



# GEF PACIFIC IWRM PROJECT RESULTS NOTE

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RSC 5 2013

## Rehabilitation and Sustainable Management of the Apia Catchment



### **Top 3 Project Results**

1. Significant political and financial support from the Government of Samoa watershed management. This includes a commitment to purchase and designate 485 hectares (valued at approximately 81 million Samoan Tala) of upland watershed as a watershed conservation zone. This land was previously under sub-division by the Catholic Church for residential use.
2. Development of Watershed Management Plans (WMPs) for each of the four watersheds of Apia catchment. Key features of the WMPs include establishment of buffer zones and designation natural reserves. This involved an extensive 'community to cabinet' consultative process which has resulted in a commitment by government to finance management plan implementation (valued at ~160 million Samoan Tala) during the period 2013-2017.
3. Mainstreaming of watershed conservation policies into the State of Environment reporting process and the new National Environment Sector Plan Document currently under development. Ongoing efforts include refinement of Samoa's watershed conservation policy to establish a new 'cloud forest' 600 metre exclusion zone to prohibit development at this altitude or higher for the specific purpose of watershed conservation.

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## 1. PROJECT OBJECTIVE

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, social-economic advancement and reduced environmental adverse impacts. This is being achieved through a focus on identifying and rehabilitating vulnerable areas upstream of rivers and it is enforced by the endorsement of catchment Watershed Management Plans as directed by the Water Resources Act.

## 2. RESULTS: PROCESS

Following the 2011 drought, Samoa put in place under the Sector Wide Approach Plan a Water Sector Coordinating Unit which has led to the development and endorsement of the Water for Life Sector Plan: Framework for Action 2012-2016 document. Similarly, the IWRM Stakeholders consultation process developed by the project is bringing great benefits for water resource and catchment management with continuous attendance from many stakeholders, each contributing feedback and suggestions for the project activities. Participation of stakeholders in planning and monitoring has increased ownership over IWRM concepts and activities. An important result of this was agreement on the Watershed Safety plan for Fuluasou, and actions for dealing with the many issues around its intake and supply have been identified and prioritized for implementation. This is significant as Fuluasou Treatment Plan supplies 70,000 people and suffers from many problems such as overcapacity, shortage of chlorine, pump failure, and high NRW rates. The Water Sector has also consolidated the formation of the CCC and all of the Water Sector stake-holders comprise the same members for all its consultations with inclusion of key community representatives, including women's groups representatives.

Loimata o Apaula and Fuluasou catchments Watershed Management Plans have been approved by the CDC for publishing. Gasegase and Vaisigano catchment WMPs have been consulted through to final drafting. The WMPs gives authority to the Water Resources Division to enforce specified directives and prosecute any illegal activities. These efforts have been supported by awareness and education activities on World Water Day annually, and have been successful in raising the profile and visibility of GEF Pacific IWRM Samoa. The Watershed Conservation Policy led by the IWRM project promotes that the protection of the top 600m of watershed be excluded from any developments. This has led to positive outcomes including government purchase and designation of upland watershed areas to strengthen catchment management. Government has also committed to financing management plan implementation during the period 2013.

### **2(A) INDICATOR#1: NATIONAL STRATEGY IN PLACE**

At the time of project start-up there was no national strategy for IWRM or water resource management in Samoa. The target of the project was to have a sector wide strategy for water by mid 2012. This was achieved and the Sector Wide Approach Plan for Samoa is an IWRM focused plan being implemented under the Samoa Water Coordinating Unit and is widely known as our national water sector strategy. The water crisis of the 2011 drought has raised awareness of water issues at the highest political levels, subsequently Samoa has put in place a Water Sector Coordinating Unit under the Ministry of Natural Resources and Environment to coordinate the progress and activities of the Water Sector. This unit acted to facilitate the development and endorsement of the 'Water For Life' Sector Plan: Framework for Action 2012-2016 document.



**Figure 1** Samoa's Prime Minister lending his support to tree planting on World Water Day 2012

### **2(B) INDICATOR#2: APIA WATER SAFETY PLAN (URBAN)**

The target for the project was to have a water safety plan for Apia urban area developed, endorsed by Cabinet, and under implementation. At the start of the project there was no plan and a lot of uncertainty of water safety issues, especially associated with the overloaded Fuluasou Treatment Plant. The Water Safety Plan has been developed through IWRM, endorsed by cabinet, and actions for the intake and supply side have been identified, costed and prioritized. A Water Safety Plan has also been prepared for the second Water Treatment Plant located at Alaoa in the Apia Catchment. Community and stakeholder inputs to this plan are currently being elicited via the conduct of a series of national and local consultations.



**Figure 2** Aerial view of the Fuluasou Treatment Plant

### **2(C) INDICATOR#3: LEGISLATION FOR WATER RESOURCE MANAGEMENT**

The project target was to have legislation for water resource management enacted as part of Watershed Management Plans. At the start of the project Samoa had legislation and regulations relating to surface water quality only. A Water Allocation Policy and Water Licensing Scheme has subsequently been endorsed by Cabinet. The Watershed Management Plan for Loimata o Apaula and Fuluasou have been finalised and approved by the CDC and are currently awaiting translation and endorsement by the Head of State for implementation. Water Resources Management

Regulations have also been approved by the CDC. A Watershed Conservation Policy has been developed to provide guidance to the drafting of legislation.



**Figure 3** Community members participating in Watershed Management Plan consultations

#### **2(D) INDICATOR#4: PROPORTION OF COMMUNITY ENGAGED IN WATER RELATED ISSUES**

The target of the project was to establish 30% increase in active engagement activities. At the time of project start-up almost all community engagement was passive. IWRM has focused on community group participation in clean-ups and forest rehabilitation. On World Water Day 2011, a river clean up event on the Fuluasou River was a successful day with many community members attending. It also identified some areas being used for dumping rubbish into the Fuluasou River. The project has subsequently assisted the community by placing rubbish stands around the area for their rubbish. The annual 2012 river cleaning of the four rivers in the Apia Catchment during the MNRE Environment Week in November saw participant numbers doubled from the previous 2011 Environment Week river cleaning. Similarly, WWD 2013 celebrations increased the number of community members participating from 200 in 2012 to 500 in 2013. In 2013 students from around the island of Upolu undertook two parallel streams of water management activities that were of great benefit and enjoyment to everyone.



**Figure 4** World Water Day 2011 river cleaning at the Fuluasou River

**2(E) INDICATOR#5: LESSONS LEARNED INCORPORATED INTO OTHER PROJECT(S) AND/OR REGULATIONS**

A target of the project was to demonstrate replication from one project to another by project end. In 2011 the Samoa IWRM team undertook a twinning exchange to the Cook Islands IWRM demonstration project. During that visit we observed the use of “No Car Washing Signage” on Rarotonga Island and have subsequently replicated these in the Apia catchment and in other rivers of Samoa.



**Figure 5** Stop car washing and littering sign on the river ford

**2(F)INDICATOR#6: NATIONAL BUDGET ALLOCATED TO IWRM AND WUE**

Prior to project commencement there was little or no national recurrent public budget allocated to IWRM or WUE initiatives in Samoa. A target of the project was to increase national government budget allocated to these initiatives by 20%. On-the-ground works of the IWRM demonstration project assisted in the establishment of priorities and targets for water resources, which the Government is currently investing in via an EU budget support modality for the Water Sector. Specific examples of activities include purchase of lands and fencing of new water resource reserves.



**Figure 6** No access signs on Reserves

## **2(G)INDICATOR#7: NATIONAL IWRM INDICATOR FRAMEWORK EMBEDDED IN FORMAL NATIONAL REPORTING**

Samoa's Water Sector previously lacked a results oriented approach. A target of the project was to have IWRM indicators embedded into national reporting. Collaborative efforts of IWRM and the EU have led to IWRM indicators in the form of Key Performance Indicators (KPIs) being embedded in the Water Sector's Water For Life Framework for Action 2012-2016. These IWRM KPIs are currently being incorporated in the water component of Samoa's new National Environment Sector Plan.

## **2(H)INDICATOR#8: NATIONAL STAFF ACROSS INSTITUTIONS WITH IWRM KNOWLEDGE AND EXPERIENCE**

Before the project national staff involved in water resource management had minimal knowledge of IWRM approaches, although the national focal point had some knowledge of IWRM practices via participation in the project's preparation phase. The IWRM project aimed to achieve national-wide knowledge of IWRM among government partners and other stakeholders. In support of this, three personnel from the Government of Samoa participated in the post-graduate Integrated Water Management training programme initiated by the Pacific IWRM programme. A positive benefit of this is the use of lessons from the 'Science of Water' course in the design of buffer zone regulations in Samoa. This higher level learning has been augmented by participation of more than 50 IWRM stakeholders from Samoa in the regional online IWRM rugby competition which has acted to share information on best practices in water resource management and sanitation and raise the profile of IWRM within Samoa. This competition was effective in improving communications between Government agencies. For example, the winner of the 2011 competition was a staff member of Samoa's Finance Ministry.



**Figure 7** IWRM Rugby tipping competition winner from MOF

## **2(I):INDICATOR#9: MULTI-SECTORAL APEX BODY IN PLACE**

There was minimal cross-sectoral engagement on water issues prior to commencement of the IWRM project, with communication on these issues largely constrained to an ad-hoc Waters Resources Stakeholder group. The project aimed to establish and convene regular meetings of a multi-sectoral APEX body. This was achieved via the establishment of an overarching body to oversee the Sector Wide Approach to the water sector established in Samoa in 2011 as part of the transition from the EU Water Sector Support Program that had been in place since 2006.

**2(J) INDICATOR#10: PROPORTION OF COMMUNITY ENGAGED IN WATER RELATED ISSUES**

There were previously few awareness activities on water related issues in Samoa and community engagement in water resource management was minimal. The project aimed to increase community participation in awareness efforts and increase active community engagement in IWRM activities by 30 percent. As a result of IWRM initiatives there has been an estimated 10 fold increase river cleaning and other events like World Water Day celebrations. Efforts to actively engage community members in river rehabilitation efforts following the devastating 2012 Cyclone Evan has resulted in increased community support for IWRM and Watershed Management Plan implementation. An unanticipated outcome of this was also strengthened community level knowledge of how various watershed uses can compromise the resilience of villages to extreme weather events and floods.



**Figure 8** WWD 2010 celebrations



**Figure 9** River cleaning 2012

**2(K): INDICATOR#11: PROJECT DESIGN AND PM&E IMPLEMENTED**

The IWRM program aimed to test Participatory Monitoring and Evaluation approaches to IWRM. This represented a novel approach to water resource management which was previously viewed as the sole responsibility of government. A key activity in this area included community participation in the design and operation of a River Ecosystem Health Monitoring Program (REHM) for all rivers of the Apia Catchment. Part of these efforts involved eliciting community input to the planning of waste disposal strategies to reduce solid waste pollution of streams. This resulted in identification of priority locations for rubbish stands which were presented to schools and river side locations. Community participation in the monitoring and evaluation aspects of the REHM has also resulted in strengthened regulation, with warning letters being issued to key households identified as pollution point sources.



**Figure 10** Rubbish stand presented to Papauta College

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### 3. RESULTS: STRESS REDUCTION

Protection of land previously earmarked for the Catholic land subdivision is a key achievement for the IWRM Project and Government of Samoa. As a result of efforts of the IWRM project, the Government has committed to the purchase of 1200 acres for inclusion in the Watershed Conservation Zone. To date, 82 acres have been purchased of which 32 have been replanted and fenced off using a community engagement approach. Ongoing community engagement and a monthly maintenance program have been implemented to ensure sustainable amangement of the rehabilitated area. A further 120 acres have been surveyed for protection above the SWA treatment plant intake.

It is hoped that declaring the top of the East Fuluasou River as a reserve and the subsequent purchase of the land from the Catholic Church will reduce the stress of urbanization of upland catchment areas on river water quality and tributary that supplies the Fuluasou Treatment Plant intake. There have been regular reports of increased turbidity of river tributaries since the Catholic subdivision started.



**Figure 11** Community engagement maintenance program

In addition to protection of the upland catchment, rehabilitation around the source and intake has been undertaken as well as well as agreement on and enforcement of buffer zones of 20m to reduce stresses on the water quality and quantity caused by unsustainable agriculture practices and human mismanagements of natural resources. Effort has also been made to raise awareness of the impacts of car washing. “*Stop Car Washing*” signs near rivers have seen a dramatic reduction of people washing cars next to rivers and has led to reduced contamination of water resources.

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

The target of the project was to increase the amount of land protected in Apia Catchment by 2000 hectares. As of 2013 40 hectares of land from the Catholic subdivision have been purchased for water resources conservation and approximately 1500 hectares of upland catchment areas have been proposed for protection, and 15 hectares of the catchment have been identified as priority for rehabilitation.



**Figure 12** No access sign to 40 hectares of land protected above Fuluasou intake and tree planting work below it

### **3(B): INDICATOR#2: REDUCTION IN WATER LEAKAGE LOSS IN APIA**

Losses from Apia’s water distribution system were identified as a key factor contributing to stress on Samoa’s freshwater resources. At the outset of the IWRM project there were ~60,000 people serviced by the Samoa Water Authority (SWA) in Apia with non-revenue water (e.g. system loss, theft) estimated at 70 percent. The project aimed to reduce water loss by 30 percent. As a result of the project, the Water Safety Plan for Fuluasou prioritized leakage reduction in the Apia area. SWA has finished leak detection work and leak reduction engineers have worked on fixing leaks which has reduced non-revenue water to ~40 percent.

### **3(C): INDICATOR#3: POPULATION WITH ACCESS TO IMPROVE SANITATION**

Prior to the project there was no septic system regulation for seepage and town sewage leaked into the surrounding environment. Treatment in town was ad hoc and unsustainable. A target of the project was to improve sanitation for 30 percent of Apia’s residents. The outcome has been a functional Waste Water Treatment Plant which now pumps all waste from the central business district of Apia to the plant. This has been augmented by the Tafaigata Sludge Facility which caters for all sludge removed from household septic. Household septic are now also subject to legislation which requires old septic to be fixed and new ones modified to prevent seepage into the ground.

**Table 1**



**Figure 13** Waste Water Treatment Plant Sogi



**Figure 14** Water Sector Team Visiting the sludge facility.