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Fifth Meeting of the Regional Project Steering Committee
for the SOPAC/UNDP/UNEP/GEF Project:
"Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries"

Nadi, Republic of Fiji Islands, 11th – 15th November 2013

Outcomes of Watershed Management Initiatives Supported by the GEF Pacific IWRM Project

Background

The Strategic Action Programme (1997) for the International Waters of the Pacific Islands developed a strategy for the integrated sustainable development and management of water to address the priority concerns for Pacific SIDS (PacSIDS). The SAP proposed the need to address the root causes of degradation of water through regionally consistent, country-driven targeted actions that integrate development and environment needs and promote good governance and improved knowledge approaches. The Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP) was endorsed by Pacific Heads of State in 2003. The Pacific RAP provides a coordinated and agreed strategic framework for sustainable water management.

The "Implementing Sustainable Integrated Water Resources and Wastewater Management (PacIWRM) Project" was formulated to address sustainable water management in Pacific SIDS. The PacIWRM sought to support improvements in natural resource and environmental management, reflecting country priorities to address water and land development issues. At inception the baseline characteristics were:-
(i) deterioration in the availability and quality freshwater resources;
(ii) reduction in volume available and quality of water resources through decline in surface and groundwater storage and recharge areas;
(iii) reduction in coastal and watershed ecosystem functions along with the loss of associated natural habitats and biodiversity (watershed ecosystems, invasion of non-native species, pollution entering inter-tidal and coastal receiving waters);
(iv) increased land based source pollution into surface, ground and coastal receiving waters;
(v) deterioration of human condition (increasing poverty, reduced health and well-being);
(vi) possible deterioration in economic stability.

Continuing degradation of coastal and catchment ecosystems was resulting in declining water quality and availability and diminishing environmental services and associated impacts on both aquatic and land based food production. The resulting decline in community resilience in a time of increasing climate variability and change posed significant and immediate risks to exposed communities.

Clearly a need existed for a more holistic approach to water management and such efforts needed models and practices that worked. An emerging global trend to spatially confine these efforts to watersheds has had success at integrating water, land and coastal management.

PacIWRM's National Watershed Demonstration Projects were designed to test and establish adaptive management mechanisms and measures at catchment level with the active involvement of stakeholders living and doing business in the target catchments. Bringing governance responsibility to local level stakeholders and reinforcing the need for water governance reform so as to allow effective coordination at horizontal and vertical levels of government and with the private sector and civil society. The Project's Watershed Projects are summarized below.

IWRM Sub-Group	Country	Title of Demonstration Project
1. Watershed Management	**Federated States of Micronesia**	**Ridge to Reef: Protecting Water Quality from Source to Sea in the FSM**
	Project Purpose:	*Improved drinking water quality and a significant reduction in pollutants entering fresh and marine waters around Pohnpei Island and in Chuuk State*
	Palau	**Ngerikiil Watershed Restoration for the Improvement of Water Quality**
	Project Purpose:	*Improved water quality through reducing soil erosion and sedimentation, nutrient, fertilizer and pesticide pollution, solid waste disposal, forest protection to reduce the possibility of invasive species and wildlife habitat loss*
	Samoa	**Rehabilitation and Sustainable Management of Apia**

		Catchment
	Project Purpose:	*To rehabilitate and manage the Apia catchment in a sustainable manner in order to improve the quality and quantity of the water resources for enhanced water supply and hydropower generation, socio-economic advancement and reduced environmental adverse impacts*
	Vanuatu	**Sustainable Management of Sarakata Watershed**
	Project Purpose:	*To prepare an integrated Sarakata Watershed Management Plan involving the existing Sanma Provincial and National Water Resources Advisory committees and stakeholders. It will provide a model from which lessons can be learnt and best practice replicated in other watersheds*

Catchment Management Frameworks

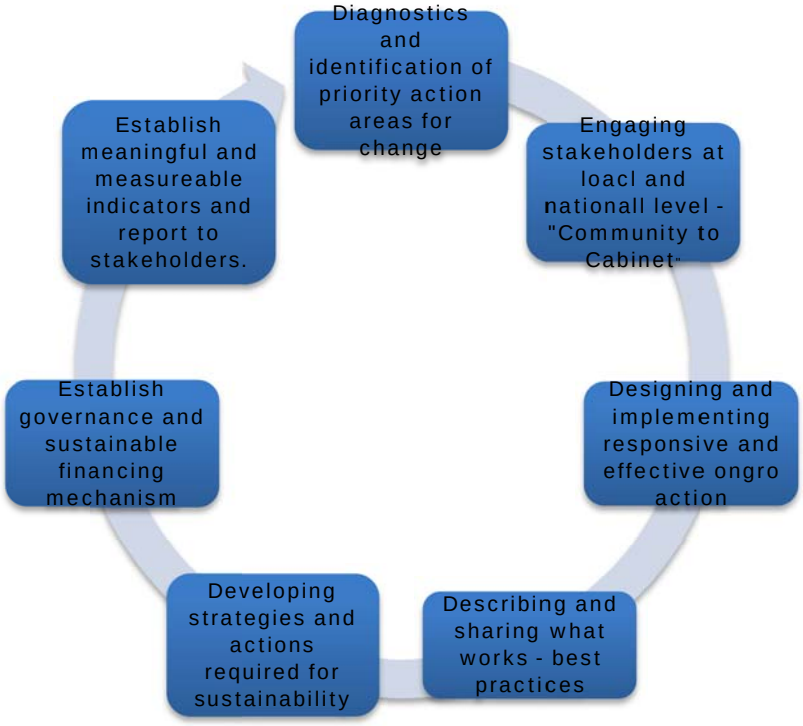
The PacSIDS are distributed through an oceanic area covering 10 per cent of the Earth's surface. They vary considerably in their size and geomorphology ranging from high volcanic islands to tiny low coral atolls and have correspondingly varied economies and systems of governance. Some PICs consist of a few relatively sparsely inhabited islands while others have much more densely populated island groups.

The ability of PacSIDS to manage their resources and ecosystems in a sustainable manner while sustaining their livelihoods is crucial to their social and economic well being, and is clearly directly related to GEF's mandate for protection and sustainable management of biodiversity and international waters. PacSIDS also have specific needs and requirements when developing their economies. These are related to small population sizes and human resources, small GDPs, limited land area and limited natural resources. Competing land pressures, the choice of whether to use precious and scarce land for agriculture, water reserves, a school or recreation area, are appreciated at the household, village and wider community level. In particular, every coastal village community understands the connection between activities on the land and in the sea, as they impact on freshwater, coastal interface, lagoons and coral reefs. The small size of the catchments, shallow aquifers and lack of natural storage affects all water users from urban and rural water supplies, commercial forestry, subsistence agriculture, and the fisheries/reefs and tourist developments.

There is therefore no one size fits all to the management of watersheds within the PacSIDS, yet there is similarity of issues. The aims are shared ie protection of water supply through ecological restoration and protection.

The usual process of implementing carefully crafted plans that have resulted from a full consultation process with stakeholders assumes informed and motivated stakeholders. This was and is often not the case in PacSIDS and the Project adopted "doing is seeing" approach that undertook onground actions that improved the catchment environment whilst at the same time creating awareness and capacity to address priority habitat issues. Placing these issues within a sustainable development context then helped build a community level groundswell of support for more permanent and sustained action for ecological restoration and protection ie a catchment management framework.

Diversity within the PacSIDS offers the opportunity of developing similarly diverse management models that fit the situation. Much can learned from such diversity and shared for the benefit PacSIDS regionally and these lessons have global relevance. The development of Catchment Management Frameworks within the Projects have followed similar paths (figure below).



Watershed Project Demonstration Project Results
The success of the Watershed Demonstration Project will be assessed against their Process and Stress Reduction PacIWRM indicators these are presented below.

Process Targets
T 12. Legislation in place to protect surface water quality in 4 SIDS

Palau	**12 Ngerikiil Watershed is legislated/regulated as protected area** Currently legislative changes for PES include in Logframe, but not for protection of water quality or legislative link for declaration of Ngerikiil Watershed **Achieved:** Watershed Zoning and Management Plan Development adopted by State and leveraged recurrent budgetary support
Samoa	**12 Legislation for Water Resource Management** **Achieved:** 4 watershed Management Plans endorsed by Cabinet, zoning adopted and upland watershed area demarcated for conservation and purchase by government valued at US$140 million
Vanuatu	**12 Revised Legislation protecting surface water quality** **Currently logframe only mentions Gazettal of Water Protection Zones** **Achieved:** Water Protections Zones defined for Sarakata and Gazetted. Central zone land purchased from Customary landowners and leaseholder and fenced.

T 11. 2 Basin Flood Risk Management Plans resulting in 10% reduction in infrastructure loss due to flooding (on approximately 18,000 ha of land) by end of project –

Fiji	**11 Nadi Basin Integrated Flood Management Plan** (45,000 ha) Plan to incorporate early flood warning system to provide at least one hour warning and process for incorporating floodplains into planning regulations

	Achieved:: Early warning system established comprises 6 River level Monitoring stations and 6 rainfall measuring stations monitored through GSM telemetry operational protocols for responsible agencies agreed to through agreed to. 28 village disaster response plans have been complemented with the rehabilitation
Vanuatu	**11 Sarakata Basin Integrated Flood Management Plan** (10,000 ha) Plan to incorporate early flood warning system to provide at least one hour warning and process for incorporating floodplains into planning regulations **Achieved:** Sarakata Flood Management Plan completed with flood maps.

Stress Reduction Targets
T 9. 40% increase in population with access to safe drinking water at 1 demo site

FSM	**9 Population with access to safe water supply** Trigger is the setting (and meeting) of water quality and safety baselines for the Nett Watershed Forest Reserve/Nanpil River **Achieved:** Routine sampling programme established with Pohnpei EPA with regular public reporting of water quality.
Palau	**9 Population with access to safe water supply** Delivery of WSP dependent upon project activities being delivered **Achieved:** Water safety Plan completed and adopted.
Samoa	**9 Population with access to improved sanitation** Based on commissioning of wastewater treatment plant as co-funded work **Achieved:** Wastewater treatment plant for Apia completed and operational

T 7. 35% reduction in sewage pollution over eq.~40,000 ha area leading to reduction in eutrophication for 4 coastal receiving waters sites – Given timeframe the capacity to demonstrate eutrophication reduction relies on demonstrating sewage pollution reduction, which in turn relies on estimating reduced loads.

FSM	**7 Reduction in sewage pollution in Nett Watershed** **Achieved:** Comprehensive sanitation survey identified priority areas for remediation and enforcement of septic maintenance codes.
Vanuatu	**7 Reduction in sewage pollution across Sarakata watershed (30,000 ha)** **Achieved:** Appropriate use water zones declared. Limiting stocking density and commercial livestock activity. Compost toilets piloted in Peri Urban Communities

T 6. Increase in land protected and/or rehabilitated over catchment – 30% increase in forested and protected area over 8,000 ha of catchments

FSM	**6 Increase in land protected and/or rehabilitated over the catchment** Groundwater and/or surface water catchments may be declared reserves. **Achieved:** Watershed protection boundaries for the sustainable management of 1,700 hectares of Nett Watershed were agreed and incorporated into municipal laws
Palau	**6 Increase in land protected and/or rehabilitated over the catchment** Surface water catchments may be declared reserves. Some revegetation will occur associated with the project; however unlikely to be on significant scale **Achieved:** The Project has partnered with Airai State to getting the Upper Ngerikiil Watershed protected and the entire watershed managed using best management practices. Project revegetation pilots will be scaled up through Airai State funding the implementation of the Management Plan.
Samoa	**6 Increase in land protected and/or rehabilitated over the catchment**

	Groundwater and/or surface water catchments may be declared reserves. Unlikely that significant revegetation will occur associated with the project **Achieved:** National government purchasing 1,500 ha of upland watershed (valued at ~140 million US dollars) and designating it as a watershed conservation zone. These initiatives in Samoa have acted to leverage national government investment (~45 million US dollars) in the implemented of on-going stress reduction initiatives
Solomon Islands	**6 Increase in land protected and/or rehabilitated over the catchment** Groundwater and/or surface water catchments may be declared reserves. Unlikely that significant revegetation will occur associated with the project **Achieved**: Kovi Watershed agreed community protected area developed through the promotion of ecotourism to sustain alternative livelihoods.
Vanuatu	**6 Increase in land protected and/or rehabilitated over the catchment** Surface water catchments may be declared reserves. Unlikely that significant revegetation will occur associated with the project **Achieved:** Zoning initiatives in the Sarakata Watershed of Vanuatu have resulted in the designation of two conservation areas covering 1,060 hectares. Supporting stress reduction actions in Sarakata have involved the closure and rehabilitation of a large commercial piggery which had been a major contributing factor to waterborne disease among peri-urban communities, as well as the rehabilitation of 50 hectares of degradation hotspots, and the initiation of a ecosanitation programme targeting disadvantaged squatter communities.

T 21. Sustainable forest & land management practices established and trialed with landowners in 2 demo sites

Fiji	**21 Sustainable forest & land management practices established and trialed with landowners** **Achieved:** rehabilitation of ~60 ha of two priority degradation hotspots in the Nadi Catchment and trials in sustainable forest and land management practices with key landowners aimed at reducing rates of runoff and erosion during extreme rainfall events
FSM	**21 Sustainable forest & land management practices established and trialed with landowners** **Achieved:** Adoption of sustainable 'sakau' or kava (*Piper methysticum*) cultivation methods by 40 farmers which have contributed to 70 percent reduction in upland forest clearings on Pohnpei Island
Palau	**21 Sustainable forest & land management practices established and trialed with landowners** **Achieved:** 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 reduction in pollutant load entering the Ngerikiil Watershed and nearshore waters and reefs
Vanuatu	**21 Sustainable forest & land management practices established and trialed with landowners** **Achieved:** Appropriate farming and forestry methods demonstrated to communities living within and bordering Sarakata watershed leading to adoption of practices that reduce environmental stress and improve livelihoods

Watershed Demonstration Project Outcome Impacts on the Baseline Situation

Outcomes achieved that have shifted the baseline situation:-
i) deterioration in the availability and quality freshwater resources;

Environmental services are being restored and will be sustained which has improved the availability of quality water. Availability per se is a function of the efficiency and effectiveness of the catchment and rainfall the former is being improved whilst the latter is becoming more variable as a result of climate change.

ii) reduction in volume available and quality of water resources through decline in surface and groundwater storage and recharge areas;
The watershed projects have raised awareness from "Community to Cabinet" of the need to protect water catchments. Concrete steps have been taken to protect catchment area and maintain recharge areas. These range from formally declared protected areas, conservation areas through to outright purchase of land by government.

iii) reduction in coastal and watershed ecosystem functions along with the loss of associated natural habitats and biodiversity (watershed ecosystems, invasion of non-native species, pollution entering inter-tidal and coastal receiving waters);
Habitat remediation through improved sanitation, zoning use controls and conservation and protected areas have improved environmental services in watersheds assisting the stabilisation of biodiversity and reduced pollution entering inter-tidal and coastal receiving waters.

iv) increased land based source pollution into surface, ground and coastal receiving waters;
Improved sanitation, zoning use controls and conservation and protected areas have improved environmental services in watersheds reducing pollution entering inter-tidal and coastal receiving waters.

v) deterioration of human condition (increasing poverty, reduced health and well-being);
reduction in environmental stress through appropriate treatment and or limitation of waste production has reduced pathogen levels and increased access to quality freshwater with resultant improved health and well being;

vi) possible deterioration in economic stability.
Improved watershed management has and will continue to result in greater surety of stable water supplies which will assist both communities and the private sector and therby provide a key input to economic stability.

All PacSIDS that have Watershed Demonstration Projects have established functional local catchment committees and Interministerial Water Committees and most have developed national water policy which have either been endorsed by Government or are in the process of being endorsed. These mechanisms support spatial management approaches developed and now established through the on-ground watershed based projects which have already led to replication.