



# Solid Waste Management in the Pacific

## Tuvalu Country Snapshot

### BACKGROUND

As a small, low-lying country, consisting of nine atolls, Tuvalu is characterized by extreme environmental fragility. Around 57% of the country's population of 10,837 resides on the main island of Funafuti, a narrow strip of land with an area of just 2.4 square kilometers. The country's per capita gross domestic product was estimated at A\$3,419 (around \$3,074) in 2012.<sup>1</sup>

### TECHNICAL ASPECTS

#### Waste Generation and Composition

The last comprehensive solid waste audit for Tuvalu was carried out in 2000. The study estimated that an average of 0.43 kilograms per person per day was generated on Funafuti, with organic materials accounting for around 50% of total solid waste.<sup>2</sup> Adjusting for population growth and lifestyle changes, in 2012, it was estimated that Funafuti generates around 1,100 cubic meters of solid waste annually.<sup>3</sup>

#### Waste Collection

Household rubbish is stored in 120-liter domestic waste bins provided under past projects supported by development partners. Households that pay annual waste collection fees are provided with weekly waste collection services by the Funafuti Kaupule (local government), which operates two open-bed collection trucks. In 2012, around 640 out of an estimated 800 households in Funafuti received waste collection services, representing a collection ratio of around

80%. In 2013, new 80-liter domestic waste bins were provided to households in Funafuti under the European Union (EU)-supported Water, Waste and Sanitation Project.<sup>4</sup> Households also use empty biscuit containers, plastic bags, or sacks for storing waste when bins are full. With the exception of green waste, which is left outside the bins for collection, solid waste is not segregated at source.

Solid waste collection services are provided on an ad hoc basis, and not in accordance with a formal and transparent collection schedule. Collection is often interrupted by mechanical problems with the rubbish collection trucks, resulting in solid waste not being collected for long periods of time.

The Solid Waste Authority of Tuvalu (SWAT) also maintains large, communal waste bins at selected sites around Funafuti, along the main roads, and outside all community meeting halls for people to dispose of wastes.

Illegal dumping and burning of wastes are commonly practiced around Funafuti given the inadequacy of solid waste collection services. Wastes are disposed of in the ocean, or in "borrow pits" around the island. During World War II, borrow pits were created when aggregate was excavated from the island to construct the airport runway. These pits on Funafuti are filled with all kinds of solid wastes, including plastics, aluminum cans and other metal wastes, old clothes, electronics, refrigerators, and freezers. The wastes create significant environmental and health hazards.

1 Government of Tuvalu, Tuvalu Central Statistics Division. 2012. *Population and Housing Census: Preliminary Analytical Report*. Funafuti.

2 Sinclair Knight Merz. 2000. *Tuvalu Solid Waste Characterization Study and Management Plan*. Secretariat of the Pacific Regional Environment Programme. Apia.

3 Government of Tuvalu. 2012. *Tuvalu Infrastructure Strategy and Investment Plan*. Pacific Infrastructure Advisory Center. Sydney.

4 Under the 10th European Development Fund financing agreement signed in 2010 with the Government of Tuvalu, the EU is providing 1.17 million euros (around \$1.6 million) for waste management over a period of 48 months under the Water, Waste and Sanitation Project.



Photo by B. Olsson

Tractor with trailer

### Waste Disposal

Household and commercial wastes collected by the Funafuti Kaupule and SWAT, with the exception of green waste, are transported to Funafuti's one official dumpsite for disposal. The main dump is a borrow pit, located on a strip of land 20 meters wide next to the main road, at the northern end of the island. SWAT is responsible for managing the island's dumpsite.

SWAT has not been compacting or covering wastes at the dumpsite for some time. As the pit has become full, rubbish is instead piled along a 1-kilometer stretch of the adjacent road. With assistance provided by the EU, the dumpsite is being rehabilitated; and improved management practices are being introduced to extend the life of the disposal facility beyond 2025 (footnote 3). A fence has been constructed to contain wastes at the dump; and equipment, including an excavator and loader, was procured in 2013. As part of the rehabilitation plans, wastes along the roadside were to be cleared and partially compacted, by shifting into the borrow pit. However, concerns were raised about the risk of contamination of the surrounding environment from leachate from the additional wastes since borrow pits are not lined.

### Waste Treatment and Recycling

The Taipei, China Technical Mission operates a centralized composting facility at its agricultural project site. A chipper is used to break down green waste collected by the Funafuti Kaupule for composting. The compost is then sold to farmers and households for fertilizer. As part of efforts to scale up the diversion of green waste from the dumpsite, an additional two chippers were procured in 2013 with EU assistance.

A small private sector business in Funafuti is involved in the recycling of scrap metals recovered from the dumpsite. The company exports containers of ferrous and nonferrous metals to Australia and New Zealand for recycling.

For a time, a nongovernment organization (NGO) implemented an aluminum can recycling program. The NGO managed to recycle and export 50–70 tons of aluminum per year to New Zealand. However, operations were not financially self-sustaining; hence, recycling activities ceased. As part of current EU assistance package on waste management, efforts are being made to increase the capacity of the private sector to support recycling activities. Financing has been provided for the purchase of a baler to crush and bale aluminum and steel cans for processing overseas, as well as new trailers with waste cages for the collection of recyclables.

## INSTITUTIONAL ARRANGEMENTS

The Waste Operations and Services (WOS) Act 2009 and Environmental Protection Act 2008 provide the legal framework for the management of solid waste in Tuvalu.

The Waste Management Unit was redesignated to SWAT in 2010 under the Ministry of Home Affairs (MoHA). It has been the lead solid waste management (SWM) agency in Tuvalu, and is responsible for coordinating the work of all those involved in the waste sector.

SWAT has been given the responsibility for (i) developing national SWM strategies; (ii) acting as sector regulator, including management of compliance and performance of all waste management operations in Tuvalu; (iii) supporting waste management operators in a communicative and cooperative manner by providing necessary technical expertise; (vi) reporting to the government on the national waste management program; and (v) promoting community education and awareness on solid wastes. MoHA provides policy direction and budgetary support to SWAT.

Under the Environmental Protection Act 2008, the Department of Environment (DoE), under the Ministry of Natural Resources Energy and Environment, is responsible for ensuring the proper regulation, monitoring, and control of solid wastes to minimize its impact on environmental quality. The DoE is mandated to regulate waste collection and disposal systems, and set operational standards by applying guidelines for waste management operations within Tuvalu. Its responsibilities also include promoting composting and recycling activities, and raising public awareness on waste management issues.

Under the Falekaupule (Local Government) Act 1997, Funafuti Kaupule has the primary responsibility for providing solid waste collection services to households and businesses; and for keeping roads, paths, and other public places free of rubbish. The Garbage Disposal Bylaw prohibits the disposal of solid wastes in an area other than the designated dumping site. Under the bylaw, offenders may be fined A\$100 (around \$90) or serve 6 months in prison.



Borrow pit filled with rubbish

Photo by B. Olsson

The Public Works Department is responsible for providing advice on the procurement of SWM equipment, as well as the maintenance of heavy equipment used to manage wastes.

A national SWM strategy does not yet exist. Meanwhile, development and implementation of an urban waste management plan for Funafuti is explicitly set out as a priority under *Te Kakeega II*, the country's national development plan, 2005–2015.

## FINANCIAL ASPECTS

The Funafuti Kaupule charges households and businesses an annual fee to cover the costs of providing solid waste collection services. The annual household fee is A\$40 (around \$36), while the annual commercial rate ranges from A\$110 to A\$410 (\$99–\$369). However, revenues are insufficient to fully cover the costs of providing these services in Funafuti. Tipping fees are not charged for solid waste that enters the dumpsite.

Under the 2012 National Budget, the government allocated A\$400,000 (about \$360,000) to support SWAT's operational budget and other SWM activities. However, the budget allocation was reduced to A\$275,000 (around \$247,000) due to delays in implementing some components of the EU-funded Water, Waste and Sanitation Project.

As funding has been one of the major constraints in sustaining SWM programs in Tuvalu, the government is considering the introduction of a waste management levy (WML) on imported goods. Creating a green fund, which would be financed by introducing a new airport departure tax, is also being considered. Such a tax could complement the WML in raising funds to help improve SWM in Tuvalu.

## PUBLIC AWARENESS

The SWAT, DoE, Funafuti Kaupule, and Tuvalu Association of NGOs are engaged in several public awareness activities to promote awareness on SWM issues, including waste separation, waste minimization, and recycling. The Funafuti Kaupule has made efforts to reduce illegal dumping of waste by issuing reminders and warnings on penalties for littering through radio announcements. Community outreach is also included as a component under the EU-supported Water, Waste and Sanitation Project.

In 2013, SWAT undertook public engagement and awareness activities, including a weekend cleanup, drawing competition for youth, and talent quest for the World Environment Week. SWAT also uses social media to disseminate information to the public, such as through its Facebook page.

## CONCLUSIONS AND RECOMMENDATIONS

Adequate management of solid wastes in Tuvalu poses a significant challenge given the fragile surrounding environment, and limited land available for siting waste disposal facilities. Tuvalu's geographic isolation also increases the costs of transporting recyclable materials for processing.

Improved waste collection services, greater public awareness about the adverse environmental and health impacts of improper disposal of wastes, and enforcement of penalties for littering are needed to address illegal dumping and burning of waste. Segregation of wastes at source, to enable more widespread recycling of materials and composting, is also needed to minimize the volume of wastes that enter the island's dumpsite. Current development partner support to the waste sector is expected to address many of these issues by providing much needed technical assistance and financing. However, sustainable financing mechanisms are needed to ensure that waste management activities continue in the medium to long term. ■

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