

# Solid Waste Management Country Profile

## Samoa

### BACKGROUND

The population of Samoa as of 2016 was 195,979<sup>1</sup>, mostly inhabiting the main islands, Upolu Island (77%) and Savaii Island (22%). The whole land area of Samoa is 2,830 m<sup>2</sup>. The majority of the population is Polynesian, and Christianity is widely practiced<sup>2</sup>. Per capita GNI as of 2018 was USD 4,020<sup>2</sup>. The main industries are commerce, agriculture, electricity and water supply, and hotels and restaurants<sup>1</sup>. There is no local government in Samoa, and autonomy at the village level is traditionally exercised by a chief called the Matai. The following section mainly focuses on Upolu Island, where the capital, Apia, is located.

### INSTITUTIONAL ASPECTS

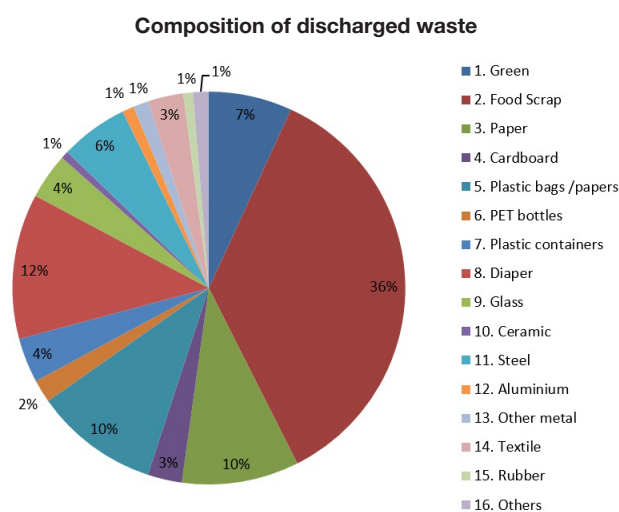
The most fundamental waste management legislation in Samoa is the Waste Management Act (2010). The Act designates the Ministry of Natural Resources and Environment (MNRE) as the ministry responsible for waste management and defines 17 functions that the ministry must fulfill. Recently, in response to growing international concern regarding pollution of marine environments by plastic waste, the Waste (Plastic Bag) Management Regulations (2018) were enforced. These regulations ban the import, sale, and use of plastic shopping bags, plastic packaging (with some exemptions for food safety purposes), plastic straws, and Styrofoam.

MNRE is responsible for the development of waste management legislation, enforcement of laws and regulations, and development of waste management plans. In addition, it manages contracts for nationwide waste collection services, landfill management, street-cleaning in central urban districts, and weed control in designated areas. In January 2019, Samoa's first National Waste Management Strategy (2019-2023) was formulated and waste management based on the strategy's action plan is being implemented by the Waste Management Section of MNRE.

### TECHNICAL ASPECTS

#### Waste generation and composition

According to a waste audit conducted in 2017, which surveyed households in urban Upolu, the amount of waste generated was 1,060 g per person per day, and the amount of waste discharged, which excludes waste disposed of within households, was 387 g per person per day. The composition of discharged waste is as shown in the figure below, the main components being organic waste (green waste and food residue) at 43%, plastics at 16%, paper and cardboard at 13%, and diapers at 12%.



Source: J-PRISM II, Result of Waste Audit (2017)

#### Waste collection

In Samoa, waste collection services are provided for free to households and small businesses across the country, including remote islands, by private contractors. Upolu Island is divided into 14 waste collection zones, and a contractor for each of the zones is selected through bidding. As of November 2021, four companies are providing waste collection services in Upolu.

The collection services cover general and bulky waste. Households are recommended to dispose of green waste themselves; it is not included in the scope of waste collection. General waste is collected daily in central Apia, and



twice weekly in other areas. Bulky waste is collected every Wednesday during collection months, which are every three months.



Waste collection (2017)

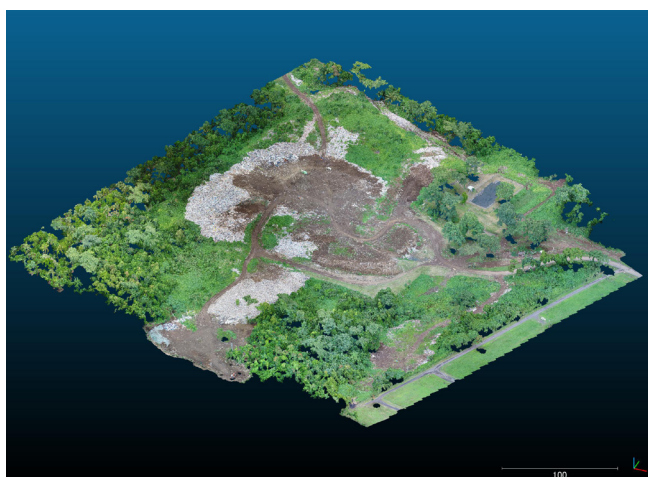
In Samoa, the most common way to discharge waste is to place trash bags on the platforms that are usually located along the roadside. Compactor trucks are used for general waste collection. Normally, two workers are on board in addition to the driver, to carry out the collection work. Dump trucks are used for bulky waste collection.

Waste generated by large businesses and institutions is not collected by government-provided waste collection services; instead, it is taken directly to landfill by the waste generator, or is collected by a private waste collection service.

## Waste disposal

Waste collected on Upolu Island and the nearby islands of Manono and Apolima is transported and disposed of at Tafaigata Landfill, located 10 km west of Apia.

Tafaigata Landfill (2018)



Source: 3D-model generated from an aerial photo taken by drone (created by J-PRISM, 2018)

Tafaigata Landfill is categorized as a semi-aerobic landfill, and has been developed since 2002 with the support of JICA. It was developed using the Fukuoka Method, and is equipped with leachate collection pipes, gas venting pipes, leachate ponds, etc. The entire site area is approximately 30 ha, and includes the landfill area, a sludge treatment facility, and a private recycling facility. Responsibility for operation of the landfill lies with MNRE, while day-to-day landfilling and soil covering on-site using heavy machinery is contracted out to a private contractor.

Based on an incoming vehicle survey conducted in January 2018, incoming waste at the Tafaigata Landfill is estimated to be about 45 tons per day, and about 16,000 tons per year.

Tipping fees are collected at Tafaigata Landfill based on the weight of waste measured by a weighbridge. The unit price of the tipping fee varies depending on the source of the waste (household/office, etc.) and the type of waste (general waste/organic waste/hazardous waste, etc.). For example, in the case of general household waste, WST 0.05<sup>3</sup> is charged per kilogram.

Disposal fee table (partial)

| Category         | Type of waste                                  | Disposal fee (WST/kg) |
|------------------|--|-----------------------|
| Household Waste  | All (except for waste collected by contractor) | 0.05                  |
| Commercial Waste | General waste, organic waste, glass            | 0.05                  |
|                  | Bulky waste, market waste                      | 0.10                  |

Since there is a large landfill area at Tafaigata, lack of capacity has not yet become a problem. The challenge for the time being is to develop a landfill plan and assess the remaining capacity and lifespan of the landfill.

## Waste Recycling

Where organic waste is concerned, there is a custom of utilizing food residues as feed for pigs and other livestock, and using green waste as mulch for trees. In addition, composting of market waste was undertaken at the Tafaigata landfill in the past by MNRE and a private company. However, the composting has been stopped in recent years, primarily due to the absence of technical experts.

In terms of beverage containers, empty beer and juice



bottles from domestic manufacturers are returnable bottles. There is a system whereby manufacturers collect and reuse returnable bottles, paying a refund of WST 0.1 per bottle. In many cases, households do not discharge returnable bottles as waste, but collect them to exchange for cash. According to household interviews conducted in conjunction with the waste audit mentioned earlier, there were no households discharging returnable bottles as waste.

The collection (including dismantling, compression, and packaging) of aluminum cans and valuable materials from discarded home appliances and cars (such as scrap iron, copper, and discarded batteries) is essentially carried out by two recycling companies, which export them by container to New Zealand, Australia, South Korea, and other countries. Methods of collection include delivery of such waste to the recycling companies by the waste generators themselves, collection by the recycling companies, and collection by the waste pickers at Tafaigata Landfill. There are approximately 20 registered waste pickers at Tafaigata Landfill who collect waste such as aluminum cans and discarded home appliances from the landfill and take them to the recycling companies for selling.

The Samoa Recycling and Waste Management Association was launched in 2017, consisting of recycling companies, domestic beverage manufacturers, automobile manufacturers, and others. The association promotes activities by individual companies to reuse valuable materials and recycle them overseas. For waste such as discarded oil, which is hazardous and difficult to manage properly, the association promotes proper storage within Samoa and proper treatment overseas to minimize its impact on the environment.

## Outsourcing of waste management to the private sector

Waste management in Samoa is characterized by outsourcing to the private sector. MNRE does not have an implementation unit and has limited staff. Therefore, outsourcing enables the private sector to provide the capital, equipment, human resources, and technical capabilities required to maintain waste management operation across the country. In general, outsourcing of waste management is said to reduce costs and improve the quality of services through competitive bidding. On the other hand, disadvantages include increased administrative work related to contracts and additional outsourcing management costs,

such as for enforcing compliance by contractors. The challenges are to improve the efficiency of day-to-day operations and properly supervise the contractors.

## Financial Aspects

Expenditures for waste management in Samoa are funded from the general account of the national government. Government-provided waste collection is free for users, and the only revenue generated through waste management is from tipping fees at Tafaigata Landfill. The revenues and expenditures for waste management are summarized in the table below.

**Waste management revenues and expenditures**

| Revenues                           |               |
|------------------------------------|---------------|
| Tipping fees at Tafaigata Landfill | WST 102,959   |
| Expenditures                       |               |
| Waste collection                   | WST 2,360,104 |
| Landfill management                | WST 443,805   |
| Street cleaning                    | WST 433,637   |
| Weeding                            | WST 25,450    |

Recently, there have been concerns in Samoa about increasing pressures on public finances, and the government has been considering introduction of waste collection fees in order to secure a stable source of funding for waste management.

## LOCAL AREAS

Remote islands in Samoa other than Savaii, Manono, and Apolima are uninhabited. Therefore, these three islands are the only remote islands where waste management is provided. Manono and Apolima are small islands and do not have landfill. For this reason, waste generated on these islands is discharged at the wharf, and a private company contracted with MNRE collects the waste twice a week by boat and transports it to Tafaigata Landfill on Upolu.

Meanwhile, Savaii has the Vaiaata landfill site, equipped with a simple water collection pipe and leachate ponds, and waste generated on the island is transported to this landfill. Savaii consists of four waste collection zones; a private company collects waste from each zone twice a week. There are no recycling companies on the remote islands, and Vaiaata landfill has no waste pickers.





Waste management on the remote islands is also overseen by staff of MNRE's central office located on the main island. Due to physical constraints, opportunities for conducting field surveys and visits, and managing contractors, are limited. Waste management activities on the remote islands have therefore made relatively slow progress.

## CONCLUSION

Basically, sound waste management is practiced in Samoa. The following are some of the challenges and recommendations for waste management in the country.

### ✓ **Promotion of planned waste management**

Samoa's first National Waste Management Strategy was developed in 2019 and waste management activities based on the strategy are being implemented. Henceforth, in addition to implementation, evaluation of progress and periodic reviews will be required. In order to promote planning-based waste management, it is important to maintain a cycle of planning, implementation, evaluation, and review.

### ✓ **Periodical updating of waste management database**

Details of waste generated and incoming waste at landfill are basic statistical data for waste management that are effective for objective planning over the medium to long term and for evaluating past waste management policy. In Samoa, outdated databases are an issue, so it is necessary to establish a system to record and update such data on a regular basis.

### ✓ **Improving the efficiency of contract management**

Waste management in Samoa is widely outsourced by contract and its coverage includes not only the main island, but remote islands as well. In order for staff on the main island to effectively supervise outsourced waste management, including on the remote islands, it is necessary to improve the contract management system. Further implementation of remote monitoring using GPS is expected to provide effective supervision

of waste collection service contractors.

### ✓ **Development of landfill plan**

In Samoa, waste other than valuable materials is simply disposed of at landfill. Landfill plays a significant role in maintaining public health in the country. Therefore, it is important to develop a landfill plan to identify the remaining capacity and lifespan to ensure that the final disposal site can be operated sustainably.

### ✓ **Securing financial resources for waste management**

The need to secure financial resources through waste management due to pressures on public finances has already been pointed out. Since waste management is costly, a waste fee could be collected from residents based on the polluter-pays principle. It is especially important to consider a fair and realistic user-pays system to collect waste fees for collection services, based on existing systems in place in surrounding Pacific Island Countries.

### ✓ **Strengthening the waste management system in remote islands**

Due to physical constraints, waste management in remote islands has not progressed sufficiently. In future, it will be necessary to strengthen organizational capacity to improve waste management in remote islands.

<sup>1</sup> Samoa Bureau of Statistics, Statistical Abstract 2018

<sup>2</sup> Ministry of Foreign Affairs, Samoa Basic Data

<sup>3</sup> WST 1 = USD 0.387 (November 2021)

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