

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	<i>Survey pollutant sources</i>				
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 Ngerikiil 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 Ngerikiil 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 Ngerikiil 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	ArclInfo 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	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)

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		uses/sites in the Ngerikiil River produced by 31 December 2011			
	<p>Audience: everyone Products: map and Google Earth kmz file Distribution: public display of map, TV news story, project website</p>				
1.1.3	Establishment of buffer zones for pollutant reduction in the Ngerikiil Watershed	<p>Buffer zones planted adjacent to key pollutant sources in the lower Ngerikiil Watershed by end 2012</p> <p>Increased buffer zone area in the Ngerikiil Watershed</p>	Length, breadth, and percent cover of buffer zones adjacent to the pollutant sources identified during EQPB's 2010 pollutant and sanitary survey	<p>Willingness of landowners to use land for buffer areas</p> <p>Availability of seedlings and suitable climatic and soil conditions for planting</p>	Environmental Quality Protection Board, Bureau of Agriculture, and Landowners
	<p>Communications Event: Micronesian games athletes tree planting</p> <p>Audience: sub-regional (Micronesia)</p> <p>Product: media advisory (all media in Micronesia), press release, web stories, video cast</p> <p>Distribution: all media (TV, radio, print)</p>				
1.1.4	Best Management Practices to reduce pollutant loading trialed in the Ngerikiil Watershed and upscaling plan agreed with landowners	<p>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</p> <p>Results of trial used as basis for development of best pollution management practices amongst landowners by December 2012</p>	<p>Report on the trial of best pollution management practices reviewed and endorsed by the IWRM Steering Committee by end 2011</p> <p>Up-scaling plan for pollution management agreed amongst landowners and adoption of best management practices by farmers</p>	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
	<p>Audience: land owners, farmers, other GEF IWRM demonstration projects</p> <p>Product: report, flyer/poster and brochure (possible press release based on findings)</p> <p>Distribution: web story, handouts, media (based on findings)</p>				
1.2	Revegetate riparian zones				

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	<i>to minimize sedimentation levels in the Ngerikiil River</i>				
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
	<p>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</p> <p>Event: Earth 2012 (Sustainability) (Activities 1.2.1 and 1.2.2) Audience: Public Product: Press Release, photographs, video footage</p>				
1.3	<i>Establish long-term monitoring program</i>				
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

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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
<p>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)</p>					
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,

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	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 contractors	Storm water management workshop convened by December 2009 Examples of inappropriate and 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	Workshop convened and participated in by key construction contractors operating in Airai State Public awareness materials on best practices in managing storm water runoff from constructed sites produced	Adequate participation by construction contractors	Environmental Quality Protection Board
	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				

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	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				

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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

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	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 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				

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	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				

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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 Management 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 Ngerikiil 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		

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		<p>Specific capacity targets such as:</p> <p>Capacity developed for Community and Government to independently operate PES</p> <p>Capacity developed for community to undertake ongoing biological monitoring</p>	<p>Steering Committee endorsement of PES operated by community and government</p> <p>Participatory M&E programs endorsed by Steering Committee</p>		
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 (22 nd 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

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	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 22 nd 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