

Clean Pohnpei



Pohnpei State Solid Waste Management Action Plan 2014-2018

Environmental Protection Agency
Pohnpei State Government
Pohnpei, Federated States of Micronesia 96941

Acknowledgements

This Solid Waste Management Plan would not have materialized without the fervent assistance of key organizations and individuals. At the outset, the Pohnpei State Government Environmental Protection Agency (EPA) would like to acknowledge the support and guiding light of the Solid Waste Task Force (Governor's Office) through our efforts to combat solid waste management issues.

First and foremost, we would like to extend our deepest gratitude to the Secretariat of the Pacific Regional Environment Program (SPREP), the Japan International Cooperative Agency (JICA), and the Japanese Technical Cooperation Project for the Promotion of Regional Initiative of Solid Waste Management (J-PRISM) for providing the necessary technical assistance to the State of Pohnpei in the area of Solid Waste Management. Through trainings and workshops sponsored by these environmental organizations, Pohnpei State Environmental Protection Agency staff have gained sufficient knowledge and skills to apply upon solid waste management matters. Additionally, we would like to thank the FSM Office of Environment and Emergency Management (OEEM) for facilitating our efforts to promote a cleaner Pohnpei State.

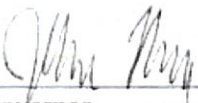
We would also like to thank the Local Municipal Governments for their support and insights during our Solid Waste Management functions, the Pohnpei State Department of Transportation and Infrastructure for their continued participation and assistance on managing the dumpsite, and the Pohnpei Waste Management Services (PWMS) for overseeing the daily operations of the dumpsite. Every individual who is a part of these organizations has contributed his/her valuable time and insight on helping us build a cleaner and better Pohnpei. In Pohnpei, we say NI WAHU and KALAHNGAN EN KUPWUROMI.

Foreword

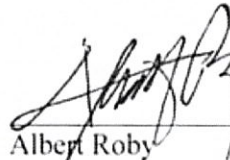
The Vision and Mission of this Action Plan will serve as the basis for activities and programs of the State of Pohnpei to fulfill the tremendous need to manage its solid waste activities. The Plan will guide the implementation and maintenance of the activities and programs mentioned herein, but success can only be achieved with the full involvement and collaboration of all stakeholders and community members.

The scope of the Plan is evidence of our commitment to deal effectively with the environmental, social and economic impact of solid waste; continued financial support will be vital for solid waste management in the State.

For these reasons, we endorse this Action Plan.



Governor
Pohnpei State Government
Federated States of Micronesia



Albert Roby
Executive Officer
Pohnpei Environmental Protection Agency
(EPA)



Charles Lohn
Environmental Specialist
Pohnpei Environmental Protection Agency
(EPA)

Table of Contents

Acknowledgements.....	3
Foreword.....	3
Table of Contents	4
Acronyms	5
Executive Summary	6
Vision.....	6
Goal.....	6
Scope.....	7
Time Frame.....	7
Implementation & Monitoring.....	7
Background.....	9
Country Information	9
Strategic Context for Solid Waste Management.....	10
Current State of Solid Waste Management.....	12
Stakeholder Identification.....	21
The Solid Waste Management Plan	23
Guiding Principles.....	23
Vision.....	23
Goal.....	24
Strategic Priorities.....	24
Monitoring and Measuring Our Progress.....	34
Appendix I: Strategic Plan: Monitoring/Reporting Template.....	35
Appendix II: Pohnpei State Laws and Regulations.....	36
Appendix III: Overview of Solid Waste Management Plan.....	37

Acronyms

AG	Agriculture
AG	Attorney General's Office
COM	College of Micronesia
DHS	Department of Health Services
DOE	Department of Education
EPA	Environmental Protection Agency
ESG	Environmental Sector Grant
ESP	Environmental Sector Plan
FSM	Federated States of Micronesia
GO	Governor's Office
J-AWARE	JICA's activity on Waste Audit Research
JICA	Japan International Cooperative Agency
JOCV	Japan Overseas Cooperation Volunteers
NRCS	Natural Resources Conservation Service
NSWMS	National Solid Waste Management Strategy
NIP	National Implementation Plan
NGO	Non-governmental organization
OEEM	Office of Environment and Emergency Management
PET	Polyethylene Terephthalate
POPs	Persistent Organic Pollutants
PSL	Pohnpei State Legislature
PUC	Pohnpei Utilities Corporation
PWMS	Pohnpei Waste Management Services
SPREP	Secretariat of the Pacific Regional Environmental Program
SWM	Solid Waste Management
T&I	Transportation and Infrastructure

Executive Summary

The modern era has influenced an increase of non-bio-degradable items such as canned foods, disposal diapers, plastics, automobiles, appliances, and Styrofoam products. All solid waste generated before goods were imported to the island were biodegradable. Traditional disposal techniques used for these biodegradable wastes included burying, burning, and dumping onto reef-flats and fore-reefs. While traditional methods of disposal have remained, the island's beaches, rivers, mangrove forests, and reefs have become "dumps" for solid waste.

Solid Waste is potentially toxic to humans, terrestrial and marine organisms. Additionally, the burying and burning of wastes can have detrimental effects on human health through aerial and surface-to-groundwater contamination. The heavy rainfall in Pohnpei, along with the shallow water table and steep slopes allow for rapid runoff into the rivers, harbors, and reef ecosystems.

There is little to no compliance with the laws prohibiting littering, and minimal enforcement of these laws. The majority of the residents of Pohnpei throw garbage alongside roads, homes and businesses. The heavy moisture content on the island accelerates the rotting of garbage, which attracts insects, rodents, and other domestic pests. This leads the way to serious health hazards and diseases. With the very recent introduction of Pohnpei's ¹Import Fee Law and Aluminum Recycling Law, we hope that improvement will be made regarding the littering of aluminum cans, PET and glass containers when everything is in place.

As a small island, Pohnpei is susceptible to threats by solid waste problems than on larger islands and those with a broader economic base. The island's steep mountain interior has made locating suitable solid waste disposal sites seemingly impossible. Hence, the existing dumpsite at Dekehtik is causing problems to our mangroves and waters near the site. Economic constraints on the development of a modern island-wide waste disposal pick-up system, and appropriate site facilities have caused Pohnpei's solid waste problems to intensify. In fact, as the population's demand for modern and imported goods continues, solid waste issues will accelerate.

Vision

A sustainable Pohnpei State where the culture and environment are preserved for future generations through better management of solid waste.

Goal

To reduce solid waste generation and manage residual materials in a way which maximizes opportunities for resource recovery, while protecting Pohnpei's public health and the environment in partnership with all people of Pohnpei. This is to be achieved through the following specific targets:

¹ Law was passed in 2011 which established a six cent per can levy for importation of canned beverages. See Appendix II for list of Pohnpei laws and regulations.

- Thirty percent (30%) increase in recycling rate by 2018
- Thirty percent (50%) reduction in waste going to the disposal site by 2018
- Providing fifty percent (50%) of Pohnpei Main Island's population with once per week collection service
- Development and operation of an improved, sanitary landfill

Scope

Geographically, this Strategic Plan covers all of Pohnpei State, and includes the following types of waste:

- Municipal solid waste from residential, commercial, institutional, and industrial sources
- Difficult waste such as scrap metal, derelict vehicles, and tires
- Specific hazardous wastes: medical waste from hospital and dispensaries (clinical wastes), used oil, and electrical and electronic waste (e-wastes)

The Strategic Plan does not cover:

- Liquid waste such as sewage sludge, however, this may be included in the next revision of this Strategic Plan subject to agreement by all stakeholders;
- Gaseous wastes (some gaseous wastes such as carbon dioxide and methane will be covered under the Pacific Islands Framework for Action on Climate change (2006-2015);
- Hazardous substances and chemicals such as Persistent Organic Pollutants (POPs), which are covered in the Stockholm Convention National Implementation Plan (NIP).

Time Frame

This Strategic Plan covers the 5-year period of 2014-2018. A review of this Plan should be conducted in 2015 to develop a revised plan.

Implementation & Monitoring

The Pohnpei Environmental Protection Agency (EPA) is the leading agency responsible for coordinating the Plan's implementation and will be assisted through collaboration with the Pohnpei State Transportation and Infrastructure (T&I), Governor's Office (GO), Attorney General's Office (AG), Pohnpei State Legislature (PSL), and facilitation from the FSM Office of Environment and Emergency Management (OEEM).

An overview of the Plan is provided in Appendix III. Measuring the progress of the Plan's implementation will be done using the yearly monitoring form suggested on Appendix I. EPA will take the lead in soliciting and coordinating information to compile this yearly progress report. This will subsequently be incorporated into the National Solid Waste Management Strategy (NSWMS) annual

monitoring and progress report, which will be coordinated by the OEEM. The following key performance indicators will also be measured and reported on annually:

- Amount of waste generated per capita
- Amount of total waste land filled
- Percentage of total waste recycled and composted
- Number of disposal facilities that do not meet acceptable environmental standards
- Number of communities receiving at least once per week collection service
- Percentage of waste management budget subsidized by external (Compact II & other donor) sources

Process for Development of the Strategic Plan

The following steps were taken to prepare the Pohnpei State Strategic Plan with the assistance of the Secretariat of the Pacific Regional Environment Programme (SPREP) and the Japan International Cooperation Agency (JICA):

- Desktop compilation of key findings on solid waste management in FSM
- A 1-day consultation workshop in Kosrae State on 9th December 2011 attended by stakeholders from municipal government and the private sector
- Preparation of the second draft of the Strategic Plan based on the outcomes of the 1-day consultation.
- Several Stakeholders meetings with State and local governmental entities or offices and local NGO's
- Two waste generation surveys
 - Household survey
 - Dumpsite survey

Organization of the Strategic Plan

The Strategic Plan is arranged into two key sections. The first section provides background information on Pohnpei State and explores in detail the current waste management situation. The second section lays out the strategic approach and identifies 10 strategic priorities for action by first examining the current situation (where are we now?), identifying achievable targets (where do we want to be?), and finally by detailing the plan to achieve the targets (how will we get there?). The strategic priorities are:

- Institutional Arrangements
- Policy, Legislation and Enforcement
- Sustainable Financing
- Data Collection
- Waste Minimization (Refuse, Reduce, Reuse, Recycle)
- Waste Collection
- Waste Disposal
- E-Wastes, Waste Oil, Batteries, and Tires
- Medical Waste Management
- Capacity Building, Education & Awareness

Introduction

Country Information

Geography and Climate

The state of Pohnpei is known for its luxuriant inland vegetation and green tropical forests and has been tagged as the "Garden island of Micronesia." by the International Community. Pohnpei is the largest and wettest island amongst the four FSM states and has 133.4 square miles of land area.

Nestled between Hawaii and Japan, Pohnpei sits in the middle of the Eastern Caroline Islands. The island is covered with green forests, cascading mountain streams, spectacular waterfalls, hidden pools, and surrounded by an exquisite marine environment produced by its barrier reef. Additionally, Pohnpei's main topography consists of the outer barrier reef, an intertidal lagoon and a thick mangrove forest. Furthermore, the low land area includes the outer edges of the island and the central mountain rain forest.

As the center of economic activity in the FSM , Pohnpei has enjoyed the best from much of what nature could provide from an abundance of tropical fruits and stable crops, to a constant and varied supply of fish and seafood. However, through the process of rapid economic development over the past several decades, the life style of the people has changed to one that largely depends on imported goods, and consumption of which has significantly contributed to the increased generation of solid waste.

Administration

Pohnpei State Government is divided into three branches – Executive, Legislative and Judicial. Local governance is divided into 11 political municipalities (six on the main island: Madolenihmw, U, Kitti, Nett, Kolonia, and Sokehs) and five on the outer islands of Sapwuafik, Pingelap, Kapingamarangi, Nukuoro, and Mwokilloa. Each municipality has its own governance structure headed by a Mayor or chief with legislative functions performed by a Municipal Council. Pohnpei State also participates in National governance through its four Congressmen; two of which serve a four-year term, and the other two serving a two-year term with the FSM Congress.

Population

Based on the 2010 Census of Population and Housing, Pohnpei's current population is 34,000 spread over coastal areas. Settlement is fairly even with only Kolonia showing congestion due to its limited area and township. The island is surrounded by a circumferential paved road along the coastline and multiple secondary roads that run up towards the steeper parts of the island. Settlement is frequent along roads and in remote parts of the island due to ease of accessibility. This has resulted in wide dispersion of waste generating areas.

Strategic Context for Solid Waste Management

FSM National Solid Waste Management Strategy

The FSM National Solid Waste Management Strategy (NSWMS) provides the strategic vision and direction for solid waste management over the five-year period of 2014-2018. The Strategy was developed in consultation with key stakeholders from each of the four States, as well as the private sector, NGOs, communities, and municipal and national government representatives. The overall goal of the NSWMS is to develop, implement, and maintain a system of integrated solid waste management that deals with the solid waste stream and minimizes the negative impacts on the health of the population and environment of FSM. This will be developed through three broad strategic objectives:

- Develop and implement policies, plans, legislations, regulations, and institutional arrangements, which set the right environment to encourage sustainable SWM.
- Adopt an integrated approach with strategies for reducing waste generation, waste reuse, recycling, composting, disposal, and waste
- Teach, train, and educate the populace to facilitate efficient implementation of systems and programs and enable compliance with these systems and programs.

These objectives will be achieved by implementing improvements in seven thematic areas: (1) Policy and Legislation, (2) Planning, (3) Sustainable Financing, (4) Integrated solid waste Management, (5) Medical Waste Management, (6) Capacity Building, and (7) Awareness.

Five-Year Environment Sector Plan

²The purpose of the Five Year Environment Sector Plan (ESP) is to prioritize activities to be undertaken during the period of 2011 to 2014, which will be funded by the Amended Compact (Environmental Sector Grant), with the view to improve the attainment of the Environment Sector's strategic goals as identified in the Pohnpei SAP. For Pohnpei State, the following outcomes and planned projects related to solid waste management were identified in the draft ESP, however, there has been limited to no implementation to date.

Table 1: Outcomes and activities for Pohnpei State in the Five-Year Environment Sector Plan

Strategic Goals	Outcomes	Planned Projects (Responsible department)	'10	'11	'12	'13	'14

² The Five Year Environment Sector Plan is a more focused plan for the yearly projects of the five governments to undertake to move the nation/states forward in accomplishing targeted outcomes in a systematic approach.

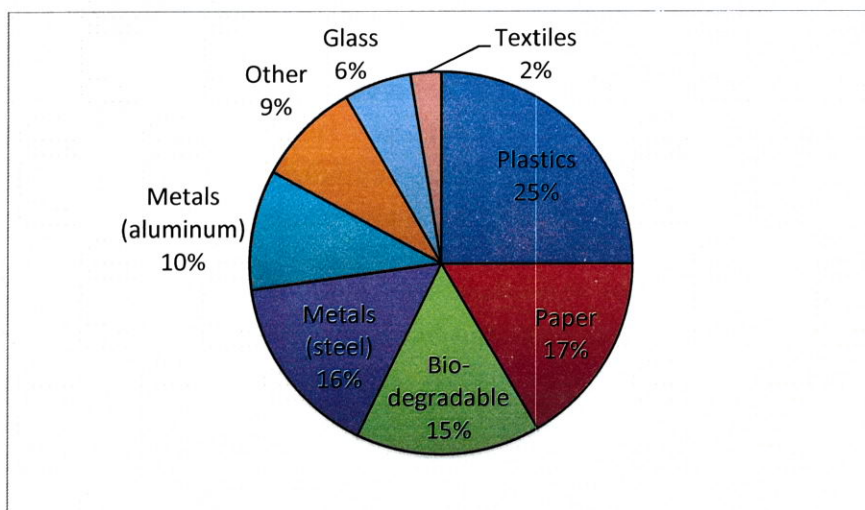
<p>1. Mainstream environmental considerations, including climate change into national policy and planning as well as in all economic development activities</p>	<ul style="list-style-type: none"> • Environmental impact Assessments carried out for 100% of all government and non-government development activities to minimize adverse impacts of development on the environment • 100% of environmental violations successfully prosecuted by 2010 	<p>Pollution Control Project (EPA)</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>
<p>2: Improve/ enhance human environment and pollution control</p>	<ul style="list-style-type: none"> • Solid waste reduced (3Rs), solid waste disposal sites designated, established and managed... • 100% of FSM communities will have ample access to safe drinking water supplies by 2020 	<p>Operation and maintenance of dumpsite (Public Works)</p>					
<p>6: Improve environmental awareness and education and increase involvement of citizenry of FSM in conserving natural resources</p>	<p>Community environment awareness improved and citizenry involvement in conservation and environment activities increase to 100% by 2010</p>	<p>Public awareness project (EPA)</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>
<p>8. Create sustainable financial mechanisms for environmental and sustainable resources initiatives (FSMES, NBSAP)</p>	<p>Access to outside funding and technical assistance by the government and non-government conservation agencies increased 100% by 2020</p>	<p>Capacity Development to access ODAs (EPA)</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>	<p>X</p>

Current State of Solid Waste Management

Waste Generation and Composition

A number of waste characterization studies were conducted on the main island of Pohnpei by two Japan Overseas Cooperation Volunteers (JOCV) members, an EPA staff member, and staff from the Conservation Society of Pohnpei (CSP) during the month of February, 2011 through the JICA's activity on Waste Audit Research (J-AWARE³) project under J-PRISM with members of EPA staff. The study targeted twenty randomly selected households across the 6 municipalities (3 from Kolonia, 4 from Sokehs, 4 from Kitti, 4 from Nett, 2 from U, and 3 from Madolenihmw). The waste generation and composition over the period of a week was examined in the study, and the results are shown in figure 1 below.

Figure 1: Waste Composition in Pohnpei State



The study showed that 15.6% of the wastes are biodegradable, which is not surprising, considering that most people have some kind of garden where they can reuse yard waste, and many families keep animals, which can be fed most kitchen waste. Potential recyclable materials include plastics (25.0%), aluminum (10%), and steel (10%).

The daily waste generation rate per person was calculated to be about 0.1 kg (1.8 liter). This generation rate appears to be quite low compared to other developing countries at the same level of economic development, and needs further investigation to be undertaken by EPA and supported by J-AWARE.

A partial 1-day waste study was also conducted at the dumpsite, during which time, approximately 6 metric tons of waste was disposed of. The private waste collector, Pohnpei Waste Management Services (PWMS), estimates that they collect an average of 4-5 metric tons of waste daily. There is clearly a need for more detailed data on the waste generation and composition to allow for the appropriate actions to be taken to improve the management of solid waste in Pohnpei State. The recent J-AWARE3 report indicated that Pohnpei State businesses generated more waste than the other states.

³ J-AWARE: JICA's Activity on Waste Audit Research

Institutional Arrangements

At the State level, the Pohnpei Environmental Protection Agency (EPA) is the regulating agency for waste management. However, EPA's capacity to coordinate and implement solid waste management activities is limited due to financial and human resources constraints, and its mandate as a regulator. The Department of Transportation and Infrastructure (T&I) reviews, designs, and contracts out operation license to the existing landfill in Dekehtik and plays a substantial role in coordinating and implementing solid waste management activities.

At the moment however, the role and responsibilities of EPA, T&I and Municipal Governments for waste management is not clearly defined and understood, which will impede effective operation of a solid waste management system. For example, some municipalities provide a waste collection service although not obligated to do so in the legislation. During the consultations regarding this Strategic Plan draft, the Municipalities strongly felt that they should be given responsibility for providing waste collection services, while some felt that each Municipality should have its own dumpsite, even though this may not be the most cost-effective approach. There is a clear need for further elaboration and demarcation of responsibilities among the different entities, with due consideration of the role for the private waste management sector.

⁴A Solid Waste Task Force was established for the sole purpose of identifying a new dumpsite to replace Dekehtik. However, given that there is a clear need for more institutional support with respect to solid waste management, the terms of reference of the Task Force could be extended to include other waste issues.

Policies and Legislation

The existing regulations related to solid waste management are consolidated in the Pohnpei State Code. The table below lists the sections of the Pohnpei State Code related to waste management. *See list of laws and regulations for Pohnpei State in Appendix II.

Table 2: Sections of the Pohnpei State Code on Solid Waste Management

Title	Chpt.	Section	Description
27	1	1-109	Establish Pohnpei EPA with the power and duty to protect the environment, welfare and safety and to abate, control, and prohibit pollution and contamination of air and land
27	2	2-106 2-107	Prohibits littering in public places Prohibits littering on premises
27	2	2-119	Designate pollution of air, water and land as an offence
27	3	3-106	Establish the refundable recycling fee of 5 cents for each aluminum arriving in the state
27	3	3-110	Imposes a deposit of 6 cents on all beverages produced or brought into the state

⁴ Task Force is headed by Pohnpei State Government Chief of Staff

27	4	4-103	Prohibits the importation, use and disposal on non-recyclable shopping bags less than 5mm (effective in April 2012).
----	---	-------	--

Currently, Pohnpei State legislature is reviewing a law that will deputize PNI EPA staff to be able to issue citations to any polluter or violator to help regulate the Litter Law. Rights of citation are awaiting formulated regulations by the AG’s Office.

Waste minimization and recycling

Kolonia and Nett are the only municipalities running on aluminum can recycling operation. At the Kolonia operation, no payments are made for each collection. Instead, an agreement is made between the operator and each household, where the operator will provide transfer of other wastes to the dumpsite in exchange for the cans. Along with this is a private business operator, which collects aluminum, scrap metal, and used lead-acid batteries. Both recycling operations are helping to limit the amount of aluminum being dumped into the landfill, however, because there is no current legal obligation to recycle, not many people are participating in recycling.

Currently, an aluminum beverage can recycling law was recently enacted. Under this law, a small deposit (6 cents) is paid on purchase of the beverage, and 80% of this (5 cents) is re-funded when the containers are returned to the designated depots. The Division of Finance and Budget is the Administrator of the fund holding all the deposits collected. The operator of this system will issue the refund of 5 cents for each can collected, while making a claim from the fund for the deposits on each can collected (6 cents for each can). The remaining 1 cent comprises the handling fee or subsidy. The recycling operator pays all costs associated with the processing and handling and shipping, but recovers funds from the value of the recyclable materials sold. ⁵In 2013, during the Regional 3R Training in Koror, Palau, the Pohnpei delegation headed by Pohnpei State EPA Director Albert Roby and accompanied by Pohnpei State Director of Finance Thomas Pablo and Kolonia Town Mayor Casiano Shoniber proposed to examine the effect of the importation fee at port versus at sale.

The initial plan included each Municipal Government to operate its own redemption center, and beverage cans collected will be delivered to Kolonia Town recycling center for crushing and baling. The Recycling system came into operation on July 2012, but only Kolonia Town and Madolenihmw Municipal Government were ready to operate their own redemption centers. Hence, there are only two redemption centers in operation where containers are brought in, recorded, collected and then transferred to Kolonia Town crushing facility for crushing and baling.

In September 2011, Pohnpei State passed a law prohibiting the use of plastic shopping bags. Under this law, plastic bag means “a carryout bag that is less than 5 mils (5/1000 of an inch) thick and made primarily of thermoplastic synthetic polymeric material which is provided by a wholesale or retail establishment to a customer at the point of sale and incidental to the purchase of other goods”. This ban excluded original packaging and sanitary wrapping, plastic bags used to carry chilled or frozen

⁵ Pohnpei State was represented at the Regional 3R Training in Palau. EPA Director Roby suggested that Pohnpei State needed to amend a law to consider collecting importation fee at port instead of at sale.

merchandise, plastic bags certified by the Pohnpei State EPA to be fully biodegradable within 5 years of their manufacture, and durable plastic bags not less than 5 mils in thickness.

The act came into force on 22nd April 2012 (World Earth Day) and the Pohnpei State EPA is charged with promulgating the regulations under this act.

Several composting programs for biodegradable wastes have been established through College of Micronesia-FSM, the Natural Resources Conservation Sources, and Pohnpei State Agriculture.

Waste Storage and Collection

The solid waste collection service on Pohnpei is primarily conducted at the municipal level and by the private sector. The table below summarizes the key features of each collection system. There is no uniformity of collection and the collection fee vary across municipalities. Furthermore, there is no standardization of waste bins and typically 45-gallon metal drums are used.

Table 3: Features of the waste collection services in Pohnpei State

Municipality or Entity	Cost	Comments
Kitti	\$5 per pickup	Provided at the request of the customer
Kolonia	\$5 per month	\$5 one-time registration fee that includes a 45-gallon drum. Customers are required to make payment at the Municipal Government office.
Madolenihmw	No service	Residents transport their own rubbish to the municipal dumpsites.
Nett	Free	No charge for waste collection
Sokehs	\$5 per pickup	Provided at the request of the customer
U	\$5 per pickup	Most residents transport their rubbish
Pohnpei Waste Management Services	\$30-\$70 per bin per month	Price depends on size of bin, frequency of collection, and distance from dumpsite.



In November 2011, the Kolonia Town Government received a donation of 2 waste compactor trucks and a dump truck from the Government of Japan Grassroots Grant fund, valued at over \$100,000, to improve the waste collection service. Controls should be put in place, and budgets allocated to ensure the proper maintenance and operation of these trucks.

Photo 1: Procured waste compactor truck

Waste Disposal

The lack of an island wide collection and transportation system for solid waste has spawned uncontrolled dumpsites in every Municipality. These dumpsites are located along roadways, in mangrove forests and along the primary circumferential road.

The legally designated dumpsite is the existing Dekehtik Dumpsite, which is located on a little island close to the airport adjacent to a mangrove forest and the shoreline. The Department of Transportation and Infrastructure (T&I) currently contracts Pohnpei Waste Management Services (PWMS) to operate the dumpsite. This is typically a 1-year contract, which limits the ability of the contractor to obtain loans to invest in the business. Furthermore, T&I is unable to provide longer-term contract since the department's funding through the Compact II is on a year-to-year basis.

Photo 2: The newly semi-aerobic Dekehtik landfill



⁶Recently, under the technical assistance of the J-PRISM program, the Dekehtik dumpsite has been rehabilitated into an odorless semi-aerobic landfill through the application of the Fukuoka Method. Previously, the State planned to close the Dekehtik site. The proposed new landfill site is located in Sokehs municipality and was designated in 2011. However, the proposed site may not be ready until 2015 which has its challenges, including remoteness (which will increase waste transportation costs), and the need for ancillary construction work (access road and bridge). Additionally, plans of the new landfill is projected at 16 million per cell. With a design that has 4 cells the total cost of the whole landfill is projected to cost around 60 million total which caused it to be put to a halt for further review on plans and designs. It is also a fact that the Dekehtik Dumpsite will need to be properly closed to minimize any future adverse impacts, and this must be factored into the relocation costs. However, the recent rehabilitation of the Dekehtik Dumpsite was undertaken during the month of July, 2013 and this will reduce the impacts on the surrounding environment by containment of leachate and application of more cover.

⁶ The Dekehtik dumpsite underwent a rehabilitation process through the Fukuoka Method; The Fukuoka Method uses pipes to bring outside air into the middle of a landfill, thereby encouraging decomposition by microbes (Fukuoka Now Ltd, 2012)

Sustainable Financing

⁷The full cost of waste management in Pohnpei is not currently known, as it is not accurately tracked across the various agencies involved. However, some estimates are shown below. Note that these estimates exclude the costs of managing the dumpsite.

Table 4: Estimates of current expenditure on solid waste management

Activity	Annual Budget	Comments
EPA staff	\$12,000	3 staff dedicating about 25% of their time each
Waste collection		
Waste disposal	\$80,000	Contract with Pohnpei Waste Management Services
Medical waste incineration		
Estimated Total		

Some of the waste collection costs are recovered through the user-pay charges discussed in the Waste Collection section above. In addition, the implementation of the aluminum beverage can recycling program should prove to be self-sustaining based on similar experiences in the other states like Kosrae and Yap.

Another sustainable financing measure being implemented is the Litter Abatement Act which imposes \$100 on each imported vehicle and each shipping container. These funds are allocated to EPA, however they are to be used only in support of awareness programs.

Medical waste (clinical wastes)

There is one main State hospital (Pohnpei State Hospital), 5 dispensaries and 3 private clinics on Pohnpei Island, and each facility is responsible for the management of its own medical waste (Island Family Clinic, Medpharm, and Genesis).

The Pohnpei State Hospital has less than 100 beds. Wastes or disposables such as syringes, sharps, expired medicines, and laboratory wastes (including blood samples), and some bandages are disposed of in a wood-fired incinerator located on the Hospital's compound. Infectious wastes (bloody bandages, etc.) are segregated and collected by contracted private janitors and taken with other general wastes to the Dekehtik Dumpsite.

⁷ Current funding for Solid Waste Management falls under the Environment Sector Grant of the Compact Funds.

The following observations can be made about the incinerator and related activities at Pohnpei State Hospital:

- The facility is not secured, and can be accessed by the general public.
- The incinerator operator lacks personal protective equipment, and has received no recent health/safety training.
- Incinerator is wood-fired, and waste is burnt for about 3 hours, 2-3 times per week (Mondays, Wednesdays, Fridays) with the resulting ash disposed of at the Dekehtik Dumpsite. There is no temperature gauge to indicate the burn temperature. Low-temperature incineration will produce unintentional persistent organic pollutants (uPOPs), which FSM has an obligation to reduce under the Stockholm Convention on POPs.
- Sharps are stored in sharp containers, which are transported on a dolly and burnt in the incinerator
- There is an accumulation of wastes (mostly expired pharmaceuticals) waiting to be burnt. The incinerator operator indicated that incineration of sharps take priority.
- There is very little monitoring or control of the private janitors who are contracted to dispose of some infectious wastes.

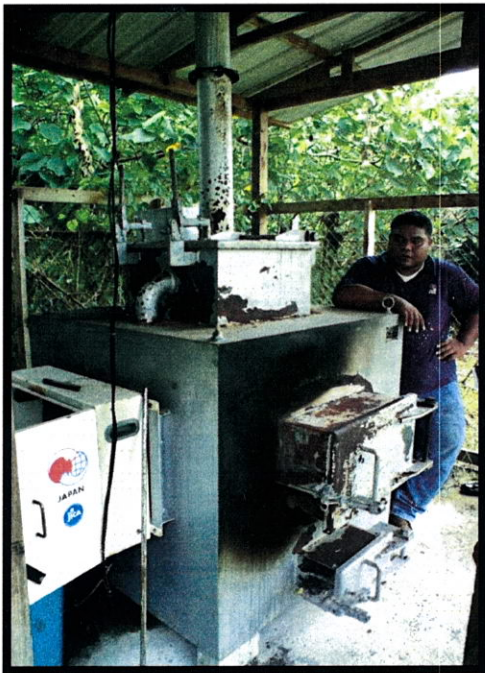


Photo 3: Wood-fired incinerator

Photo 4: Expired pharmaceuticals



Figure 5: Medical waste backlog



Photo 6: Sharps being transported to incinerator



Photo 7: Bin for infectious wastes



Medical wastes from the dispensaries are usually collected by the Municipal Government, taken to the dumpsite and burnt at a designated spot using waste oil as a fuel. During the consultations for this Strategic Plan, it was raised that there was a need for better communication between the hospital-contracted janitors, municipalities, and the dumpsite operator (PWMS) to better coordinate the burning of medical waste at the dumpsite.

The main private hospital is Genesis Hospital, and the following general and medical waste management observations were made:

- The hospital has 35 beds with an additional 7 rooms.
- There is no incinerator on the compound and all medical waste is taken to the dumpsite daily
- About 20-25 containers of sharps are generated every month
- 1 staff member has direct responsibility for medical waste management
- There is no policy or plan for medical waste management in place.
- The hospital administration is concerned about proper waste disposal and would be willing to participate in proper disposal (by incineration), if this were made available

Based on the above observations, it is clear that there is much room for improvement in medical waste management, which should include a safe transport mechanism for wastes from privately owned hospitals and clinics, and an appropriate treatment process such as high-temperature incineration to ensure the safe destruction of medical waste. (medical waste) -plans of designating a medical waste disposal area at the dumpsite.

Difficult / Bulky waste

Several projects to remove bulky and scrap metal waste have been implemented in previous years. Since 2007, the Pohnpei State Government has received assistance from a Chinese company, Mai Xiong Pacific Inc., to remove these types of wastes. The assistance led to the dismantling and stripping

of heavy and bulky scrap metals from broken down vehicles and heavy equipment then transferred to designated scrap yards and ready for shipping, whereas old and derelict cars and trucks were dismantled and shipped to a scrap yard in China for processing. The total amount of bulky and scrap metal waste shipped was 800 metric tons.

Currently, Mai Xiong Pacific Inc., still collects, bales, and exports derelict vehicles and bulky scrap metal such as compressors, brass radiators, and copper pipes to South Korea and China. Scrap metal brought to the facility by the general public is purchased at preset prices, while there is free pick-up for derelict vehicles. The operators estimate that in recent times about five 20-foot containers of metals are exported every 2 months. The company also deals with aluminum beverage cans (\$0.25 per kilo), lead acid batteries, small amounts of e-wastes, but excludes tires.



Photos 8 & 9: Scrap metal processing at Mai Xiong Pacific Inc.

Waste Oil

The main generator of waste oil on Pohnpei Island is the Public Utilities Corporation (PUC), while the main importer is the FSM Petroleum Corporation. Currently, several hundred drums are scattered around the PUC compound and at Dekehtik Dumpsite. There was a bulk storage container at PUC, however it is leaky and not in use.

No data on waste oil generation was immediately available, however, those interviewed at PUC indicated that approximately 60-65 drums (45-gallon size) of lubricants are purchased monthly.

There are two waste oil burners, one at the Dekehtik Dumpsite and the other at PUC. The PUC burner has not been in use for over 3 years. It was reportedly too small and unable to cope with the quantities being generated. Consequently, the current working condition is not known. Thorfinn, a live-aboard dive operator based in Chuuk State, received approximately 6,000 gallons of waste oil from PUC in the latter half of 2011. Thorfinn uses this waste oil as a primary fuel on its vessel, however, the specific details and thus potential for generating unintentional persistent organic pollutants are not known at this time.

There is currently no program or plan in place for managing this waste oil, hence it is included in this Strategic Plan.

Photo 10: Used oil drums at PUC compound



Photo 11: Used oil storage at Dekehtik Dumpsite



Electronic & Electrical Wastes

There is no ongoing program for collection and disposal of electronic waste (e-waste) including electrical, however, SPREP has produced a Regional E-waste Strategy, which provides guidance in developing a program. Some immediate activities such as collection and safe storage can be implemented until a long-term disposal plan is developed.

Stakeholder Identification

Solid waste management is a multi-faceted problem, which requires a multi-stakeholder approach. The major stakeholders include waste generators, regulators, service providers, and NGOs involved in awareness and other waste-related activities. Close cooperation between all stakeholders would be required to deal with the current waste management situation as well as to cope with the rapid changes in quantity and composition of solid waste. The key stakeholders involved in solid waste management in Pohnpei State are shown in Table 6.

Table 5: Key stakeholders for SWM in Pohnpei State

Major Stakeholders	Stake	Potential impact on the Strategic Plan
DT&I	High	Landfill operation and maintenance
EPA	High	Policies, regulations and implementation for all wastes
Municipal Governments	High	Responsible for waste management in municipalities
Conservation Society of Pohnpei	Medium	Awareness and clean- up Activities (outreach)
Pohnpei Women's Association	Medium	Awareness and cleanup activities
Pwihn en Wahu en Pohnpei (Traditional Leaders Association)	High	Community Involvement and endorsement
Governor's Office	High	Coordination of respective departments
Department of Treasury	High	Allocation of Funds
Media (local Radio Station, Cable TV, News)	High	Awareness
Private Sector	Medium	Participation and endorsement, Recycling operation
Attorney General's Office	High	Policies and Regulations
Department of Health Services	High	Handling of medical waste
Private hospital & clinics	High	Generators and managers of medical waste
Private Mechanic shops and garages	High	Generators of used oil
Pohnpei Utilities Corporation	High	Generator of used oil

The Solid Waste Management Plan

Guiding Principles

Integrated solid waste management

Integrated Solid Waste Management (ISWM) refers to a collection of activities that can be applied to manage waste from the moment it is generated until it stops being a waste. It includes waste avoidance, reduction at source, reuse, recycling, waste collection, waste treatment (such as energy from waste incineration) and sanitary disposal for residual wastes, which cannot be converted into resources. Addressing these areas in a combined integrated approach recognizes the interconnectedness of the solid waste issues. ISWM involves evaluating local needs and conditions, and then selecting and combining the most appropriate waste management activities for those conditions.

Polluter-Pay Principle

Those causing pollution should pay for the cost of managing such as pollution. This principle should form the foundation for any pricing policies, economic incentives, or other economic and financial measures to be undertaken as part of this solid waste management plan.

Full-cost Pricing

The environmental effects of the production, distribution, consumption and disposal of goods and services should be consistently costed and charged as closely as possible to the point they occur. This principle encourages the minimization of environmental effects by ensuring full environmental costs are reflected in product and service prices, and paid as closely to their source as possible. *For example, the cost of plastic shopping bags in stores is often included into the price of goods, and the bags appear to be provided for free. Application of this principle means that the full cost for supplying the bags and managing the plastic bag when it becomes a waste should be costed and the cost should be charged when they are provided at the store. The deposit-refund program for aluminum cans is another example.*

Precautionary Principle

If there is uncertainty about the safety of an action or policy, a cautious approach shall be adopted.

Extended Producer Responsibility

Importers, distributors, retailers and others involved in the supply chain should bear responsibility for potential waste items imported, distributed or sold.

Vision

A sustainable Pohnpei State where culture and environment are preserved for future generations through better management of solid waste.

Goal

To reduce solid waste generation and manage residual materials in a way which maximizes opportunities for resource recovery, while protecting Pohnpei's public health and the environment in partnership with all people of Pohnpei. This is to be achieved through the following specific targets:

- Fifteen percent (30%) increase in recycling rate by 2018
- Thirty percent (50%) reduction in waste going to the disposal site by 2018
- Providing fifty percent (50%) of Pohnpei Main Island's population with once per week collection service
- Development and operation of an improved, sanitary landfill

Strategic Priorities

Institutional Arrangements

Where are we now?

Roles and responsibilities across the various entities (municipal governments and state agencies) for the management of household solid waste, hazardous waste, bulky waste, and medical wastes are not clearly defined, thereby impeding the effective operation of a solid waste management system.

Framework for institutional responsibilities is shown in the table below:

Aspect of Waste Management	Responsible Entity
Policy and planning	EPA
Regulation	EPA
Waste collection services	T&I? Municipality? (Preferably through private sector contracts) SWM Agency (semi-autonomous agency)
Waste disposal services	T&I
Recycling services	EPA Municipality (based on revised Recycling Law)
Medical waste management	Department of Health Services
Hazardous waste management	Utility Companies and EPA

Where do we want to be?

- Clear distinction and understanding of roles and responsibilities for waste management.
- More resources for the institutions (T&I, EPA) to carry out their responsibilities effectively.
- Establish SWM agency/office catered to SWM issues ONLY

How will we get there?

Action	Lead Agency	Partner Agencies	Priority
1. Conduct a gap analysis of institutional arrangement (including policies, legislation) and make recommendations	EPA, AG's Office	T&I	High

Policy, Legislation and Enforcement

Where are we now?

Various waste management legislations for Pohnpei are consolidated in the Pohnpei State Code and are shown in Table 2. The most recent development is the passing of a law designed to prohibit the importation and use of non-recyclable plastic bags and promote the use of locally produced, recyclable, and reusable bags.

There is a shortage of appropriate policies addressing special kinds of wastes such as medical waste from privately owned hospitals and clinics, bulky waste, e-waste, and used oil. As a result, most of these kinds of wastes are not treated properly and often end up in the Dekehtik Dumpsite. The main reason for this is the lack of relevant knowledge in the responsible institutions.

Non-compliance with the legislation is common due to lack of awareness and carefree attitudes of the people. There is also limited human and financial capacity to enforce the legislation and prosecute violations. This is compounded by (a) absence of consolidated legislation; (b) lack of infrastructure and programs to support compliance (e.g. waste collection service in all areas to support proper waste disposal); (c) social pressure exerted in the small communities, where enforcers are related to offenders; and (d) other prosecution cases taking priority due to limited resources in the court system.

Where do we want to be?

- To have solid waste management policies and legislation enforced in Pohnpei State, with people aware of this legislation.
- To have adequate numbers of trained people to enforce legislation.
- To have systems in place to encourage compliance with legislation (e.g. waste collection to prevent illegal dumping - littering).

How will we get there?

Action	Lead Agency	Partner Agencies	Priority
2. Integrate legal obligations into public awareness programs	EPA	Education, CSP, DPS	High
3. Develop and deliver a training program/workshop for enforcers of the legislation	EPA	DPS	High

Data Collection

Where are we now?

Waste composition studies were conducted in 2011 on residential and landfill waste characterization. However, more detailed data (e.g. from commercial, institutional, time of year, etc.) is needed to design and develop the most cost-effective solid waste management system, which will include the collection service, disposal, and recycling.

Where do we want to be?

- Updated information on waste generation available, which can be used to design a new disposal site and collection system
- Specification of standard methods for collecting and analyzing basic solid waste information (e.g. daily waste volume, leachate quality)
- Establishment and maintenance of a database for waste management information

How will we get there?

Action	Lead Agency	Partner Agencies	Priority
9. Conduct a detailed waste stream analysis at least every 5 years using standard methods	EPA	T&I	High
10. Establish a database (e.g. using Microsoft Excel, Access, etc) for storing and analyzing waste information (requires computer & software)	EPA	T&I	High
11. Improve monitoring of import and export data for recyclables	EPA	Customs, Department of Treasury	High

Waste Minimization (Refuse, Reduce, Reuse, Recycle)

Where are we now?

Currently an aluminum beverage can recycling law was recently enacted in which a small deposit (6 cents) is paid on purchase of the beverage, and 80% of this (5 cents) is re-funded when the containers are returned to the designated depots. The Recycling system came into operation in July 2012 but only Kolonia Town and Madolenihmw Municipal Government were the only two municipal governments ready to operate their own redemption centers. Currently, the two centers are in operation where containers are brought in, recorded, collected and then Madolenihmw Municipal Government transfers collected beverage containers to Kolonia Town crushing facility for crushing and baling.

In September of 2011, Pohnpei State passed a law prohibiting the use of plastic shopping bags. The act came into force on 22nd April 2012 (World Earth Day) and the Pohnpei State EPA was charged with promulgating the regulations under this act.

To date, there are several composting efforts implemented through College of Micronesia- Land Grant, Natural Resources Conservation Sources and Pohnpei State Agriculture.

Where do we want to be?

- The amount of solid waste generated and disposed of, reduced by at least 10% through reduced imports, recycling, composting and other methods
- Local and community based waste reduction related industries created

How will we get there?

Action	Lead Agency	Partner Agencies	Priority
12. Divert and isolate green waste from landfill by establishing and encouraging mulching or composting, first at source, and then at the disposal site	EPA	PWMS (Contracted Private Company), CSP, Agriculture, COM Land grant, NRCS	High
13. Provide economic incentives to encourage local and community-based recycling and waste reduction. (For example: provide space and equipment for scrap metal recycling; provide tax breaks/reductions to encourage private sector involvement in recycling; provide start-up grants, implement advanced disposal fees for appliances, vehicles, etc)	EPA	Private Sector	
14. Expand the deposit-refund program to other items including PET, glass, cardboard, tires (may need to secure additional funding support and conduct awareness)	EPA	Department of Treasury	High
15. Improve data monitoring of imports and recyclables	EPA	FSM Customs	High
16. Improve access of outer islands to the deposit-refund program	EPA	Local Governments	High
17. Develop the implementing regulations and campaign under the Control of Plastic Waste (Title 27, Chapter 4 of Pohnpei State Code)	EPA	Public Safety, T&I, AG Office	High

Waste Collection

Where are we now?

Solid waste collection is primarily conducted at the municipal level and by the private sector. There is no uniformity of waste collection system and collection fees vary across municipalities. Furthermore, there is no standardization of waste bins. With plans of the new semi-aerobic landfill underway, Pohnpei EPA requested that the Environmental Impact Assessment for the new solid waste landfill address options of transfer stations and collection at the household level.

Where do we want to be?

- Segregation activities in the homes and throughout the commercial center
- Island wide, self-supporting collection service by 2018 (at least once per week)

How will we get there?

Action	Lead Agency	Partner Agencies	Priority
18. Conduct institutional review to identify best arrangements for waste collection (same as Action No. 1)	EPA	OEEM, J-PRISM, JICA, TC&I, T&I	High
19. Design and implement a waste collection system	EPA	TC&I, T&I, J-PRISM	High

Waste Disposal

Where are we now?

The lack of a collection and transportation system for solid waste has spawned uncontrolled dumpsites in all Municipalities. These dumpsites are located along roadways, in mangrove forests and along the primary circumferential road.

The legally designated dumpsite is the existing Dekehtik Dumpsite, which is located on a little island close to the airport adjacent to a mangrove forest and the shoreline. The recent rehabilitation of the dumpsite has provided it a new face lift. With its semi-aerobic structure, the Dekehtik dumpsite aids in the acceleration of waste composition through leachate pipes. Plans to close the site has been reconsidered after the rehabilitation. The proposed new landfill site is located in Sokehs municipality and was designated in 2011. With the help from JICA and its experts, the semi-aerobic (Fukuoka) type landfill has been chosen as the method for the new site. Plans for the new landfill are being developed and the governing officials are dedicated to allocating the necessary funding to make sure that Pohnpei will upgrade to a sanitary landfill. The proposed site may not be ready until 2015 which has its challenges, including remoteness (which will increase waste transportation costs), and the need for ancillary construction work (access road and bridge). Added to these challenges, plans of the new landfill is projected at 16 million per cell. With a design that has 4 cells the total cost of the whole landfill is projected to cost around 60 million which is the main cause to be put to a halt for further

review on plans and designs. Furthermore, careful consideration needs to be given to how the operation of the new landfill site and the required collection system can be sustainably funded to avoid deteriorating into another dumpsite.

Where do we want to be?

- Environmentally sound landfill in operation supported by segregation activities

How will we get there?

Action	Lead Agency	Partner Agencies	Priority
20. Implement Dekehtik dumpsite improvement program comprising: - Waste diversion (expansion in recycling program, promotion of composting) - Guidelines for salvaging - Actions for waste oil disposal & reduction (see “Waste Oil” Priority Area)	EPA	PUC, Kolonia Recycling, AG Office	High
21. Improve record keeping at Dekehtik dumpsite	EPA	T&I, PWM	High
22. Cease use of existing littering sites through combination of awareness, improvement in collection service, and enforcement of littering law	EPA	Public Safety, Municipal Governments, NGO, T&I	High
23. Complete design and construction of new semi aerobic landfills	PMU	–	–
24. Identify and secure revenue sources for operation of new landfill which may include user charges	EPA	–	–

E-Wastes, Waste Oil, Batteries, and Tires

Where are we now?

Currently, there is no management program for e-waste, but an initial scoping of the potential problem was completed in 2008. An insignificant amount is apparently exported by the Chinese recycling company Mai Xiong Pacific Inc. Some immediate activities such as collection and safe storage can be implemented until a long-term disposal plan is developed. E-waste destined for recycling should be kept intact as much as possible, and shipped whole to minimize the amount of residual (non-recyclable) waste that has to be land filled.

The main generator of waste oil on Pohnpei Island is the Public Utilities Corporation (PUC), while the main importer is the FSM Petroleum Corporation. Currently, several hundred drums are scattered around the PUC compound and at Dekehtik Dumpsite. There was a bulk storage container at PUC, however it is leaky and not in use. No data on waste oil generation was immediately available, however, those interviewed at PUC indicated that approximately 60-65 drums (45-gallon size) of lubricants are purchased monthly. There are two waste oil burners, one at the Dekehtik Dumpsite and the other at PUC. The PUC burner has not been in use for over 3 years. It was reportedly too small and unable to cope with the quantities being generated. Consequently, the current working condition is not known. Thorfinn, a live-aboard dive operator based in Chuuk State, received approximately 6,000 gallons of waste oil from PUC in the latter half of 2011. Thorfinn uses this waste oil as a primary fuel on its vessel, however, the specific details and thus potential for generating unintentional persistent organic pollutants are not known at this time. There is currently no program or plan in place for managing this waste oil, and hence it is included in this Strategic Plan.

Currently, other than Maixong accepting lead batteries into their recycling program, there are no other recycling efforts on Lead batteries or any type of battery. Lead batteries are taken to the dumpsite and are drained of its fluids and stored separately in an open housing until the Private contractor PWMS finds ways to ship them out or sell to Maixong.

Additionally, nothing has been done with tires. Recently, however, tires are utilized at the dumpsite. In fact, people have found ways to use them as flower pots, but others use it as a drastic way of killing off unwanted trees by burning them; a practice that is not allowed by the EPA Regulations.

Where do we want to be?

- Secure storage, and safe transportation, treatment and disposal of e-waste and waste oil.
- Safe and cost-effective disposal of lead-acid batteries and tires

How will we get there?

25. Investigate the feasibility of on-island recycling of waste oil, such as by re-refining of waste oil and use as boiler fuel	EPA	PUC, PETRO CORP,	High
26. Conduct seminar with Chamber of Commerce and others on potential business opportunities in recycling of e-wastes, waste oil and tires	EPA	Chamber of Commerce, Private Sector, NGO's	High

Medical Waste Management

Where are we now?

There is one main State hospital (Pohnpei State Hospital), 5 dispensaries and 3 private clinics on Pohnpei Island, and each facility is responsible for the management of its own medical waste (Island Family Clinic, Medpharm, and Genesis).

The Pohnpei State Hospital has less than 100 beds. Wastes or disposables such as syringes, sharps, expired medicines, and laboratory wastes (including blood samples), and some bandages are disposed of in a wood-fired incinerator located on the Hospital's compound. Infectious wastes (bloody bandages, etc.) are segregated and collected by contracted private janitors and taken with other general wastes to the Dekehtik Dumpsite.

Medical wastes from the dispensaries are usually collected by the Municipal Government, taken to the dumpsite and burnt at a designated spot using waste oil as a fuel. During the consultations for this Strategic Plan, it was raised that there was a need for better communication between the hospital-contracted janitors, municipalities, and the dumpsite operator (PWMS) to better coordinate the burning of medical waste at the dumpsite.

The Main Private hospital Genesis has 35 beds with an additional 7 rooms. There is no incinerator at the compound and all medical waste are taken to the dumpsite daily.

It is clear that there is much room for improvement in medical waste management, which should include a safe transport mechanism for wastes from privately owned hospitals and clinics, and an appropriate treatment process such as high-temperature incineration to ensure the safe destruction of medical waste.

Where do we want to be?

- Source segregation and storage of infectious wastes
- Safe handling, collection, storage, transport and disposal of infectious wastes and unusable pharmaceutical wastes

How will we get there?

27. Improve storage and incineration to be consistent with standard best practices and obligations under Stockholm Convention on POPs	EPA	OEEM	High
---	-----	------	------

Capacity Building, Education & Awareness

Where are we now?

There is a limited emphasis on environmental education in the school curriculum. However, some awareness activities are implemented such as:

- Clean-up days
- EPA school-visit program with focus on various topics
- Green Road Show (by EPA/CSP)
- Youth to Youth Program (working with one school each semester to develop an environmental program/curriculum, and end-of-year culmination/sharing with all schools involved)

Where do we want to be?

- Educated population who manage their waste responsibly and according to the law
- Adequate numbers of staff and skill levels within the responsible institutions to implement the Waste Management Strategic Plan

How will we get there?

28. Identify Australian public sector organization to submit application for technical assistance to Aus Aid Pacific Public Sector Linkages Program (PSLP)	EPA	AUS-AID	High
29. Develop and implement a cross-training plan in conjunction with other responsible institutions to ensure that other officers receive appropriate training in waste management issues	EPA	J-PRISM, AUSAID	High

Monitoring and Measuring Our Progress

Measuring the progress of implementation of this solid waste management plan can help to identify barriers not previously considered and future challenges that may hinder progress. Progress against each action identified will be reported on an annual basis using the template in Appendix 1.

The following key performance indicators will be used to measure annual progress and the overall success of the Strategy:

Key Performance Indicator	Baseline (2011) Value	Source, comments, etc
Amount of waste generated per capita		Data from next J-AWARE Report
Amount of total waste land filled		Data from J-AWARE dumpsite survey
Percentage of total waste recycled and composted		
Number of disposal facilities that do not meet acceptable environmental standards		
Number of communities receiving at least once per week collection service		
Percentage of waste management budget subsidized by external (Compact II & other donor) sources	100%	

Appendix II: Pohnpei State Laws and Regulations related to Solid Waste Management

LAWS	Signed into law
1. Constitution of Pohnpei, Article 7, Section 1 <i>on Resources and Environment which requires establishment and execution of plans for conserving natural resources and protection of the environment.</i>	
2. Pohnpei Environmental Protection Act of 1992	11/19/1992
3. Amendment to Pohnpei Environmental Protection Act of 1992	10/12/1993
4. State Law No. 3L-26-92, Pohnpei Environmental Protection Act	
5. Solid Waste Regulations	03/30/1995
6. Pohnpei State Law No 6L-66-06	
REGULATIONS	Effective date
1. Air Pollution Control Standards and Regulations	04/03/1995
2. Barber Shop and Beauty Parlor Regulations	04/03/1995
3. Carnival, Fair and Food Sale Regulations	04/03/1995
4. Drinking Water Regulations	04/03/1995
5. Earth Moving Regulations (Amended: 04/10/08)	
6. Environmental Impact Assessment Regulations	04/03/1995
7. Food Store Regulations	02/19/1998
8. Hearing Regulations	04/03/1995
9. Mosquito and Fly Control Regulations	04/03/1995
10. Pesticide Regulations	04/03/1995
11. Regulations on Public Access to EPA Roads	05/20/1996
12. Public Buildings and Places of Public Assembly Environmental Standards Regulations	04/03/1995
13. Restaurant and Food Selling Places Regulations	04/03/1995
14. Rodent Control Regulations	04/03/1995
15. Sakau Bar Regulations	06/02/2000
16. Ship Environmental Health Inspection Regulations	04/03/1995
17. Solid Waste Regulations	04/03/1995
18. Swimming Pools Regulations	04/03/1995
19. Toilet Facilities & Sewage Disposal Regulations	04/03/1995
20. Marine and Fresh Water Quality Standard Regulations	04/03/1995

Appendix III: Overview of Solid Waste Management Plan

Action	Lead Agency	Priority	Budget
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			
26.			
27.			
28.			
29.			
30.			
31.			
32.			
33.			
34.			
35.			
36.			
37.			
TOTAL Budget			

LAWS	Signed into law
Constitution of Pohnpei, Article 7, Section 1 <i>on Resources and Environment which requires establishment and execution of plans for conserving natural resources and protection of the environment.</i>	
1. Pohnpei Environmental Protection Act of 1992	11/19/1992
2. Amendment to Pohnpei Environmental Protection Act of 1992	10/12/1993
3. State Law No. 3L-26-92, Pohnpei Environmental Protection Act	
4. Solid Waste Regulations	03/30/1995
5. Pohnpei State Law No 6L-66-06	
REGULATIONS	Effective date
1. Air Pollution Control Standards and Regulations	04/03/1995
2. Barber Shop and Beauty Parlor Regulations	04/03/1995
3. Carnival, Fair and Food Sale Regulations	04/03/1995
4. Drinking Water Regulations	04/03/1995
5. Earth Moving Regulations (Amended: 04/10/08)	
6. Environmental Impact Assessment Regulations	04/03/1995
7. Food Store Regulations	02/19/1998
8. Hearing Regulations	04/03/1995
9. Mosquito and Fly Control Regulations	04/03/1995
10. Pesticide Regulations	04/03/1995
11. Regulations on Public Access to EPA Roads	05/20/1996
12. Public Buildings and Places of Public Assembly Environmental Standards Regulations	04/03/1995
13. Restaurant and Food Selling Places Regulations	04/03/1995
14. Rodent Control Regulations	04/03/1995
15. Sakau Bar Regulations	06/02/2000
16. Ship Environmental Health Inspection Regulations	04/03/1995
17. Solid Waste Regulations	04/03/1995
18. Swimming Pools Regulations	04/03/1995
19. Toilet Facilities & Sewage Disposal Regulations	04/03/1995
20. Marine and Fresh Water Quality Standard Regulations	04/03/1995