



GEF PACIFIC IWRM PROJECT RESULTS NOTE

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RSC 5 2013

Integrated Sustainable Wastewater Management (Ecosan) for Tuvalu



*Construction workshop for island
contractors to support community
replication*

Top 3 Project Results

1. Successfully engaged the Tuvaluan community, government and politicians in the uptake of compost toilets, to the point where it is now seen nationally as the preferred sanitation option and is included as such in the National Water and Sanitation Policy.
2. Successfully designed and replicated across four project countries a sanitation solution (eco-san) appropriate for SIDS, using local expertise to adapt existing international technologies and community participation to garner support and adaptation. 40 systems installed on Funafuti with planned scaling up leveraged through the EU for a further 135 for Funafuti and outer islands.
3. Establishment of a National Water and Sanitation Policy (2013) that has mainstreamed IWRM water and sanitation solutions and concepts demonstrated through this project.

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1. PROJECT OBJECTIVE

To demonstrate that improved sanitation technology and practices can provide protection of primary and secondary water resources, marine biodiversity, livelihood, and food security, and practically demonstrate the links between public health and the conservation of natural assets

2. RESULTS: PROCESS

From a baseline of little interest in composting toilets to a success story other countries are looking to emulate, the Tuvalu GEF Pacific IWRM project has demonstrated the value of engaging stakeholders. This core IWRM and project approach has facilitated a national-level change in attitudes to sanitation and water management, development of a national water and sanitation policy, increased water security and is dramatically increasing access to improved sanitation in Tuvalu.

Initially, the project struggled to find families to trial the first ten compost toilets. A communication and engagement campaign involving innovative strategies including a toilet roadshow, a competition to name the Tuvaluan designed toilet (the 'Falevatie'), focus groups and targeted media campaigns and numerous school and community sessions were built around a sound technical solution. Less than three years later over 25% of Funafuti's households (275 families) are seeking to install compost toilets.

Involvement in the development of a National Water & Sanitation Policy has proven the success of project stakeholder engagement which is reflected in the endorsement of the WSP as well the inclusion of eco-sanitation as a sanitation option of choice for Tuvalu. The inclusion of gender targets in senior national water governance is a reflection of the empowering nature of the project and a positive response to pilot gender awareness in water workshops.

The project is also assisting with drought management, particularly relevant following the 2011 drought and national State of Emergency, through the development of a national water storage model, providing critical water security management and planning information.



Figures 1 and 2

The Compost Toilet Roadshow showcased the Falevatie (compost toilet) by taking the toilet to the communities. At each stop games and activities were set up and people were invited onboard to inspect the toilet and were given the opportunity to discuss the toilets and concerns with the project staff

2(a) INDICATOR#1: LESSONS LEARNED INCORPORATED INTO OTHER PROJECT(S) AND/OR REGULATIONS

Despite eco-sanitation offering many benefits to low-lying Pacific islands challenged by a lack of water resources and minimal capacity for sustainable wastewater treatment and disposal, previous attempts to introduce the technology had seen many failures and no replication. The aim of the project was to replicate lessons learned by the end of the project. In the space of three years, the Tuvalu GEF Pacific IWRM project has changed this landscape, with the Tuvaluan compost toilet being adopted and adapted in Nauru, RMI and Tonga, with Nauru having expanded the application from households to schools.

The lessons identified across stakeholder engagement, capacity building and communication have helped Nauru and RMI rapidly develop positive stakeholder interest and the knowledge continues to be spread through South-South twinning exchanges.

Within Tuvalu, development partners are strongly supporting the expansion of ecosanitation both within Funafuti and to the Outer islands, with commitments already to treble the number of toilets and national and development partner plans to provide most households in the Outer Islands with access to a compost toilet.



Figure 3: Construction workshop, convened for island construction workers to understand the principals of twin chambers and construct the toilets themselves

2(b) INDICATOR#2: NATIONAL IWRM INDICATOR FRAMEWORK EMBEDDED IN FORMAL NATIONAL REPORTING

Before the project there were no national indicator frameworks for water resource issues. The project aimed to have a national IWRM Indicator Framework endorsed by the Minister by the end of the project. In a country prone to drought and with significant water and sanitation management related environmental and health challenges, the development of national indicators was supported from community to the Minister. The absence of a monitoring and reporting mechanism meant that government, the community and other stakeholders had little knowledge of the status of water security until the next drought and no means of assessing the value of water management decisions.

The development of national IWRM indicators in early 2012 provided many stakeholders with their first opportunity to actively engage in national water management decisions. The process defined some of the management challenges for the first time (for example, the variance in livestock water use). The value of the framework was recognized immediately by the request for guidance on replicating the process in the agriculture and fisheries sectors. These indicators are in final stages of development to be approved and endorsed by Cabinet.



Figure 4: Developing national water and sanitation indicators

2(c) INDICATOR#3: PROPORTION OF COMMUNITY ENGAGED IN WATER RELATED ISSUES



Figure 5: Children engaged in games associated with the Falevatie Roadshow

Prior to the project, the centrally managed water and sanitation sectors provided little scope for community engagement. From such a low baseline, percentage increase in engagement is almost meaningless. However the project sought to increase engagement by 30%. More importantly, from a position of virtually no community engagement in water related issues, the project has engaged more than 25% of Funafuti at the highest level of personal engagement, committing the household to a changed lifestyle through ecosanitation.

By continually focusing on communication and engagement the project has managed to actively engage a large proportion of Funafuti, through workshops, community and school events and Kaupule meetings. Key initiatives included the development of a national name for the compost toilet, which provided a sense of national ownership and the subsequent roadshow, engaging families through entertainment and providing access to information and an opportunity to talk through concerns.

Community engagement in governance has increased through community leaders' membership on the project committee and the national APEX body.



Figure 6:IWRM Demonstrating water quality testing

2(d) INDICATOR #4: NATIONAL STRATEGY IN PLACE - DEVELOPMENT OF WATER AND SANITATION POLICY

Before project implementation there was fragmented reference to water within other national frameworks such as the Te Kakeega II, Te Kaniva and the NAPA. The target of the project was to have a discrete National Water Policy by mid-2012. During the 2011 drought the government requested assistance from the IWRM to develop a National Water Policy. The Policy was developed with input from a wide range of community, government and NGO stakeholders the process of which culminated in a Sustainable Water Forum in 2011. The purpose of the WSP is to ensure that the people of Tuvalu have continued access to safe, reliable, affordable and sustainable water and sanitation facilities. The WSP was endorsed by Cabinet in early 2013 and launched to the public in October 2013.



Figure 7: NWSSC members with newly endorsed Water and Sanitation Policy, October 2013

2(e) INDICATOR #5: MULTI-SECTORAL APEX BODY IN PLACE

Prior to the start of the IWRM project there was a national steering committee established by the IWP, however at the end of this program the committee became inactive. The target of the IWRM project was to have a National APEX Body in place and endorsed by the Cabinet. The National Water and

Sanitation Steering Committee was re-instituted in late 2009 and has a wide membership including government and non-government actors. Membership includes many groups from the community including Kaupule, NGO's and Women's groups. The NWSSC has been critical in the development of the National WSP and is active in community campaigns. They meet quarterly to review and design IWRM work plans and monitor progress. They are the main multi-sector committee for water resource and sanitation related issues in Tuvalu and are the mechanism for advancing legislation through Cabinet.

2(f) INDICATOR #6: BEST IWRM AND WUE APPROACHES DEFINED FOR TUVALU

Reports on water and sanitation challenges had been written prior to the commencement of the IWRM, these identified water and sanitation challenges as they relate to IWRM and how the IWRM approach could be used to address these. Little was done to turn these reports into substantial change in the sector. The target of the IWRM project was to have the IWRM approach defined and endorsed by the National APEX Body. Through a nation wide consultation process these approaches were presented to and approved by the community and government institutions. These approaches have since been formalized in the National WSP and endorsed by Cabinet.



Figure 8: Community consultations on benefits of IWRM

2(g) INDICATOR #7: BEST APPROACHES TO IWRM AND WUE MAINSTREAMED INTO NATIONAL AND REGIONAL PLANNING FRAMEWORKS – ECO-SANITATION ADOPTED INTO WATER POLICY

Prior to project commencement Tuvalu had no strategy or agreed approaches to water and sanitation policy. The project aimed to define targets and priority actions for IWRM aimed at strengthening national coordination and reducing stress on vulnerable water resources for mainstreaming into national and regional planning frameworks. An intensive consultative process, involving broad cross-sectoral and community participation, enabled the definition of best approaches for water and sanitation management that were subsequently incorporated in the National Sustainable Integrated Water and Sanitation Policy. This includes the formal recognition of eco-sanitation as a sanitation option all of Tuvalu.

2(h) INDICATOR #8: SECTORAL ENGAGEMENT IN FORMAL MULTILATERAL COMMUNICATION ON WATER ISSUES

Prior to commencement of IWRM there was limited cross-sectoral engagement or communication on water issues. The project aimed to increase engagement, with a particular emphasis on strengthening communication between national government and traditional community-based governance arrangements. The NWSSC established the platform for this and, with Ministerial support for this group provided through the IWRM, up to 20 different agencies from national and local government, representatives of NGOs, and community leaders have met on a quarterly basis to discuss national water and sanitation policy and IWRM planning, review the status of various water related investment in Tuvalu, and to share information on the results of various stress reduction technologies being trialed as part of the IWRM demonstration project.

2(i) INDICATOR #9: PROJECT DESIGN AND PM & E PLAN IMPLEMENTED

At the beginning of the project there was no project design or PM&E plan and the target was to have this developed and endorsed by the NWSSC by 2011. In conjunction with NWSSC, the IWRM Project Team developed the project design and PM&E plan during a special meeting over 2 days in early 2011. After review of the documents the NWSSC approved the design and PM&E plans.

2(j) INDICATOR #10: NATIONAL STAFF ACROSS INSTITUTIONS WITH IWRM KNOWLEDGE AND EXPERIENCE

Prior to the project National staff had limited knowledge or experience of IWRM and it was a target of the project to increase this by project end. In order to share the ecological concepts and technical construction of the eco-sanitation toilets a week-long workshop was conducted for the IWRM Project Team and all local contractors and builders. This workshop covered construction of composting toilets, how to use and maintain the system. It also covered the advantages and disadvantages of the system so that builders could explain the process to families who were interested or were having one installed. From this training the IWRM Project Manager was then able to share the construction and ecological knowledge with the IWRM projects in RMI and Tonga. This has also resulted in the development of a Falevatie Construction Manual that was developed to help other projects and private builders with the construction of their own falevatie.



Figure 9: Eco-sanitation technical construction workshop

2(k) INDICATOR #11: NATIONAL IWRM COMMUNICATION PLAN FRAMEWORK IMPLEMENTED

Prior to the IWRM project there was no National IWRM communication plan framework. The target of the project was to have this developed and endorsed by mid-2012. Information from the community engagement report was used to guide the development of the IWRM communication plan, this included how to mobilise communities, indicating the approaches to be taken for communication activities and locally appropriate methods of engagement. This document is in the final stages of development for review by the NWSSC and ultimate endorsement by the Minister. In addition to this a Communications Committee was established in 2010 to address the obstacles faced in the implementation of the falevatie. This committee proved to be an extremely effective body for planning and implementing activities that generated community interest in the project and engaging community members to voice their concerns. The outcome of the Committee's involvement was to overcome a lot of community apprehension through targeted information campaigns leading to the acceptance of falevatie at the household level.



Figure 10: Multi-sectoral communications committee

3. RESULTS: STRESS REDUCTION

Reducing water and sanitation management impacts on Tuvalu's groundwater and coastal resources has been identified as critical to the long-term sustainability of the country from a food and water security and biodiversity perspective. One of the most severe challenges to the groundwater and coastal water quality and to water security is the use of septic tanks. Many septic tanks have failed; however due to the sandy soils, even functioning tanks still do little to reduce the pollution load to the environment.

Stress reductions are being achieved in the project through the installation of composting toilets, which address both the household demand for water, increasing water security, and the discharge of toilet wastewater into groundwater and ultimately into coastal waters.



Figure 11: Composting toilet installed by the project. Prior to the installation of these toilets, waste seeped into groundwater and discharged into the lagoon

3(a) INDICATOR#1: REDUCTION IN USE OF FRESHWATER FOR SANITATION PURPOSES DUE TO COMPOSTING TOILET INSTALLATION



Figure 12: Waterless eco-sanitation toilet installed by the project

Toilets flushing into septic tanks typically use six to ten litres per flush, and represent more than 30% of household water use. In Tuvalu, where over 70% of water storages are household rainwater tanks and there is only limited commercial and agricultural water use, toilet flushing represents about 30% of national water use. During the 2011 drought resulting in a State of Emergency, flushing toilets were a significant contributor to drawing down water reserves, and ultimately the need for flushing water meant that families were often left with a choice of sanitation or drinking and cooking water. The goal of the IWRM project was to reduce this freshwater use for sanitation by 30%.

The Tuvalu GEF Pacific IWRM project has installed 40 compost toilets, reducing household water use by over 30% in these houses (representing about 5% of Funafuti's population). The co-funded installation of toilets in partnership with this project will see these reductions in about 15% of Funafuti houses. Ultimately, the changes in building regulations being developed and implemented under this project, together with development partner commitments will see similar reductions over much of Funafuti and the Tuvalu Outer Islands. With funding leveraged through the IWRM project, there will be 45 extra toilets on Funafuti and 90 on the outer islands to be constructed. It is expected that Nukulaelae will have complete coverage of compost toilets as they have expressed their interest in removing septic systems to ensure water security and climate resilience.

3(b) INDICATOR#2: POPULATION WITH ACCESS TO IMPROVED SANITATION



Figure 13: Toilets have been installed to service isolated communities previously without improved sanitation systems

The United Nations Special Rapporteur's acknowledgement of Tuvalu's serious challenge in meeting human rights in access to sanitation and drinking water highlighted the importance of this issue nationally. Nationally, 4% of Tuvaluans still practice open defecation, and during drought periods, this increases significantly. The target of the IWRM project is to increase Funafuti residents with access to improved sanitation by 5%, equivalent of about 250 people.

The provision of sustainable sanitation through the Tuvalu GEF Pacific IWRM project to 40 households is directly increasing the access to improved sanitation for about 280 people, over 5% of Funafuti's population.

Whilst the project has already exceeded the target for improving access to sanitation, the co-funded and catalytic outcomes will see a further 45 households with access to sanitation during the project period, a further 8% of Funafuti's population, exceeding the project target.

A further 90 households will have access to improved sanitation on outer islands as a result of the projects replication initiatives.

4. RESULTS: WATER RESOURCE AND ENVIRONMENTAL STATUS

Whilst MDG statistics suggest that Funafuti has high access rates to improved sanitation and drinking water, recently the United Nations Special Rapporteur on the right to safe drinking water and sanitation declared that this did not reflect the true situation in Tuvalu. Most sanitation systems have failed and open defecation is still practiced, increasingly so during drought periods.

The provision of sustainable sanitation through the Tuvalu GEF Pacific IWRM is directly increasing the access to improved sanitation for 40 households, with co-funded and catalytic outcomes delivering further increases. These toilets will also alleviate some of the challenges in providing access to improved drinking water sources, significantly reducing household water use, increasing security and water availability during drought periods.



Figure 14: Funafuti demonstrating the lack of surface water resources and the close proximity of the coast and lagoon to all sanitation systems

3(a) INDICATOR#1: REDUCTION IN SEWAGE POLLUTION ACROSS FUNAFUTI

Studies of Funafuti groundwater indicate that the groundwater and near shore coastal waters and sediments are heavily polluted from septic tanks, which are also a significant contributor to the eutrophication of Fongafale Lagoon and associated macro-algae blooms that clog the lagoon. This is further exacerbated by the open defecation practices in the lagoon, which increase during drought periods. Significant loss near shore habitat and reductions in fish numbers are forcing fishermen further and further into the lagoon for similar catches. The project aimed to reduce sewage pollution by 5% across Funafuti.

The installation of the 40 compost toilets has removed the sewage pollution into groundwater and subsequently into coastal waters from these 40 houses. This represents about a 6% reduction in nitrogen pollution into the groundwater. The co-funding commitments to replicate eco-sanitation to a further 60 houses in partnership with this project will deliver a further 8% reduction in sewage pollution, putting the project on track to exceed the target. Additionally, current government and development partner planning and community commitment suggest that much larger targets may be achievable.