



GEF PACIFIC IWRM PROJECT RESULTS NOTE

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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.

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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 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 MULTILATERAL 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 led 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.

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 nearshore 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.



Figure 8: Site assessment for farm trial of best management practices.

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

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