



Solid Waste Management in the Pacific

The Federated States of Micronesia

Country Snapshot

BACKGROUND

The Federated States of Micronesia (FSM) consists of four states: Chuuk, Kosrae, Pohnpei, and Yap. This country snapshot provides an overview of solid waste management (SWM) arrangements in Kosrae and Pohnpei. The country's capital, Palikir, is located on Pohnpei, which is the largest and most developed state in the FSM, with a population of 36,196 in 2012. Kosrae, which had a population of 6,616, is the FSM's second largest island. Around 83% of Pohnpei's population resides in the urban center of Kolonia, while 67% of Kosrae's population is found in the island's urban center of Lelu.¹ The per capita gross domestic product of the FSM was estimated at \$3,133 in 2012. The FSM has three tiers of government: national, state, and municipal.

TECHNICAL ASPECTS

Waste Collection and Disposal

In the FSM, the collection of solid waste is a municipal responsibility. Each of the country's municipalities is run by a council headed by a mayor. There are four municipalities in Kosrae, while Pohnpei is made up of five municipalities on the main island.² However, not all municipalities provide regular waste collection services.

In Kosrae, waste collection services are provided to residents in the municipalities of Lelu and Tafunsak. It has two compactor trucks, which were donated by the Government of Japan in 2010, and are operated by the

municipal offices. Currently, residents in the other two municipalities of Malem and Utwe are not provided with collection services. They are responsible for hauling their own wastes to municipal dumpsites, although there are plans for Lelu and Tafunsak to extend services to these areas using the new compactor trucks once formal service agreements are reached.³ In addition, 200 125-liter garbage bins were recently distributed among households in the four municipalities for the collection of solid waste.

The construction of new central landfill in the state capital of Tofol in Lelu was completed in 2008. The semi-aerobic, "Fukoka-style" landfill, which was financed by the Government of Japan and the Kosrae state government, is operated by the state's Department of Transport and Infrastructure. While the new landfill is intended to receive wastes from all of Kosrae's municipalities, the lack of effective collection services means that with the exception of Lelu, wastes continue to be disposed of in uncontrolled local dumpsites, contributing to environmental degradation and posing public health risks. Given the small population of Kosrae, improved rationalization of collection services, through a centralized system, would likely improve the efficiency of waste collection services in the state.

Residents in Pohnpei, on the other hand, are served by a combination of public and private solid waste collection services. The operator of the dumpsite at Dekehtik, Pohnpei's central landfill, provides waste collection service to commercial businesses, government institutions, and some residents. Fees charged for this service are based on

1 FSM Office of Statistics, Budget, Overseas Development Assistance and Compact Management, Division of Statistics. 2012. Summary Analysis of Key Indicators from the FSM 2010 Census of Population and Housing. Palikir.

2 Pohnpei also has seven other municipalities located on surrounding atolls.

3 Kosrae State. 2011. Solid Waste Management Plan 2011–2015.



Baling of aluminum cans in Kosrae

Photo by K. Serrona

the volume, transport distance, and frequency of collection. Kolonia Town government provides fee-based weekly collection services to residents living within its municipal boundary, and twice weekly service to businesses.⁴ Residents living in Pohnpei's other municipalities must either contract the private operator to provide collection services, or self-haul solid waste to the state dumpsite. However, those households not provided by public or private collection services often resort to open burning or illegal dumping.

Pohnpei's Department of Transport and Infrastructure is responsible for operation of the dumpsite at Dekehtik, and has contracted a private operator to manage the facility. The government pays the contractor about \$100,000 per year to collect wastes and manage the disposal facility. The current site at Dekehtik is not considered suitable since it encroaches into mangrove areas, and has contributed to marine pollution through leaching of run-off into the surrounding environment. The dumpsite is also located

next to the international airport, and burning of wastes acts as an aviation hazard; while the site is an eyesore, which does not make a good impression for visitors arriving in the country. The state government plans to develop a new landfill site for disposal of solid waste in Pohnpei. As an interim measure, with assistance from the Japan-supported Project for Promotion of Regional Initiative for Solid Waste Management, the dumpsite at Dekehtik has been upgraded to a semi-aerobic "Fukoko-style" landfill through a pilot initiative launched in 2013.

In 2011, a waste audit study, supported by the Japan International Cooperation Agency (JICA), was undertaken in the FSM. The results, which were reported to the Office of Environment and Emergency Management (OEEM), indicate that the daily mean volume of household waste collected was 13.8 tons in Pohnpei and 0.7 tons in Kosrae. While the results on the composition of wastes from the 2011 audit were not available, a similar study carried out over the period 2005–2006 indicates that a large proportion of household solid waste is biodegradable (36.1% yard waste, and 12.3% kitchen waste).⁵

Recycling

The Kosrae Island Resource Management Authority (KIRMA) is responsible for managing the beverage container recycling program. Under this self-financing program, which was initially launched with support from the United Nations Development Programme, a deposit fee of \$0.06 is levied on each imported aluminum, plastic, and glass beverage container. Consumers are able to redeem \$0.05 when the container is returned to designated collection points for recycling. The remaining \$0.01 portion of the deposit covers handling charges. Similarly, a deposit fee of \$4 is levied on imported lead-acid batteries. The amount collected goes into a recycling fund, and is used solely to finance the recycling program. A single private operator has been contracted through a competitive bidding to operate the scheme on behalf of KIRMA. In 2011, about \$60,000 was earned in exchange for recyclable materials. Crushed glass was distributed locally for free and used in paving projects. Recovered materials are shipped to Taipei, China and the Republic of Korea for recycling.

In 2013, Kosrae launched a scrap metal recycling program. This program will allow residents and government agencies to sell old vehicles and other scrap metals to licensed dealers for export and recycling overseas.

4 Federated States of Micronesia, Office of the National Public Auditor. 2010. Performance Audit of Solid Waste Management Fiscal Year 2007–2009. Palikir.

5 JICA. 2012. *Solid Waste Composition Surveys Completed in the FSM*. The Kaselehlie Press. <http://www.kpress.info/index.php/site-map/253-solid-waste-composition-surveys-completed-in-fsm>

6 International Monetary Fund. 2012. *Staff Report with the Federated States of Micronesia: Concluding Statement of the IMF Mission*. Washington, DC.

7 Government of the FSM. 2010. *National Solid Waste Management Strategy 2010–2014*. Palikir.

Pohnpei's aluminum beverage container recycling scheme, which ceased in 1992, was revived in mid-2012. The scheme is operated by the state's Environmental Protection Agency (EPA) and municipal councils. To support the initial redemption drive, \$100,000 was allocated by the Pohnpei state legislature to support the program. The response from the public was overwhelming; such that the initial capital was exhausted in less than a month. Unlike Kosrae, the Pohnpei initiative is limited to aluminum cans. However, the program has faced problems in remitting deposits levied on imported containers to the recycling fund, which can take months.

INSTITUTIONAL ASPECTS

The FSM Constitution, FSM Code of Law, and Strategic Development Plan provide the national legal and policy framework for the management of solid waste (footnote 4). At the national level, the Division of Environment and Sustainable Development under the OEEM has the responsibility for administering the country's Environmental Protection Act. This covers the development and implementation of relevant environmental policies and legislation, environmental management and protection, and coordination with state environmental authorities. The Department of Transport, Communication and Infrastructure, through its Division of Project Management Unit, is responsible for overseeing infrastructure development guided by the country's Infrastructure Development Plan, including solid waste capital investments.

The National Solid Waste Management Strategy (NSWMS) for 2010–2014 was developed in 2009 with support from JICA, the Secretariat of the Pacific Regional Environment Programme, and key local stakeholders. The strategy aims to develop, implement, and maintain a system of integrated SWM, which minimizes the negative impacts on public health and the environment. It covers seven thematic areas: policy and legislation, planning, sustainable financing, integrated waste management, medical waste management, capacity building, and raising awareness.

State laws governing SWM are in place in all four states. The problem lies with compliance and limited human and financial resources. The NSWMS identified three challenges regarding SWM regulations: (i) lack of consolidated legislation, (ii) lack of infrastructure and programs, and (iii) social pressure in local communities where enforcers are related to offenders.

In Kosrae, KIRMA, and in Pohnpei, the Environmental Protection Agency, are designated as the lead state agencies for regulating SWM, and development of the regulatory and policy frameworks. The Departments of Transport and Infrastructure are responsible for management of solid waste disposal facilities in both states. Municipal authorities are responsible for waste management in municipalities, including collection services and operation of local dumps. However, roles and responsibilities are not clearly defined between agencies (footnote 3).

The existing legal and policy frameworks have contributed to overlapping jurisdiction, causing confusion



Scrap metals recovered from recycling in Pohnpei

Photo by K. Serrona

between responsibilities of relevant national and state authorities. This has impeded the effective implementation of solid waste policies and activities. For example, since 1994, there have been plans to shut down Pohnpei's central dumpsite in Dekehtik, and a new landfill was to be established by 2011. However, it remains unclear whether the national Department of Transport, Communication and Infrastructure, or the state Department of Transport and Infrastructure is responsible for detailed designs for the new landfill. As a result, limited progress has been made toward the establishment of the new landfill. A key aim of the NSWMS is to clarify the various roles and responsibilities of various actors involved in the management of solid waste in the FSM.

FINANCIAL ASPECTS

Under the Compact of Free Association, the FSM receives substantial financial assistance from the United States. This funding is used to finance a sizable proportion of the country's government budget of around \$200 million per year.⁶ Pohnpei has an annual budget of around \$120,000, and Kosrae of about \$37,500, for the management of solid waste.

In Kosrae, some municipalities have introduced "user pays" systems for solid waste collection services. In Lelu, residents, who enter into a solid waste collection contract with the municipality, pay \$18 every 6 months. In Tafunsak, residents pay \$2 per month for waste collection services (footnote 3). However, the fees charged by these municipalities are well below the actual costs of service delivery. The authorities are in discussions with private sector companies interested in providing collection services based on the "user pays" principle, but some residents have already expressed their opposition to this idea.

In Pohnpei, customers served by the private operator are charged between \$40 and \$70 per month depending on the size of the bin and the frequency of collection. The government subsidizes the company's operations about \$100,000 per year to collect the waste and manage the disposal facility.

PUBLIC AWARENESS

While there are some ongoing SWM awareness-raising initiatives in the FSM, these have been ad hoc and are not guided by any overarching communications strategy.⁷

In Kosrae, KIRMA and the Kosrae Visitors Bureau promote public awareness of the importance of SWM through annual cleanups, and the distribution of educational materials in schools and communities. Similarly, in Pohnpei, annual cleanup campaigns are organized three times a year to promote improved awareness on SWM issues.

CONCLUSIONS AND RECOMMENDATIONS

While the FSM offers significant potential for tourism development because of its natural beauty, better management of solid waste is critical for achieving improvements to the surrounding natural environment.

Strengthening of institutional arrangements for SWM in the FSM is needed to support improved sector planning and management. This includes reviewing and better defining the mandates of various national, state, and municipal level agencies for clearer roles and responsibilities on sector policy, planning, regulation, and service delivery.

There is a need to expand waste collection services in Kosrae and Pohnpei to ensure that a greater number of households are provided with service. It will also reduce illegal dumping and burning of waste; and in the case of Kosrae, enable closure of local dumpsites. User fees should also be reviewed to promote improved cost recovery in service delivery. In Kosrae, further consideration should also be given to outsourcing solid waste collection to the private sector given capacity constraints faced by municipal authorities.

The existing central dumpsite in Pohnpei has been upgraded as an interim measure to reduce its adverse impact on public health and the surrounding environment. However, in the medium- to long-term there is a need to establish a new landfill facility. ■

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⁶ International Monetary Fund. 2012. *Staff Report with the Federated States of Micronesia: Concluding Statement of the IMF Mission*. Washington, DC.

⁷ Government of the FSM. 2010. *National Solid Waste Management Strategy 2010–2014*. Palakir.