



# Solid Waste Management in the Pacific

## Timor-Leste Country Snapshot

### BACKGROUND

Timor-Leste comprises the eastern half of the island of Timor; and Oecusse, an enclave on the northwestern side of the island. The country has a population of 1.12 million. Approximately 20% of the population is located in Timor-Leste's capital city of Dili. The petroleum sector is the main driver of economic growth in Timor-Leste, and accounted for 73% of the gross domestic product (GDP) in 2010.<sup>1</sup> Per capita GDP in 2012 was estimated at \$5,309.<sup>2</sup>

### TECHNICAL ASPECTS

#### Solid Waste Generation and Composition

Data on the composition and quantity of waste for Timor-Leste is not available. For Dili, the total volume of wastes reaching the dumpsite is estimated to an average of 18,564 cubic meters per day. Waste density figures are not available. Organic wastes constitute the bulk of household solid waste in Dili.

#### Waste Collection

Municipal solid waste is stored in 337 brick-and-mortar containers (locally called *bak sampah*) at the sides of roads, near public places, neighborhoods, etc. All *sucos* (villages) in Dili have waste collection points of this type.<sup>3</sup> Waste is then manually emptied into smaller containers or sacks and then transferred to garbage collection vehicles. *Bak sampah* are not fully enclosed; and are generally not effective in containing waste, which is often found overflowing onto sidewalks and roads. This constitutes a significant risk to public health and environmental quality. There are also skip containers at 42 locations around Dili, some of them

in poor condition. Bins are also placed in several public spaces.

Dili District Administration (DDA) under the Ministry of State Administration is responsible for solid waste collection services in Dili. DDA provides public waste collection services directly during weekdays, with an aging and poorly maintained fleet of collection vehicles. However, services are unreliable and favor neighborhoods closer to main roads. It has a total of 17 four-wheelers (eight hook lift trucks, seven hydraulic open trucks, and two open trucks) and 13 three-wheelers. These are locally called *tigaroda* and collect waste, from areas with narrow streets, transferring it to the nearest *bak sampah*. DDA has 124 street sweepers to clean public places, main roads, gardens, and drains.

Since 2006, additional daily waste collection services have been contracted by DDA to private sector operators. There is a big fleet of 30 private contractor vehicles for waste collection and transportation. Payment is generally about \$60–\$65 per truck per day for collection and disposal of waste, including vehicle rental, fuel, and staff. Each truck is expected to make three trips to Tibar dumpsite from Monday–Saturday and two trips on Sunday.

There are other private waste collection companies that rent out containers for waste storage, and transport the waste for a fee. In some commercial locations, wastes are stored in drums and placed on curbsides. It is estimated that these private waste management companies account for about 10% of the total wastes disposed of at the Tibar dump.

Many households and businesses do not dispose of waste properly, and are engaged in illegal dumping and burning

1 A. McKechnie. 2013. *Managing Natural Resource Revenues: The Timor-Leste Petroleum Fund*. Overseas Development Institute. London.

2 ADB. 2013. *Key Indicators for Asia and the Pacific 2013*. Manila.

3 D. de Carvalho. 2013. *The Initial Application of 3R Principles in Timor-Leste Solid Waste Management: Country Analyses Paper*. Fourth Regional 3R Forum in Asia “3Rs in the Context of Rio+20 Outcomes – The Future We Want.” Ha Noi, Viet Nam, 18–20 March 2013.



Photo by M. Iyer

Tibar dumpsite

of waste. Discarding household solid wastes in drains in Dili, particularly plastic bottles, contributes to blockages resulting in overflows and flooding.

Currently, there is no transfer station. All the vehicles, except the *tigarodas*, travel about 25 kilometers from Dili to the Tibar dump site.

### Waste Disposal

All wastes collected from Dili town and surrounding areas are disposed of at the Tibar dump, which is also managed by DDA's Sanitation Department. The dump has been in operation since 1982, and covers an area of 22 hectares (footnote 3). The landfill has a paved access road and is gated and fenced. Although there is no weigh bridge, the officer on duty from the DDA's Sanitation Department is responsible for inspecting and keeping a record of the number of vehicles and the value of wastes being disposed of at the landfill. Based on inspection, wastes are categorized into: general mixed rubbish, construction waste, scrap metal, and expired goods for deep burial.

DDA's Sanitation Department employs 11 staff to work at the Tibar dump, including a supervisor; bulldozer drivers; and another eight to register vehicles, monitor trucks

conduct operations at the dump, and clean the drains. DDA has two bulldozers at the Tibar dump. There is no workshop facility, and the Ministry of State Administration is responsible for vehicle repair and maintenance.

The existing landfill site is operated with very few environmental protection measures. Frequent burning of wastes at the dumpsite and waste collection points is common, mainly to reduce the volume of wastes. There are families living on the dump and their main occupation is waste picking.

### Other Waste Streams

Timor-Leste, like other Pacific developing member countries, faces challenges with proper disposal of end-of-life vehicles, white goods (fridges, freezers, and washing machines), and electronic equipment. While there is a semiformal system for collection of scrap metals, there has been no progress on wastes from electronic and electrical equipment or e-waste.

### Recycling

Cardboard and paper are baled and exported by a private firm based in Dili. It exports three 40-foot containers (with 20 tons per container) to Singapore every month. For



metal scrap, there are three levels of scrap metal dealers. At the bottom are the small dealers, including one just outside the Tibar dump. They collect and also buy scrap; selling to middle-level dealers, who in turn sell to a scrap exporter. They also collect and sell aluminum cans. All the scrap collected by middle-level scrap dealers is consolidated in containers at Tasitolu near the Tibar dumpsite. Total scrap exported amounts to about 480 tons per month.

## INSTITUTIONAL ARRANGEMENTS

Multiple national ministries are involved in municipal solid waste management. The National Sanitation Policy, approved in 2012, outlines the overall vision for a clean and hygienic environment, provides guidelines for the sector, and outlines the roles and responsibilities of relevant agencies. The policy also requires that 5-year national implementation strategies and associated investment plans are developed to support policy implementation. However, strategies or plans have not yet been developed for the management of solid waste in Timor-Leste. The policy also calls for strategies to support the reduction, reuse, and recycling of solid waste.

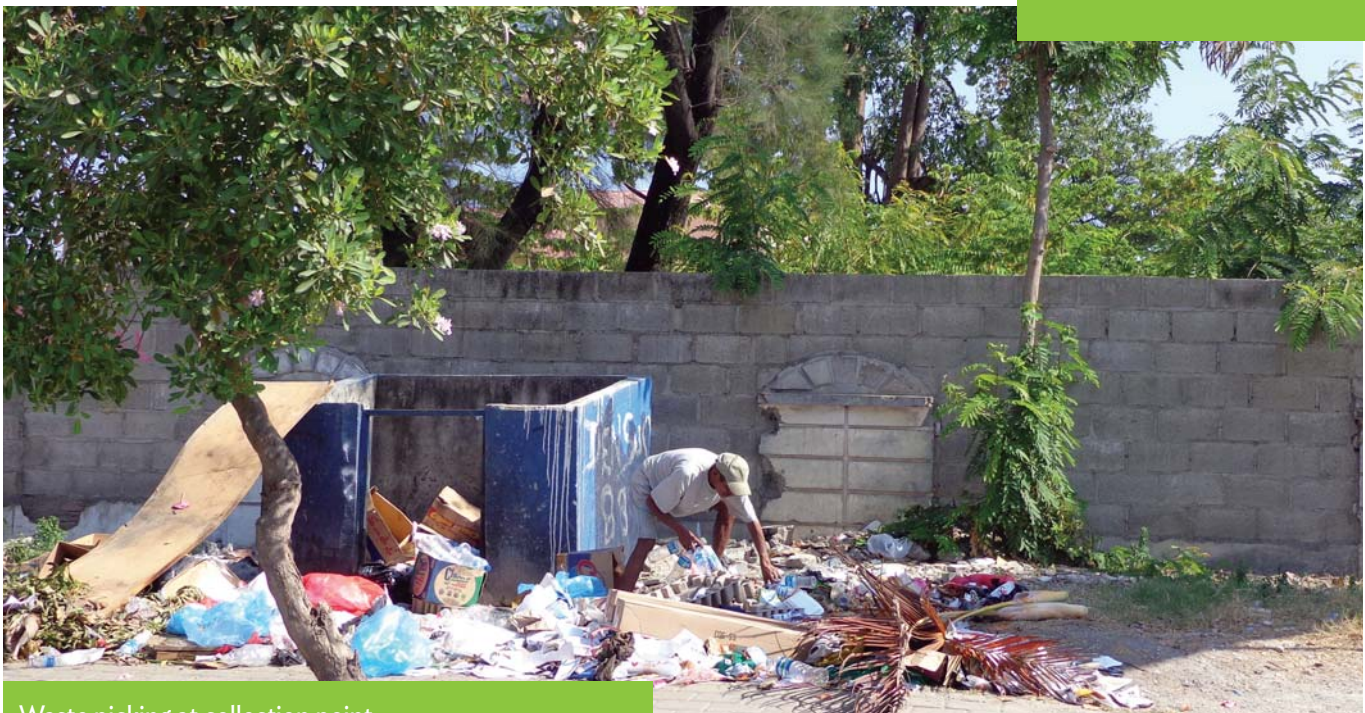
Policy and planning fall under the responsibility of the National Directorate for Basic Sanitation Services under the Ministry of Public Works (MPW). The Ministry has

also been recently involved in preparing budget estimates for upgrading the Tibar dumpsite. The National Sanitation Policy requires that MPW coordinates closely on solid waste management (SWM) issues with the Ministry of State Administration, which is responsible for solid waste service delivery in urban areas, markets, and public spaces, through the National Directorate of Local Administration.

The National Directorate for the Environment under the Ministry of Industry, Commerce and Environment is responsible for policy and regulatory matters relating to environmental quality and pollution control. The Ministry of Education is responsible for promoting awareness on sanitation issues, through school curriculum development. The Ministry of Health, through the National Directorate of Community Health, is responsible for public health-related aspects of solid waste.

Ministerial Diploma 04/2008/MAEOT defines the nature, functions, and structure of district administration; and assigns solid waste collection functions to DDA under the National Directorate for Local Administration.

The Hygiene and Public Order Decree Law No. 33, enacted in 2008, provides the legal framework for allowing district administrators, including DDA, to impose fines for littering and illegal dumping of waste. Article 9 of the decree



Waste picking at collection point

Photo by M. Iyer

sets out the level of fines, which range between \$5 and \$10, depending on the severity of the infraction. However, in practice, fines are not levied.

In light of the national level decentralization program of the Government of Timor-Leste, Dili District is likely to be made into a municipality in the near future. It is expected to take on the responsibility for SWM.

Some of the key nongovernment organizations with some work in SWM as a subsidiary area of interest are Permacultura Timor-Leste, Hametin Agrikultura Sustentavel Timor-Leste, and Haburas Foundation.

## FINANCIAL ASPECTS

In Timor-Leste, there are no charges for the collection or disposal of solid waste levied by the district administration. Even commercial waste haulers are not required to pay tipping fees at Tibar dump.

In the absence of any cost recovery systems, SWM is funded entirely through government budget transfers. Generally, the annual budget for provision of waste management services is between \$700,000 and \$800,000, including salaries, fuel, equipment, and maintenance. This forms a small fraction of the total budget of the Ministry of State Administration. However, budgets for solid waste collection and disposal in Dili are generally inadequate.

## PUBLIC AWARENESS

There are no consistent efforts for public awareness related to SWM. There are multiple ministries and line departments involved in waste management services directly or indirectly and each of them has their own awareness programs. Some of the key awareness programs related to waste management undertaken in the recent past include the following:

- A 100-day awareness program on cleanliness was launched by the Ministry of Industry, Commerce and Environment in September 2012. The Ministry of State Administration organizes periodic *suco* cleanup competitions. Also, since 2007, all government offices are required to participate in weekly cleanups around Dili on Friday mornings.

- The Ministry of Health conducts awareness programs, as part of its environment health education programs. The Ministry also conducts basic health training for women's groups and others through family health promoters, which could be dovetailed effectively with promoting SWM.

The involvement of multiple institutions often results in overlap or oversight of awareness programs. A comprehensive awareness program complementing efforts of each agency needs to be worked out.

## CONCLUSION

There is a need for significant improvements in SWM storage, collection, and disposal in Dili. While the approval of the National Sanitation Policy in 2012 addressed a critical policy gap, there is a need to develop a 5-year SWM strategy, and an associated investment plan to address the current situation. Infrastructure upgrades, such as improvements in the collection points and the dump at Tibar, should be considered in the sector investment plan to address risks to public health and environmental quality in Dili. The scope for expanding private sector participation in the management of solid waste in Dili should also be explored as part of a comprehensive SWM strategy. To ensure adequate financing for SWM in Dili, the introduction of user pays systems, such as tipping fees on commercial waste haulers should also be considered. A coordinated solid waste public awareness strategy should be developed among agencies responsible for various aspects of SWM in Timor-Leste. ■

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