invertebrate/biodiversity assessment experience	Environmental Quality Protection Board and Palau National Museum (Natural History unit)
3.1.2	Capacity built for bio-indicator data collection, management, and analysis	One staff of EQPB trained in sampling techniques, species identification, and data management and analysis by end 2010	EQPB staff capable of conducting bio-indicator field surveys, species identification, and calculation of key diversity and abundance indices	Availability of specialist trainers Continuity of EQPB staffing arrangements	Environmental Quality Protection Board and Palau National Museum (Natural History unit)
3.1.3	Review and compilation of existing data sources for bio-indicators and development of bio-indicators database	Meta-database of existing data sources developed and endorsed by IWRM Steering Committee by June 2012 Relational database for bio-indicators data developed and maintained by EQPB by end January 2013	Meta-database of existing data Relational database for bio-indicators data	Accessibility to data from past and ongoing projects Sufficient scientific input into design of fields and queries for relational database	Environmental Quality Protection Board and Palau National Museum (Natural History unit)
3.1.4	Monthly collection of bio-indicators data for the Ngerikiil Watershed, including aquatic and terrestrial invertebrates and bird population surveys to establish baselines	Monthly field surveys conducted at and data compiled in bio-indicators database (3.1.3)	Field survey reports and data	Availability of skilled field and laboratory technicians	Environmental Quality Protection Board and Palau National Museum (Natural History unit)
	Audience: students, tourists, naturalists Product: poster of key species in Ngerikiil Watershed, postcards Distribution: schools, shops, and resorts				
	Audience: school science students Product: participatory data collection programme for students, including field guide Distribution: High Schools and Community College				

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
	Component 4: Policy Awareness				
4	***To provide recommendations to policy makers***			We assume that the success of this project is dependent on policy intervention.	
4.1	Feasibility study including options and recommendations for the development of a "*Payment for Ecosystem Services*" scheme for the Ngerikiil Watershed	Feasibility report reviewed and endorsed by the IWRM Steering Committee by end July 2013	Report including options and agreed recommendations	Available human resource capacity required to effectively reconcile scientific, technical, and political issues influencing the Ngerikiil Watershed	Environmental Quality Protection Board, Palau Conservation Society, and consultant
	Audience: Palau residents Product: report, flyer press release, feature story, interviews with Governor of Airai State Distribution: web story, handouts, and media				
4.2	Study of socio-economic impacts of recommended options for a "*Payment for Ecosystem Services*" (PES) scheme for the Ngerikiil Watershed, including identification of barriers to the uptake of the PES concept	Survey design reviewed and endorsed by IWRM Steering Committee by January 2013 Survey executed by end March 2013 Report including estimates of willingness-to-pay for ecosystem services of the Ngerikiil Watershed, and socio-economic effects of watershed protection on local communities and Airai State development endorsed by the IWRM Steering Committee by end July 2013	Report including estimates of willingness-to-pay for ecosystem services and socio-economic benefits and costs of watershed protection	Available human resource capacity required for survey design Willingness of water users to participate in survey	Environmental Quality Protection Board, Palau Conservation Society, and consultant
	Audience: Politicians, water users Product: press releases, news stories, specific communications strategy Distribution: All media (TV, press, Internet)				
4.3	Scoping study of necessary institutional and legislative reforms required to implement "*Payment for Ecosystem Services*"	Stakeholder consultation on outputs of socio-economic impact study convened by December 2012 Scoping of institutional and	Consultation with full representation of key stakeholder groups convened Draft report commented on by land and water users, government officials, IWRM Steering Committee	Available human resource capacity required to effectively reconcile scientific, technical, and political issues influencing the Ngerikiil Watershed	Environmental Quality Protection Board and consultant

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
	scheme in the Ngerikiil Watershed	legal needs completed, and reviewed and commented on by stakeholders by end July 2013 Report including proposed recommendations endorsed by IWRM Steering Committee and presented to relevant government officials	Final report endorsed by IWRM Steering Committee and presented to relevant government officials		
4.4	Operational Payment for Ecosystem Services scheme for the Ngerikiil Watershed	Institutional and legislative basis for PES scheme in place August 30, 2013	Payments made by water users Payment to land owner for protection	Government and land and water user support for the concept	Environmental Quality Protection Board
	Component 5: Documentation				
5	To develop and implement				Socio-Economic

	a strategy to replicate outcomes in other parts of Palau and the Pacific.				Socio-Economic
5.1	**Replication strategy developed and implemented**				
5.1.1	Replication strategy developed with input from key stakeholders	A plan identifying catchment management needs at a national level, identifying mechanisms for transferring learnings and tools and key policy and financial enabling factors end May 2013	Plan identifying catchment management needs at a national level, identifying mechanisms for transferring learnings and tools and key policy and financial enabling factors reviewed and Endorsement by Steering Committee	Plan coming out of the Ngerikiil Watershed Demonstration Project will be adequate to identify catchment management needs at a national level.	
5.1.2	Recommendations from 5.1.1 regarding replication from the Ngerikiil Watershed Demonstration Project transmitted to the				

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
	appropriate agencies				
	Component 6: Establish Long-term Sustainable Governance Body				
6	**Establish Long-term sustainable governance body**				
6.1.1	**Community catchment committee reviewed and reactivated**	TOR developed and signed the Ngerikiil Working Group by June 2013	TOR endorsed by the Airai State Governor	Reliant on donors providing support to strengthen the program, with associated funding, commitment, integration, resources and timing concerns; Assumed that sufficient information is obtainable to provide confidence in decisions, adequate resources available, adequately skilled people can be attracted and retained	EQPB, Airai State Government
6.1.2	**Management plan for Ngerikiil watershed**	Management plan created and approved by the Ngerikiil Working Committee by June 2013	Management plan endorsed by State governor	Continuity without outside funding	Airai State government
	Establish sustainable funding mechanism	PES established	Approval of increase in water rates by Congress, implementation by Finance Voluntary contributions by tourists	Assumed that Congress will buy-in	EQPB, ASG
	Establish long-term National support for the Ngerikiil Working Group	Become a member of the Protected Areas Network	Watershed becomes a nationally recognized Protected Area	Rotating funds will be available for implementation of management plan	EQPB, PAN, ASG
	Component 7: Successfully deliver the Palau demonstration project				
7	**Successfully deliver the Palau demonstration project**				
7.1	**Project Management Unit deliver successful sustainable strategies**				

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
7.1.1	Establish Project Management Unit for the GEF Funded Ngerikiil Watershed Demonstration Project	Project Manager hired housed at EQPB by 30 August 2009.Letters of Agreement between SOPAC and EQPB reviewed and endorsed by 1 September 2009.	Contract between EQPB and the Ngerikiil Watershed Demonstration Project Manager signed by 30 August 2009. Letters of Agreement between SOPAC and EQPB endorsed and transmitted to Regional Project Managment Unit.	The project manager would have enough support on island/in-house to properly run the project.	Environmental Quality Protection Board
7.1.2	Ngerikiil Watershed Stakeholders and their roles and responsibilities identified	Register of stakeholder roles, expectations and responsibilities, reviewed annually	Annual register of the Ngerikiil Watershed Stakeholder roles, expectations and responsibilities endorsed by the IWRM Steering Committee.	Stakeholders are representative of the Ngerkiil Watershed	Project Manager and IWRM Steering Committee
7.1.3	GEF Funded Ngerikiil Watershed Demonstration Project Reports	1 Progress report per year outlining what has been accomplished, what still needs to be accomplished and problems that were encountered.	PCU Reporting		Project Manager
7.1.4	Develop and Implement Engagement Strategy that facilitates increased engagement, identifying mechanisms for communicating issues, outputs and outcomes to key stakeholders and incorporates approaches targeting engagement opportunities and capacity building strategies for the whole community	Engagement strategy Implemented Engagement Indicators	Endorsement of strategy by Steering Committee Project reporting		
7.1.5	Develop and implement Communication Strategy	Identification of what needs to be communicated, who we are communicating to, how we are going to communicate.	Newspaper Advertisement, Radio or TV spot, Press Release, pamphlets, school visits, etc.	Financial and Human resources to effectively deliver message.	-Environmental Quality Protection Board and Palau Conservation Society
7.1.6	Develop and implement capacity building strategy	Generic targets, such as increased awareness and community capacity	Surveys		

Output No.	Output	Key Indicators	Means of Verification	Assumptions / Risks	Responsible Partner(s)
		Specific capacity targets such as: Capacity developed for Community and Government to independently operate PES Capacity developed for	Steering Committee endorsement of PES operated by community and government Participatory M&E programs endorsed by		

		community to undertake ongoing biological monitoring	Steering Committee		
7.1.7	Manage budgets, deliverable and timelines	Financial and Narrative Report outlining what has been accomplished, what still needs to be accomplished and problems that were encountered submitted to the PCU on a quarterly basis.	Financial and Narrative Report endorsed by the PCU on a quarterly Basis.	The PMU will be able to get the financial support to the Partners and consultants for the deliverables to be accomplished on time.	Project Manager/EQPB
SUPPORTING POLICY ACTIVITIES					
P.1	Terms of Reference and Identification of Members for a National Water Committee	Terms of Reference developed and endorsed by the IWRM Steering Committee by end 2010 Proposed list of members and justification for involvement by end 2010	Terms of Reference and Membership List	High level understanding by the Minister of Natural Resources, Environment, and Tourism of the need for and purpose of the Committee	EQPB and MNRET
P.2	Executive Order from President for creation of National Water Committee	Draft Executive Order drafted and reviewed by IWRM Steering Committee by end 2010 for submission to cabinet by December 2011 Proclamation of Executive Order by February 2011	Executive Order	Sufficient high level political buy-in	EQPB and MNRET
P.3	National Water Summit to inform stakeholders of: (a) National Water Committee Mandate and	National Water Summit convened on World Water Day (22nd March) 2011 Stakeholders informed of	National Water Summit convened Policy paper outlining: membership; ToR/mandate; and responsibilities of National Water Committee; and agreed	Sufficient high level political buy-in Sufficient interest amongst stakeholders to comment on proposed process	EQPB and MNRET

Output No.	**Output**	**Key Indicators**	**Means of Verification**	**Assumptions / Risks**	**Responsible Partner(s)**
	Responsibilities; and (b) proposed process for policy and legislative reform for IWRM and WUE	Executive Order and proposed process for IWRM and WUE policy and legal reform. Comments received by 22nd April 2011	steps for undertaking policy and legislative reform for IWRM and WUE in Palau.		
P.4	Review of existing policies and laws relating to water and sanitation, and identification of needs with respect to national policy and legislative reform	Policy Adviser recruited by February 2011 Policy report reviewed and endorsed by National Water Committee and circulated for public comment by June 2011 Final report published and commented by July 2011	Policy review report	Availability of specialist with expertise required to effectively reconcile scientific, technical, and political issues relating to IWRM and WUE in Palau	EQPB, MNRET, and consultant
P.5	Draft national water policy and recommended legal reforms endorsed by National Water Committee for submission to Cabinet	Public hearing to present recommendations to stakeholders September 2011 Comment received and final draft policy submitted to Cabinet by October 2011	Public hearing records Draft policy document Final draft submitted to Cabinet	Adequate time to ensure sufficient buy-in from senior officials	EQPB, MNRET, and consultant

Annex 5: Results Notes

Implementing Sustainable Water Resource and Wastewater Management in Pacific Island Countries

GEF PACIFIC IWRM PROJECT RESULTS NOTE

http://www.pacific-iwrm.org/results RSC 5 2013

Ngerikiil Watershed Restoration for Improved Water Quality

1st Grader Alina from Maris Stella Elementary School with the help of her classmates singing a water conservation song she wrote for Blue Ribbon Water Awareness Month at the Earth Day 2013 Celebrations

Top 3 Project Results

1. Substantially increased political awareness and support for IWRM, evidenced by His Excellency President Johnson Toribiong participating in Palau's 1st National Water Summit (2011) and endorsing the Palau National Water Policy and national coordination mechanism (2012).

2. Protection and Rehabilitation Ngerikiil Watershed including increase in land area rehabilitated, establishment of buffer zones, mitigation of pollution sources, and leveraging of financing for ongoing watershed conservation.

3. Increased collaboration between agencies that manage water which is driving strengthened coordination of investments in water and sanitation activities at National and State levels, resulting in *inter alia* Palau's first Watershed Management Plan for Ngerikiil in Arai State.

Ms. Lynna Thomas
lynna.thomas7@gmail.com
Palau Environmental Quality Protection Board (EQPB)

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1. PROJECT OBJECTIVE

The objective of the project is project to promote proper watershed and integrated management practices in the Ngerikiil Watershed to improve water quality, decrease the amount of chemicals needed to treat water, and to establish effective institutional arrangements to protect the Ngerikiil watershed.

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2. RESULTS: PROCESS

During the Project Inception phase in 2009 a Palau National Integrated Water Resource Management Demonstration Project Committee was established. The original members were made up of the Palau Water Safety Plan (WSP) Committee. This was done to ensure that the work that the WSP Committee started would be incorporated into the new IWRM initiative. In addition to the WSP Committee members, members representing the stakeholders such as a representative of Airai State Government, representatives from community groups and representatives of the Palau Legislature were also invited to join the Palau IWRM Committee. Establishment of this committee has been effective in: (a) opening up the communication lines between the state and national government for the better management of the Ngerikiil Watershed; (b) influencing decision making leaders at the national level as to the importance of support for the management of the Ngerikiil Watershed; and (c) allowing the relevant agencies that deal with water on a coordinated effort rather than a more sectorial approach. This coordinated collaborative effort with the different agencies in charge of water as well as the different stakeholder groups has allowed for the drafting and endorsement of a Water Policy for the Republic of Palau by his Excellency President Johnson Toribiong.

2(a) INDICATOR#1: PROPORTION OF COMMUNITY ENGAGED IN WATER RELATED ISSUES

Prior to project inception community engagement in water related issues focused primarily on quantity of water and whether or not the water was safe for consumption. The target for the project was to increase attendance at awareness raising activities and active engagement by 30%. Since project inception there has there been an increase in awareness and willingness to protect watersheds through consultations for the drafting and finalization of the Water and Wastewater policy as well as regular community outreach focused on the importance of water and how best to manage and conserve it. The Palau IWRM team holds a yearly Blue Ribbon Water Awareness Month with activities occurring between World Water Day (March 22) and Earth Day (April 22). Effort is made every year to introduce new ways to engage the public. In 2012 a drawing contest was held and in 2013 the first Blue Ribbon Water Awareness Month Environmental Challenge Bowl was conducted.

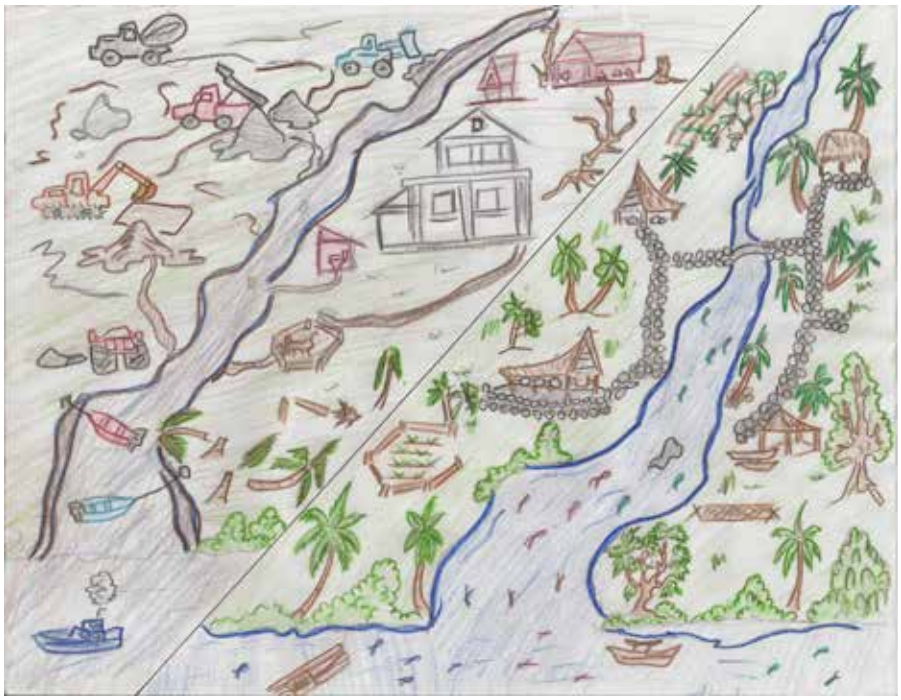

Figure 1: Drawing submitted by a participant of the 2012 Blue Ribbon Water Awareness Month Drawing Contest of what can happen to the fish that we eat if we don't take care of our watershed and use unsustainable practices.

2(b) INDICATOR#2: SECTORS ACTIVELY ENGAGED IN FORMAL MULITLATERAL COMMUNICATION ON WATER ISSUES

Prior to the IWRM Project there was no formal APEX Water Body and there was little communication about water issues. It is a target of the project to increase engagement across multiple sectors. The IWRM project has increased the collaboration between sectors actively engaged in water issues. This has lead to two National Water Summits that involved the drafting and finalization of a National Water Policy for the Republic of Palau. In addition, this increased multi-sectoral engagement has stimulated the need for the establishment of a National Apex Water Body. Sector representatives are now actively engaged on formulating this body including drafting Terms of Reference and list of members. It was this collaborative effort between agencies that allowed the National Water Policy to get endorsed by the His Excellency President Tommy Remengesau Jr.

Figure 2: Participants of the 2nd Palau Water Summit

Figure 3: His Excellency President Johnson Toribiong endorsing the Palau National Water Policy

2(c) INDICATOR #3: BEST APPROACHES TO IWRM AND WUE MAINSTREAMED INTO NATIONAL AND REGIONAL PLANNING FRAMEWORKS

Prior to project inception Palau had not agreed upon best approaches to IWRM and WUE and the target of the project was to have these defined and incorporated into a National Strategy. Since the project started we have strengthened national coordination to reduce stress on vulnerable water resources. This was done through intensive consultative process which involved cross sectoral and community participation which enabled the definition of best approaches for water to get incorporated into the National Water Policy. Partnerships with government agencies such as the Water and Wastewater Operations Division of the Palau Public Utilities Company have also helped clarify national priorities which have then contributed to the regional efforts to update the Regional Action Plan for Water and Sanitation during the Pacific Water and Sanitation Consultations held in Nadi, Fiji in 2013.

Figure 4: Palau Water and Sewer Corporation CEO Maireng Sengebau (Front row 4th from left) and IWRM Project Manager Lynna Thomas (Front Row 1st on the left) participating in the Pacific Regional Water and Sanitation Consultations

2(d) INDICATOR #4: LESSONS LEARNED INCORPORATED INTO OTHER PROJECT(S) AND/OR REGULATIONS

Prior to commencement of the project Palau had few practical examples of IWRM in action. The project was focused on demonstrating various process and stress reduction activities for replication and scaling-up. The Palau IWRM Project has initiated efforts to incorporate lessons learnt into current and planned regulations and new water projects. The projects in collaboration with the Palau Conservation Society (PCS) have recently completed the 5-year Airai State Watershed Management which incorporates lessons learned from the Palau IWRM demonstration project.

2(e) INDICATOR #5: NATIONAL STAFF ACROSS INSTITUTIONS WITH IWRM KNOWLEDGE AND EXPERIENCE

Prior to project inception IWRM knowledge was limited to people that were directly involved with specific projects or who have been involved in the meetings. The project has allowed for staff from different agencies to increase their knowledge about how their individual work contributes to the project and to IWRM in Palau. In addition, the project has allowed for formalized training of 2 Palauan staff through the International Water Center (IWC) resulting in a graduate certificate in Integrated Water Management. It has also allowed for continued improvement of knowledge among IWRM stakeholders through their participation in the annual IWRM Rugby Tipping Competition as well as in Conferences in and outside of Palau.

Figure 5 IWRM Steering Committee Members Umai Basilius and Dedlil Daniel participation in the recently held 2013 Pacific Islands Environmental Conference with IWRM Project Manager Lynna Thomas as winners of the 2011 Rugby Tipping Competition

2(f) INDICATOR #6: SECTORAL ENGAGEMENT IN FORMAL MULTILATERAL COMMUNICATIONS ON WATER ISSUE

Prior to inception of the project there was limited cross-sectoral communication on water issues. The goal of the project was to increase engagement between different sectors relevant to water resource management in Palau. During project inception a multi-sectoral steering committee was established to help with monitoring and evaluation for the Palau IWRM project. This committee is made up of government agencies, private sector and community members. Members of this committee have also been able to participate and increase communication in their agencies and between their sectors. Multi-sectoral engagement in Palau has also increased as evident by the different agencies participation in the drafting of the National Water Policy, in IWRM planning and the completion of the Airai State Watershed Management Plan.

2(g) INDICATOR #7: MULTI-SECTORAL APEX BODY IN PLACE

Prior to project inception Palau did not have a Multi-sectoral APEX body in place. The goal of the project is to have this multi-sectoral APEX water body in place to help ensure strengthened coordination between all the sectors that are in charge of water in Palau. The project has made significant strides toward this goal with several options explored. The APEX water body for the Republic of Palau is a subcommittee under the National Environmental Planning Council which is a group made up of all the relevant government agencies that deal with environmental issues in Palau.

2(h) INDICATOR #8: NATIONAL IWRM COMMUNICATIONS PLAN FRAMEWORK IMPLEMENTED

During the project inception phase a National IWRM communications plan framework was drafted along with the project logframe. The goal of this plan was to increase communications about water resources, conservation, and preservation in Palau. This plan has been implemented in its entirety on a project management basis and also in conjunction with other projects. This has resulted in several videos that the project has used as education tools during their outreach activities.

2(i) INDICATOR #9: NATIONAL BUDGETS ALLOCATED TO IWRM AND WUE

Prior to project inception a majority of the budget allocated for water in National Budgets was mainly for the treatment and delivery of the water. The target was to increase the budget for IWRM and WUE by 20%. Since project inception we have seen budget lines for not only the previously mentioned water services but also the allocation of $200,000 to Airai State for the management of the watershed. At Airai State they are plan to increase the state budget to enable more monitoring and enforcement in the Watershed. The Delegate is also utilizing the recently completed Airai State Watershed Management plan to try and leverage future funding for the management of the Ngerikiil Watershed.

Figure 6: Handover of the Airai State Watershed Management plan enabling the Airai State Government to access funding for Management, monitoring and enforcement of best management practices in the Watershed.

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3. RESULTS: STRESS REDUCTION

The Palau IWRM Demonstration project is located in the Ngerikiil Watershed, Airai State. The project has made substantial progress in watershed protection. The projects is being carried out directly with: (1) Airai State Government which is the major land owner; (2) Government agencies and NGOs agencies which are playing an active part in their implementation; and (3) community members. It focuses on demonstrating practical solutions to reducing stress on water resources. These practical demonstrations were instrumental in Airai State issuing a ban on deforestation in the watershed. The stress reduction pilots are also be used to inform management plan development which is being drafted and finalized with input from the community. In addition, the partnerships that have been formulated between the State and National Government through their membership in the IWRM Steering Committee has led to funding being allocated for the protection of the Ngerikiil Watershed in recognition of its importance as a source of water for 80% of the population of Koror and Airai.

Land protection has been addressed through the development of the Airai Watershed Management Plan that will be implemented by the Airai State government.

3(a) INDICATOR#1: INCREASE IN LAND PROTECTED AND/OR REHABILITATED OVER CATCHMENT

At project start-up there was no land protected and the Airai State Government were hesitant to declare the area protected. The target of the project is to have the Ngerikiil Watershed either a protected area or a managed area. Through the joint efforts of the IWRM partners which includes Airai State Government increased awareness of the importance of this particular watershed has led to $200,000 being given to Airai State Government as financial support for the management of this important catchment area, including replication and scaling-up of revegetation efforts and invasive species removal pilot activities initiated by the demonstration project in Ngerikiil Watershed. The Airai Watershed Management Plan has been completed and handed over to Airai State for its implementation. There are also plans on using this management plan to leverage funding annually for the protection and management of the watershed. The plan was made possible through collaborative effort between the Airai State Government, the Palau IWRM Project and the Palau Conservation Society and the Palau IWRM Project Partner Agencies.

Figure 7: Map indentifying agricultural areas in Airai State.

3(b) INDICATOR#2: REDUCTION IN POLLUTION SOURCES DISCHARGING INTO NGERIKIIL WATERSHED

Prior to the project pollution discharge into the Ngerikiil watershed was causing significant river water degradation and sedimentation of Ngerikiil Bay and adjacent reefs. The project target was to reduce the reduction in pollution sources that discharge into Ngerikiil Watershed by 30%. During the project inception phase a baseline survey on existing and possible pollutant sources was conducted. In addition, the project's goal was to mitigate the impacts of runoffs and sedimentation from the compact road. Regular monitoring of different land uses in Ngerikiil has enabled identification of pollutant sources which have been remediated leading to overall pollutant load entering the Ngerikiil Watershed and near shore waters and reefs. A monitoring protocol for water testing has also been completed for the water quality monitoring in the watershed.

3(c) INDICATOR #3: NATIONAL WATER SAFETY PLAN

During project inception a National Water Safety Plan was in draft form for Palau. The goal of the project was to ensure that the National Water Safety Plan was implemented. Since the project started the National Water Safety plan has been implemented in Palau. The project contributed to the implementation of the plan by ensuring that the sanitary surveys for the Koror Airai Water Treatment Plant were carried out and completed. Increasing community awareness was also a component of the plan that the project contributed to.

3(d) INDICATOR #4: SUSTAINABLE FOREST & LAND MANAGEMENT PRACTICES ESTABLISHED AND TRIALED WITH LANDOWNERS

Prior to project inception the majority of land use in the watershed consisted housing developments and farms. The aim of the project was to trial best management practices with landowners and disseminates the information to relevant stakeholders. The project has mapped all the different land uses in the Watershed. A trial farm employing best management practices has been completed in collaboration with the Palau PACC project, the Palau Community College Cooperative Research Extension Office and the Palau Community Action Agency. A brochure will be completed to disseminate the information for use in other projects and other watersheds.

3(e) INDICATOR #5: NGERIKIIL WATERSHED IS LEGISLATED/REGULATED AS PROTECTED AREA

Prior to project inception there were efforts to regulate the Ngerikiil Watershed as a protected area. This area was identified by previous projects as of importance but there was hesitation as the land is primarily owned by the state. Efforts have been made by the project as partners with Airai State to move forward the job of getting the Upper Ngerikiil Watershed legislated/regulated as a protected area. As this option was not completely feasible as the land is state owned the efforts were shifted to getting the upper watershed protected and the entire watershed managed using best management practices.

4. RESULTS: WATER RESOURCE AND ENVIRONMENTAL STATUS

In the first year of the project, baseline assessments through pollutant source surveys and water quality testing was carried out by the project. The assessment indicated that there were pollutant sources that were discharging into the river. Targeted project community outreach through community visits, school visit, as well as radio and television spots have increased the level of awareness of the problems or potential problems in the Ngerikiil Watershed. Quarterly monitoring of water quality is indicating that the quality of water is improving. In addition, the bird monitoring Ngerikiil that was able to continue due to the financial support of the IWRM project is indicating that the Ngerikiil Watershed according to IBA protocols should be the third highest priority for management in the Republic of Palau. This information is being used to leverage support for making Ngerikiil Watershed a protected or managed area.

4(a) INDICATOR#1: POPULATION WITH ACCESS TO SAFE DRINKING WATER SUPPLY

At the time of project start-up there was little if any work that concentrated at keeping the quality of water high even before it arrived at the water treatment plant. The target of the project is to increase access to safe drinking water by 90 percent of the population in Koror which is ~ 14,000 people. The IWRM project has undertaken a baseline sanitation and pollutant survey at the Ngerikiil River covering ridge to the Airai Bay. All pollutant sources and land uses along these river banks were mapped and those that could potentially become problems are helped with best management practices as a preemptive measure. Routine monitoring of river water quality has been strengthened through the project to ensure safety baselines are met and to inform efforts to remediate pollutant source sites. In addition, increased outreach to areas that are more reliant on rainwater has allowed us to increase awareness of how to maintain rainwater catchment systems thereby providing a safe drinking water supply.

Figure 15 IWRM supported a piggery located in Ngerikiil to put in place an adequate buffer between pig pens and river and improved water cistern. Efforts are also being made to trial dry-litter composting of pig waste rather than standard wash down systems that use a lot of freshwater and generate wastewater (***4 November 2011***)

Figure 16 Through engagement in Palau IWRM, a fish farmer operating in the Ngerikiil watershed has put in place an adequate buffer between the aquaculture ponds and Ngerikiil River. IWRM is coordinating routine water quality monitoring to ensure farm effluent does not impact water quality. (***November 4, 2011***)

5. ACKNOWLEDGMENTS

The people of the Republic of Palau and the lead agency for IWRM, the Palau Environmental Quality Protection Board acknowledges the support of the Global Environment Facility and is grateful for the technical and project management support provided by the Regional Project Coordinating Unit based at SPC/SOPAC. UNDP and UNEP are implementing partners to this initiative.

Annex 6: Awareness Materials Developed and Media Coverage

Annex 7: Participatory Monitoring and Evaluation Plan

Annex 8: Replication and Scaling-up Plan

Lesson	Audience	Scale	Applicability of Lesson	Replication Tool(s)	Timeframes	Cost
Stakeholder Engagement						
Obtaining community acceptance of a Project	National Governmental Agencies NGO's	Community/National/Regional		- conference/written into future project documents		
Project Management						
Establishing a Regional Project in Palau	National Governmental Agencies NGO's	Community/National/Regional	Generally instructive to facilitating smooth project inception and ongoing management			
Coordination/Integration						
Establishment of APEX Water Body	National State Project Managers Governmental Agencies	National/State	For the establishment of a governing body to oversee resource projects	Process paper	4th Qtr 2011 - End Project	
Technical						
Road Drainage Mitigation -PES -Monitoring of water quality	State/National	National/State	-To reduce the impact of storm water drainage -included in national regulation or policy -better monitoring	-Storm water mitigation design(s)		
Socio-Cultural						
Right Messenger speaking in appropriate language	National Government Agencies Project Managers	Community/National/Regional	Generally instructive to facilitating smooth project inception and ongoing management	Palau agencies and Project Managers report(s)		

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Strengthening coordination in support of the implementation and national replication of the Ngerikil Management Plan	1.1 Sustained local coordination and participation in implementation activities for the Ngerikiil Management Plan	Number of Participants compared annually	Established through IWRM Project	Proactive local level participation in the implementation and maintenance of the Ngerikiil Management Plan	Reports and Annual Report of Ngerikiil Management Plan	Sufficient resources to maintain implementation of the plan and local level participation
	1.2 Strengthened national replication of catchment management planning model and community participation in Ngerikil Management Plan implementation	Number of GEF Small Grants Programme, USAID and AusAID projects implemented to support the replication of the Ngerkil Management Planning 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 USAID to strengthen capacity for replication of the Ngerikil Management Planning model nationally and implementation of management activities locally	GEF Small Grants Programme, USAID and AusAID project proposals and implementation reports	Suitable community based organisations to assist communities with donor project requirements
	1.3 Improved inter-agency partnership in sustainable coastal area monitoring	Extent and continuity of data generated though inter-agency partnership	Limited coordination between agencies for monitoring coastal ecosystem health	Partnership between the Palau EQPB and the Coral Reef Centre established, functional and generating effective data for evaluating the impacts of environmental interventions	MoA, consultative meeting documents, joint monitoring programme plan, documents of assessments and monitoring results	Willingness of agencies to engage in joint monitoring and data collection

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Strengthening the capacity for participatory monitoring and evaluation of the Ngerikil Management Plan to strengthen the enabling environment for catchment management in Palau	2.1 Improved data collection for the development of national catchment plans via PM&E of the Ngerikiil Management Plan	Extent and continuity of the data collected through PM&E Plan Uptake of scientific and technical recommendations	Limited operation of sustainable PM&E for the Ngerikiil Management Plan	PM&E plan developed and operational for the Ngerikiil Management Plan featuring measures for monitoring inter alia sediment load and water quality, status of invasive species, impacts on near coastal and riparian biodiversity and ecosystem health, and site-level social impacts	Published PM&E plan, monitoring results, analysis and research reports, comparative studies, annual implementation reports	Available resources to undertake monitoring of intervention impacts
	2.2 Increased local community and agency capacity for terrestrial environment monitoring in the Ngerikiil catchment	Percent increase of target population actively involved in terrestrial environmental monitoring Extent and continuity of the data collected	Low levels of community and agency involvement in terrestrial environmental monitoring	Proportion of target population monitoring terrestrial impacts increased to 50% through established agency and community awareness and outreach program; including activities to monitor terrestrial habitats, riparian health, land use, and biodiversity indicators	Training materials published and available, reports of awareness and outreach program including demographic data Monitoring results, analysis and research reports	Target population are willing and have capacity to partake in sustainable terrestrial monitoring Awareness and capacity building materials are sufficiently well designed to engage community members and resource users
	2.3 Nationally endorsed PM&E Plan for catchment management to revitalise the Protected Areas Network and sustainable land management in Palau	Status of endorsement of PM&E Plan and incorporation into STAR Project	Low levels of assurance in natural resource management strategies due to limited or ineffective PM&E	Ngerikiil Management PM&E Plan agreed to and endorsed by heads of relevant national government departments responsible for environment, and incorporated into National STAR Project	Endorsed PM&E Plan for catchment management, revised STAR Project PM&E document	PM&E sufficiently well designed for incorporation into national STAR Project Heads of national government departments agree on PM&E Plan details

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Establishing public-private partnerships for tourism sector investment in IWLCM in Palau	3.1 Cross-sectoral coordination established to explore the feasibility of public-private partnerships for tourism sector investment in IWLCM in Palau	Continuity of member participation in the National Environmental Investment Board and extent of findings for feasibility of tourism sector investment	No cross-sectoral mechanism for assessing tourism sector investment options for IWCLM	National Environmental Investment Board established with interstate community and government department representation; functional and assessing feasibility of tourism sector investment in IWCLM across Palau including the potential of PAN for controlled recreational use	NEIB Terms of Reference and membership lists, meeting reports, feasibility studies, desk-top reviews,	Willingness of cross-sectoral members to engage in committee and joint planning through NEIB
	3.2 Nationally endorsed guidelines for public-private partnerships for the tourism sector in IWLCM	Status of endorsed national guidelines	No national guidelines for the development of public-private partnerships for tourism sector investment in IWCLM	National guidelines on establishing public-private partnerships for integrating protection of natural resources and tourism ventures developed and endorsed by the National Environmental Investment Board	Published national guidelines on establishing public-private partnerships for tourism sector investment in IWCLM	Willingness of the government sector to agree on guidelines
	3.3 Public-private partnerships for tourism sector investment in IWLCM established for enhanced environmental protection in Palau	Number of identified opportunities for tourism sector investment in IWCLM and partnerships established	Lack of tourism sector investment in IWLCM in Palau	Public-private partnerships opportunities identified for increasing tourism sector investment in IWCLM in Palau	Tourism sector and community consultation documents, PPP agreements and plans	Existence of plausible potential tourism sector opportunities


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of the Pacific
Community


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UNDP


UNEP