



# GEF PACIFIC IWRM PROJECT RESULTS NOTE

<http://www.pacific-iwrn.org/results>

4<sup>th</sup> RSC 2012

## Using Integrated Land Use, Water Supply and Wastewater Management as a Protection Model for the Alofi Town Groundwater Supply and Nearshore Reef Fishery



### **Top 3 Project Results**

1. Enactment of the Niue Water Act, providing a framework for water allocation and water resource protection management
2. Establishment and implementation of National and Village Drinking Water Safety Plans to provide safe drinking water to all central areas in Niue.
3. On ground works to improve Niue's water security, through reducing water loss through leakage and increasing water storage

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## 1. PROJECT OBJECTIVE

*To demonstrate integrated water and wastewater resource management through stakeholder engagement to protection of this critical aquifer and well-field through a parallel process of:*

- A. Mitigation of existing threats from contaminants,*
- B. On-the-ground protection, and*
- C. Improved user-resource management.*

*The demonstration project is designed to utilise specific and tangible Stress Reduction measures to improve water resources management and protection, and link these to water quality outcomes and support improvements in integrated governance arrangements of policy and planning.*

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## 2. RESULTS: PROCESS

*Despite significant groundwater resources, Niue's governance framework for water management prior to the project needed updating as water resource and sanitation management was not coordinated, had minimal engagement across sectors and key stakeholders and the groundwater resource was not adequately protected.*

*Through the project and with support of the EU IWRM partner project, legislation has been updated to provide the governance framework; national and district coordination bodies have been developed to provide direction and direct engagement for the community, government sectors and other stakeholders in water management decisions and national and village water safety plans have been endorsed and are currently being implemented.*



**Figure 1:** World Water Day 2012 celebration and the launching of Pacific Blue Ribbon

### **2(a) INDICATOR#1: REVISED LEGISLATION PROTECTING WATER**

Target: Enactment of the Niue Water Bill 2012

The lack of regulations supporting water protection and water use efficiency meant that there were very limited options for managing potential impacts on the main drinking water resources in Niue, the groundwater lens. Additionally, the existing legislative framework did not support integration of water resources management in Niue, with individual Ministry responsibilities linked to specific legislation.

The enactment of the Niue Water Act 2012 has provided the framework for regulations to address concerns relating to water use efficiency, allocation and protection of drinking water resources. Additionally, it provides for the development of a national Water Resource Management Plan and integration of water and sanitation management across government and other stakeholders, administering the Act in an integrated approach across three separate agencies.



**Figures 2 & 3:** Gender Mainstreaming in developing Village Waters Management Plan

**2(b) INDICATOR#2: VILLAGE WATERS MANAGEMENT PLANS FOR ALOFI NORTH AND ALOFI SOUTH VILLAGE COMMUNITIES IMPLEMENTED**

Target: “Community to Cabinet” Village Water Management Plans Endorsed by Cabinet and Audited

Prior to the GEF IWRM project, water management in Niue was broadly considered the responsibility of government, with very little community engagement. Household water use rates were amongst the highest in the world, reflecting a lack of understanding and ownership of water resource management. Under the project, Village Waters Management Plans were developed to engage communities in water management, to strengthen communications on key water issues and to foster a sense of ownership.

The development of Village Water Management Plans in both Alofi South and Alofi North has also provided a mechanism for the community to communicate with its national partners including the Cabinet Ministers, as well as different groups within village communities. Important developments as part of this process have included gender mainstreaming and the increased capacity of communities to support the implementation of drinking water safety plans. This in turn has contributed to a measured reduction in household water use.



**Figures 4 & 5:** Launching of the Alofi South Village Water Management Plan

### **2(c) INDICATOR#3: NATIONAL COMMUNICATION STRATEGY IMPLEMENTED**

Target: National communication strategy endorsed by national APEX body (Niue Waters Steering Committees)

Prior to the project, the majority of the people across in Niue had limited understanding of our national water resource status and how water is being managed for their communities and the threats to long-term sustainability. This was reflected in extremely high household water use and new developments siting septic tanks directly over critical drinking water resources.

Developing and implementing a National Communication Strategy has increased the awareness of our people on the importance of our water resource and in particular, conservation measures that are important ensuring that the water is safe for their consumption and for our future generations. Annual World Water Day Events have become important at a national level to focus on water resource awareness and education, with participation rates as high as 50% of the national population.



**Figures 6 & 7:** World Water Day 2012 celebration and the launching of Pacific Blue Ribbon

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### **3. RESULTS: STRESS REDUCTION**

*Niue relies heavily on groundwater for water supply. The national groundwater reserves are significant; however poor water use efficiency (WUE), in particular system losses and inadequate balancing storages threaten national supplies. In the longer-term, maintaining groundwater quality is the key challenge for sustainable water resource management. The key threats to groundwater quality include pollution from agriculture (including piggeries and chemical use), disposal of medical wastes, septic tanks and waste oils.*

*The GEF IWRM project has reduced water resource stresses by reducing system losses and increasing storage to provide greater supply reliability. This has been combined with a program of household leak reductions to increase national WUE. The pollution stresses on the groundwater resource have been addresses through a combination of working with the agriculture sector on piggery management, working with the hospital on managing hazardous medical wastes and providing a mechanism for the safe disposal of 14 kL of waste oils.*

### **3(a) INDICATOR#1: REDUCTION IN DRINKING WATER RESOURCES POLLUTION**

Target: Guideline/standards on fuel and oil storage including waste oil

Waste oil storage has been poorly managed in Niue, with a lack of commitments from national government and private sector in securing appropriate mechanism to address these issues. An

inventory at the start of the GEF Pacific IWRM Project identified approximately 25 kL of waste oil stored in leaking drums and seeping into the ground and ultimately potentially into the groundwater.

The project has established a national collection and disposal mechanism, and 56% of national waste oil has been collected and stored in safe containers and shipped to New Zealand for recycling and/or



safe disposal. The empty containers used to ship fuel to Niue are used to transport the waste oil minimizing transport costs.

A guideline has been drafted for NWSC endorsement before submission to Cabinet for endorsement of these mechanism particular with funding resources to maintain such mechanism in the future for Niue.

**Figure 8:** Waste Oil transfer for transport

### **3(b) INDICATOR#2: WATER CONSERVATION AND DEMAND MANGEMENT MEASURES**

Target: 20% increase in Alofi storage

Prior to the GEF Pacific IWRM Project, Alofi's supply relied on a heavily leaking 325 m<sup>3</sup> tank, providing only about two days water supply storage for the Alofi community, meaning that the community was particularly vulnerable to groundwater pollution or pump failure.

The project has seen the replacement of the existing tank with two new 240 m<sup>3</sup> storages, increasing storage by over 45% and significantly increasing supply security by eliminating storage leakage losses.



**Figure 9:** New 240 kL storages



**Figure 10:** New storage (left) and old leaking storage (right)

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#### 4. RESULTS: WATER RESOURCE AND ENVIRONMENTAL STATUS

*The water supply in Niue is groundwater based and unchlorinated. The lack of a water safety plan to provide confidence in groundwater and the presence of unprotected well heads were highlighted as risks to maintaining safe water supplies.*

*The establishment of the National Drinking Water Safety Plan and implementation under the Niue GEF Pacific IWRM Project, together with the development and implementation of village water management plans and groundworks to protect well heads provides confidence that safe drinking water is now being provided to Alofi North and South.*

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

Target: National Drinking Water Safety Plans implemented and audited

Risks to the Alofi town water supplies include seepage of residential sewage from septic tanks; seepage of waste from piggeries, agricultural chemicals; industrial wastes; seepage from rubbish dumpsites and contamination of the storage and distribution systems.

The establishment and implementation of the National Drinking Water Safety Plan and the Village Drinking Waters Safety Plans through the GEF IWRM Program provides confidence that these risks are being managed and that the 450 people of Alofi are receiving safe drinking water. Further, the development of Village Water Safety Plans strengthens the communities' knowledge about managing the water resources and managing water use efficiently.



**Figure 11:** Demonstrating fixing household water leaks with Village Communities



**Figure 12:** Implementation of Village Water Management Plans