

Eco-sanitation in Tuvalu

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Tuvalu is primarily dependent on rainwater. Rely on water delivery from national reserves and desalinator when domestic tanks are empty.... (often after one week with no rain)
 Groundwater was historically secondary source but now too polluted on Funafuti, and becoming increasingly polluted on outer Islands.



Due to poor sanitation (animal, human and chemical waste): Coral dead on ocean and lagoon side out to 200m
 E-coli levels < 2000/ml in groundwater & seawater



Septic tanks throughout crowded villages close to wells (groundwater is polluted but still used as secondary source in drought)
 Audit: 98% of septic systems not constructed properly
 eg Hotel septic discharges into groundwater at edge of lagoon
 No hygienic system for desludging and disposal



Some septic tanks are improved but still not adequate treatment trench (or no trench). Effluent causing nutrient rich growth around tank and risking surcharge in wet weather and high tides.



Aerated Wastewater Treatment Package Treatment Plant at government buildings – has sometimes surcharged due to overload and lack of maintenance



In 2006 there were approx 2000 pigs (and 4000 humans) on Funafuti:
pig waste drains directly into groundwater or to tidal ponds



threats to health are invisible
and people adjust to slow degradation.

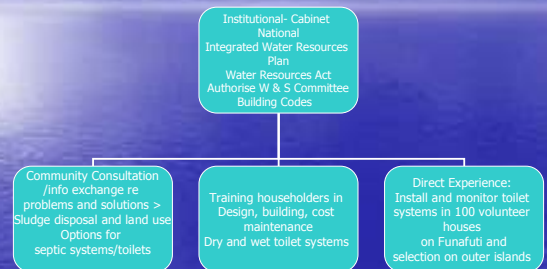


International Waters Programme 2002 -2006

Economics of Liquid Waste Management in Funafuti, Tuvalu:
Cost Benefit Analysis by Padma Lal, Kelesoma Saloa and Falelili Willy, February 2006

- Poor sanitation is costing the nation about \$AUD500,000 a year. "This estimate is based on analysis of the costs of poor sanitation on human health, the preventative costs incurred by individuals and government in the use of alternative water, including rainwater tanks, bottled water and desalinated water, as well as limited costs to the coastal fisheries."
- Does not include indirect cost of lost production due to waterborne disease
- Does not include longer term generational loss caused by children being slow to develop due to high incidence of parasites and chronic diarrhoea

Eco-sanitation approach through Integrated Water Resources Management Programme 2008 – 2012. Build on IWP lessons (water and sanitation is in hands of community so they have to give govt mandate)



Co-operate with NGOs trialling bio-digestors on Amatuku at marine training center



Bio-digestor for pig waste will generate energy - will develop system for human waste when this one has been monitored and is fully refined and operational



Investigating fibreglass Bio-digester from China to reduce costs and demand for local materials such as gravel and sand (coral aggregate)



Repair of septic, construction of treatment trenches, and safe disposal of sludge



Practical Training in Eco-sanitation will build on 2006 IWP course (theory and construction – certified by Uni of Tedinology - Sydney) design, cost, pathogen and treatment levels, maintenance of wet and dry toilet systems



Attended by personnel from government, ngos, community groups, and the private sector, (and government visitors from Kiribati)



These qualified trainees could be employed to assist with the IWRM community trainings and construction



Family has been using this fixed batch CT system for 2 years 2006-2008 Report big saving of rainwater - and neighbours also use it in times of water shortage. No technical problems.



This family has been using a mobile batch composting toilet since 2002 and reports no water shortage in 7 years, emptied compost and used on fruit trees, and neighbours also use their system in time of drought.



Possible CT for Conservation Area as part of eco-tourism promotion (but only if someone paid to maintain it as public toilets are not usually maintained eg these two built in 2002)



Some of the intended outcomes of Eco-sanitation

- 1. Reduced demand on freshwater supply for flushing of toilet systems and reduction of dependence on national reserves to supplement household supply.
- 2. Sustainable options designed for toilet sludge.
- 3. Wider awareness and acceptance of non-polluting sanitation technology and its public health and environmental benefits, and importance of the requirements for effective maintenance of wastewater systems.
- 4. Establishment of an effective model for acquiring and sustaining use of private land for public use.
- 5. Reduced nutrient and pathogen load in groundwater in areas where composting toilets and properly constructed septic systems are installed.
- 6. Upgrading of Conservation Area as an eco-tourist destination with funds generated by visitors to be used by the Kaupule for maintenance.
- 7. Effective legislation and regulations in place to support integrated and sustainable wastewater management.
- 8. A co-operative relationship strengthened among those agencies and personnel involved with the water and sanitation sector.

