FEDERATED STATES OF MICRONESIA

NATIONAL SOLID WASTE MANAGEMENT STRATEGY

2015-2020

OFFICE OF ENVIRONMENT AND EMERGENCY MANAGEMENT

2015

ACKNOWLEDGEMENTS

The FSM Office of Environment and Emergency Management recognize the invaluable contribution of its co-partners from regional and local organizations in the area of Solid Waste Management.

The development of this Strategy was initiated under a regional project funded by Japan International Cooperative Agency (JICA) called SWMPOR- Solid Waste Management Project in Oceania Region. Subsequently, consultation meetings were coordinated by SPREP in collaboration with the FSM Office of Environment and Emergency Management (EEM) . Stakeholders who participated in the consultative process represented National departments, offices, agencies, State Environmental Protection Agencies (EPA)/Kosrae Island Resource Management Agency (KIRMA), State Transportation and Infrastructure Offices, State Health Departments, Municipal Governments, Non-governmental organizations, and Civil Society organizations. The participants contributed valuable insights which have been considered in this strategy.

In the FSM, we say: Kamagar, Kinisou Chapur, Kalahngan, and Kulo Mulalap and hats off to Secretariat of the Pacific Regional Environment Program (SPREP), Japan International Cooperative Agency (JICA), and The Project for Japan Promotion of Regional Initiative Solid Waste Management (J-PRISM) for their unlimited and professional assistance to the FSM. It is envisioned that our continued working relationship will enhance our solid waste management efforts throughout the federation.

FOREWORD

I am pleased to present this Solid Waste Management Strategy as a sign of our committed efforts to minimize waste throughout the Federated States of Micronesia. My office stands with the State Environmental Protection Agencies (EPAs) and Kosrae Island Resource Management Agency (KIRMA) in achieving our goal of adopting cost effective and self sustaining Solid Waste Management systems to protect the environment. Furthermore, we will work with regional and international environmental organizations to promote a sustainable Federated States of Micronesia, where the culture and environment are preserved for future generations. Hence, this strategy is a leap forward to the protection of the constitutional rights of our citizens to live in harmony with their natural surroundings.

In our modern villages and urban centers today, we are challenged to minimize waste on a daily basis. The rise of plastics, foam, paper, aluminum, metals, and other contaminants continue to pose a threat to our natural surroundings. This National Solid Waste Management Strategy address our problems on waste and propose solutions through an Integrated Solid Waste Management Approach of Waste Prevention, Recycling and Composting, and Disposal (Land filling and Combustion).

The implementation of this Strategy is expected to significantly minimize the volume of waste residual, and strengthen systems of waste management throughout the Federated States of Micronesia.

Therefore, let us join hands to reduce waste so that we and our future generations can live in a clean and healthy environment.

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Andrew R. Yatilman
Director
Office of Environment and Emergency Management

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ABBREVIATIONS AND GLOSSARY OF TERMS

AFD	Agence Francais Developpement (*French Development Agency*)
CDL	Container Deposit Legislation
CFA	Compact of Free Association
COM-CRE	College of Micronesia-Cooperative Research Extension
DT&I	Department of Transportation and Infrastructure
DTC&I	Department of Transportation, Communication and Infrastructure
EPA	Environmental Protection Agency
ESP	Environment Sector Plan
E-WASTE	Electrical and electronic waste
FSM	Federated States of Micronesia
FY	Financial Year
GEF	Global Environment Facility
H&SA	Department of Health and Social Affairs
J-AWARE	JICA's Activity on Waste Audit Research
JEMCO	Joint Economic Management Committee
JICA	Japan International Cooperation Agency
J-PRISM	The Japan Technical Cooperation Project for Promotion of Regional Initiative Solid Waste Management
KIRMA	Kosrae Island Resource Management Authority
LRD	Land Resource Management
MEA	Multilateral Environment Agreement
NIP	National Implementation Plan
NSWMS	National Solid Waste Management Strategy
OEEM	Office of Environment and Emergency Management
PIC	Pacific Island Countries
POPs	Persistent Organic Pollutants
RS2010	Pacific Regional Solid Waste Management Strategy 2010-2015
SBOC	Office of Statistics, Budget and Economic Management, Overseas Development Assistance, and Compact management
SC	Stockholm Convention
SDP	Strategic Development Plan
SLM	Sustainable Land Management
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SWMPOR	Solid Waste Management Project in Oceania Region
UNDP	United Nations Development Program
WHO-ERC	World Health Organization-Ethics Review Committee
WHO-WPRO	World Health Organization-Western Pacific Regional Office

EXECUTIVE SUMMARY

This is the Federated States of Micronesia's National Solid Waste Management Strategy (NSWMS) which provides the strategic vision and direction for solid waste management over the five year period 2015-2020 The Strategy has been 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.

This National Solid Waste Management Strategy provides a framework to achieve a sustainable Federated States of Micronesia where the culture and environment are preserved for the future generations, and the overall goal as expressed in the Pacific Regional Solid Waste Management Strategy (2010-2015) that,

"*Pacific Island Countries and Territories will adopt cost effective and self sustaining Solid Waste Management systems to protect the environment, in order to promote a healthy population and encourage economic growth.*"

The Strategy is arranged into three main sections. The first section introduces the Strategy, including its vision, mission, strategic objectives, and scope. The second section provides background information on the country, and sets the strategic context for solid waste management (SWM) in the FSM. It also explores the current waste management situation in each of the four states, and concludes with a provisional listing of key stakeholders involved in SWM.

The third and final sections contain the strategic elements and begin by setting the underlying principles which will guide the implementation of this strategy. It also explains the way forward in terms of the three strategic objectives and seven thematic areas, 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?).

Ongoing monitoring and evaluation of this strategy is an important component of the document and this is reflected in the basic monitoring template which has been suggested and which will be reported annually.

1.0 INTRODUCTION

1.1 VISION

The Federated States of Micronesia generate waste and consider the waste that is produced as a valuable resource to be managed sustainably.

1.2 MISSION

The mission of the island states is to reduce solid waste generation and manage residual waste materials in a way which maximizes opportunities for resource recovery, while protecting their public health and environment through partnership with all its citizens.

1.3 STRATEGIC GOAL AND OBJECTIVES

In order to promote a healthy population and encourage economic growth throughout the Federated States of Micronesia, it is the ***overall goal of this National Solid Waste Management Strategy*** **to adopt cost effective and self sustaining Solid Waste Management systems to protect the environment** which will be developed through three broad objectives:

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

These three strategic objectives are addressed with actions in seven thematic areas: (1) Policy and Legislation, (2) Planning, (3) Sustainable Financing, (4) Integrated Solid Waste Management, (5) Medical Waste, (6) Capacity Building, and (7) Awareness. A high-level implementation plan is provided in the Appendix Section.

1.4 STRATEGY DEVELOPMENT PROCESS

The steps taken to prepare this National Solid Waste Management Strategy included several Consultation Workshops and the development of written drafts. Under a regional project funded by Japan International Cooperative Agency (JICA) called SWMPOR-Solid Waste Management Project in Oceania Region, the development of the strategy was initiated.

1.5 SCOPE

The strategy covers municipal solid waste from residential, commercial, institutional, and industrial sources. It also covers medical waste from hospitals and dispensaries, difficult waste such as used oil and scrap metal. The following types of wastes are not covered in this strategy:

- **Liquid wastes such as sewage**
- **Gaseous wastes**
- **Hazardous wastes such as POPs, which will be addressed by the Stockholm Convention National Implementation Plan (NIP)**

1.6 STRATEGIC CONTEXT FOR SOLID WASTE MANAGEMENT

1.6.1 STRATEGIC DEVELOPMENT PLAN

The guiding policy for sustainable development in the FSM is the Strategic Development Plan 2004-2023 (SDP) which is published in three volumes. As stated in the mission,[1]" the Environment Sector shall support the protection of the Nation's environment and achieve sustainable development of its natural resources." The SDP spells out the long-term strategy for achieving sustained growth in a number of key development priorities. The key solid waste management areas addressed in the SDP are:

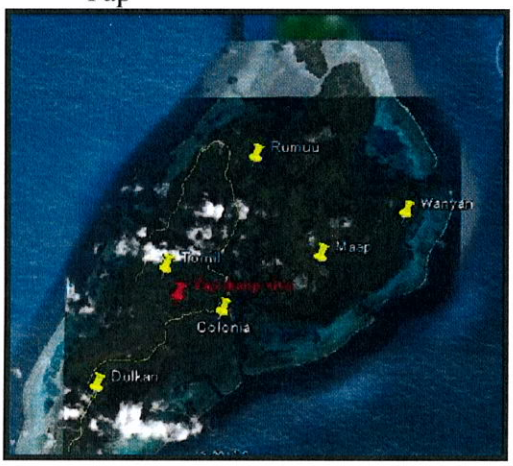
- Mainstreaming waste into national systems and activities
- Enforcement of legislation
- Solid waste minimization, reduction at source and recycling
- Solid waste collection and disposal
- Education, awareness, and information dissemination
- Sustainable financing
- Capacity building

Volume III of the SDP looks at infrastructure development and specifies three objectives for solid waste management:

- Meet the demand for solid waste infrastructure in an effective and efficient manner;
- Evaluate and institute technologically appropriate solid waste management systems;
- Reduce volume of solid waste for disposal by maximizing recycling and separation opportunities and by extending the life of equipment and appliances that otherwise add to the solid waste quantities, thereby minimizing the land area required.

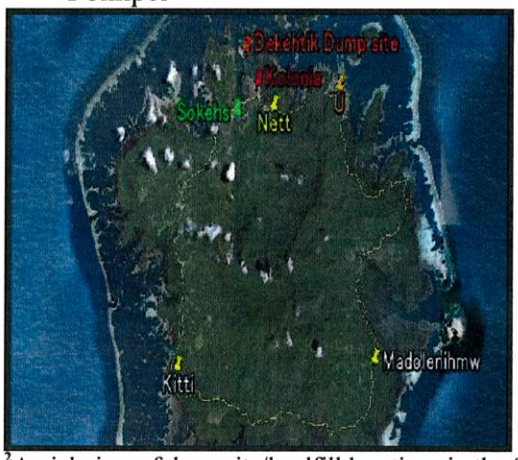
[1] Mission Statement. FSM Strategic Development Plan. 2004-2023

Yap

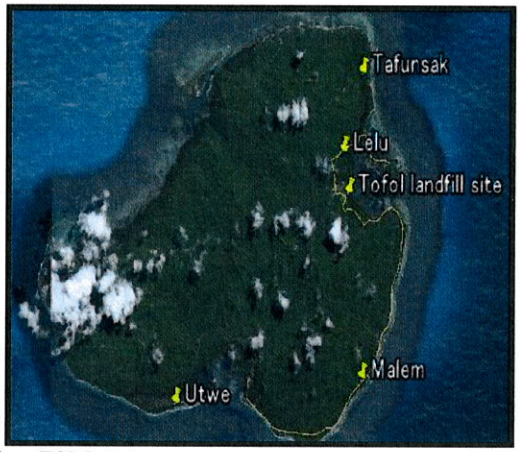


Chuuk

Pohnpei



Kosrae



[2]Aerial view of dumpsite/landfill locations in the four FSM states.

2.0 SUSTAINABLE DEVELOPMENT

The concept of sustainable development is based on the principle of equity where the achievement of economic and environmental goals are dependent on the acquisition of social goals like economic opportunity, health care, and universal access to education. Human impact is a function of population size. The more people, the greater the demand for consumption of resources which could lead to unsustainable practices. As FSM's population increase, the demand to manage increased amount of solid waste is crucial. Moreover, as living standards rise, the environmental consequences of population growth will be amplified by a great number of people wanting a better life. In the FSM, more and more people are no longer content with the simple subsistence life.

Consequently, 22% of the FSM population live in the urban areas (Colonia in Yap, Kolonia in Pohnpei, Weno in Chuuk, and Lelu in Kosrae). This suggests that FSM is in

[2] JAWARE, 2013

the early stage of the urbanization process. Based on the 2010 FSM Census, 22,924 out of the total population of 102,843 live in the various defined urban areas across the four states. Furthermore, Chuuk state has the highest population density of 993 per square miles compared to the rest of the FSM states. Natural resources most accessible to settlers are vulnerable to over-use and environmental degradation as population density increases. Additionally, the higher the income level and rate of urbanization, the greater the amount of solid waste produced.

Essentially, the percentage of households' access to piped water, safe disposal, and electricity in each of the state has increased. **Of importance to this strategy is the percentage of households' accessibility to safe disposal.** (Table 1). The challenge for the states is to maintain their accessibility of these resources in order to live sustainably.

[3]Table 1: Percentage of accessibility to safe disposal

% of Household's access	Yap	Chuuk	Pohnpei	Kosrae	TOTAL
% of households access to safe disposal	42.9	40.4	52.4	97.9	49.2

2.1 COUNTRY INFORMATION

The Federated States of Micronesia (FSM) consists of 607 small islands in the Western Pacific about 2,500 miles southwest of Hawaii. While the country's total land area amounts to only 270.8 square miles, it occupies more than one million square miles of the Pacific Ocean and ranges 1,700 miles from east (Kosrae) to west (Yap). Each of the four States centers around one or more high islands, and all but Kosrae include numerous outlying atolls. Basic characteristics of the four states are shown in *Table 2. The current total population is 102,843. Geographically, the island states are classified as high or low. The main islands of Pohnpei, Kosrae, and Chuuk are high volcanic islands which make up the vast majority of land area with good soil, abundant water and huge vegetation. The low islands, on the other hand, are limited in vegetation. Environments on low lying islands are especially fragile with limited resources (land, water, etc) and expanding populations. The relatively uniform temperatures of the islands average in the mid 70 to mid 80 degrees Fahrenheit range, with humidity averaging over 80 percent. Geographical features and the location of island states must be taken into consideration in any type of development planning, especially for those living on the outer islands.

[3] Percentage. FSM Statistics. FSM SBOC. 2010

[4]Table 2: Basic Characteristics of FSM

State	Capital	Land area (sq. miles)	Population (2012)	State Characteristics
Yap	Colonia	45.6	11,377	Made up of 4 large islands; 7 small islands and 134 atolls
Chuuk	Weno	49.2	48,654	Mountainous island which includes 7 major island groups
Pohnpei	Kolonia	133.4	36,196	Wettest among the FSM states, and rich in forest land
Kosrae	Tofol	42.3	6,616	A single island, whose interior is characterized by steep, rugged mountains covered with dense tropical vegetation
TOTAL			102,843	

The political structure of the FSM is made up of four semi-autonomous states. The states of Yap, Chuuk, Pohnpei, and Kosrae have their own executive, legislative, and judiciary branches and retain autonomy to manage their own domestic affairs. Although the FSM National Government and the State governments share the responsibility of managing environmental issues, the state governments are primarily responsible for development planning and natural resource and land management.

FSM's economy is dominated by the public sector employment. The amended Compact of Free Association with the United States contributes 2 billion over the subsequent 20 years. Other bilateral agreements with European and Asian countries provide financial and technical assistance. Additionally, the nation is largely dependent on import commodities such as canned goods and beverages, which has led to an increase in plastics, aluminum, and paper.

Land tenure system and ownership vary by state. On Chuuk State, most land and marine areas are privately owned, while in Pohnpei and Kosrae, land is both state and privately owned. In the state of Yap, most land and marine areas are owned by individual estates and are restricted to the general public, except for certain purposes with permission. Generally, land and marine ownership patterns influence the management and use of land resources. Hence, establishing an environmentally friendly Solid Waste Management facility can be a challenge throughout the states since most lands are privately owned. Additionally, there is a lack of land use plans for landfill purposes, landfill management plans, monitoring capacity, and supporting funds for operation and maintenance. However, recent legislations of an eminent domain law in some states have granted them power to gain private property for public use in the area of waste management.

2.2 FIVE YEAR ENVIRONMENT SECTOR PLAN

The FSM Environment Sector Five Year Plan (ESP), endorsed in December, 2008, is a focused plan for the yearly projects of the national and state governments to undertake in

[4] FSM Population. SBOC, 2012

accomplishing targeted outcomes in a systematic approach It identifies the following activities relevant to solid waste management:

- National/State Laws & Regulations Review & Development (2010, 2011)
- Identify and implement pilot projects for disposal & collection (2010-2013)
- FSM Biannual Environment Conference (2010, 2012, 2014)
- Annual FSM Environment Speech Contest (2010-2014)
- National water/wastewater analysis training (2010, 2012, 2014)

2.2.1. MULTILATERAL ENVIRONMENT AGREEMENTS

The Government of the Federated States of Micronesia is a party to several conventions that address solid waste management; namely [5]***Stockholm Convention, Basel Convention Waigani Convention, Noumea Convention, SPREP Convention, and Montreal Convention*** which the Office of Environment and Emergency Management serves as Focal Point.

The **Stockholm Convention** was ratified by FSM in July, 2005 and requires Parties to take measures to eliminate or reduce the release of 23 different POPs into the environment. At the international level under the **Basel Convention**, the FSM is obligated to reduce the movements of hazardous waste with other nations; to prevent the transfer of hazardous wastes from developed countries, and to manage hazardous and other wastes generated. As a party to the **Waigani Convention** at the regional level, FSM is obligated to ban the importation of hazardous and radioactive wastes from outside the convention area; prohibit shipment to and from non-Parties, unless there is a special agreement; take measures to reduce the generation of hazardous wastes at source taking into account social, technological, and economic needs; develop adequate treatment and disposal facilities for hazardous wastes; and follow established procedures for the trans-boundary movement of hazardous waste to other parties for environmentally sound disposal. Additionally, FSM ratified the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region **(Noumea Convention)**, which prescribes that Parties "shall take all appropriate measures to prevent, reduce and control pollution in the [South Pacific region] caused by dumping from vessels, aircraft, or man-made structures at sea, including the effective application of the relevant internationally recognized rules and procedures relating to the control of dumping of wastes and other matter." FSM is also obligated to take all appropriate measures to prevent, reduce and control pollution through its membership under the **SPREP convention**. Under the **Montreal Convention**, FSM is obligated to reduce consumption of ODS.

2.2.2 THE PACIFIC REGIONAL SOLID WASTE MANAGEMENT STRATEGY

As a member of SPREP, FSM was widely consulted during the development of [6]RS2010, and committed itself to the implementation of the strategy. FSM also identified three high priority issues as being (1) economic and financial issues, (2) integrated solid waste

[5] Stockholm Convention Secretariat, 2012
[6] Regional Solid Waste Management Strategy, 2012

management, and (3) legislation. The actions identified in the Regional Strategy should be closely aligned with the actions identified in this FSM solid waste management strategy.

2.3 CURRENT SITUATION OF SWM IN FSM

2.3.1 INSTITUTIONAL ARRANGEMENTS

The Office of Environment & Emergency Management (OEEM) was created on September 12, 2007, and became the lead office responsible for environmental issues. OEEM has the specific responsibilities of integrating environmental considerations into the strategic policy formulation and for administering the Environment Protection Act (Title 25 of the FSM Code). The Act establishes the following responsibilities: formulating and implementing environmental policies and legislation; conducting research and developing strategies; protecting and managing the environment within the National jurisdiction; and coordinating work with the state EPAs when applicable. At the state level, there is a regulatory agency and one agency responsible for delivering the solid waste management services. In some cases, this latter agency may contract with the private sector to deliver those services. These institutional details are shown in Table 3:

Table 3: Institutional Arrangements for Solid Waste Management (SWM) in FSM

FSM Stat	Regulatory Agency	Agency providing waste services
Chuuk	1. Chuuk EPA 2. Department of Public Safety for enforcement of littering law	Chuuk Department of Transportation, & Communication (Division of Public Works)
Kosrae	1. Kosrae Island Resource Management Authority (KIRMA)	Department of Transportation & Infrastructure Kosrae Municipal Government
Pohnpei	1. Pohnpei EPA 2. Department of Public Safety for littering law enforcement	Department of Transportation & Infrastructure (Disposal and collection contracted to Pohnpei Waste Management Services), Kolonia Town Municipal Government, Nett Municipal Government, Uh Municipal Government, and Sokehs Municipal Government
Yap	1. Yap EPA	Department of Public Works & Transportation and Yap State Public Service Corporation, Island Paradise Metal Company, and Yap Environmental Waste Solutions

[7]In practice, the state governments regulate waste management, whereas the FSM Constitution mandates the national government to provide primary regulatory oversight, especially for toxic substances.

[7] Rose, Justin. Environmental Law in the Federated States of Micronesia. November, 2009.

2.3.2. WASTE GENERATION AND COMPOSITION

Historically, managing waste was not a problem throughout the Federated States of Micronesia because people back then did not produce much waste. The type of waste produced was organic waste such as coconut woven baskets, banana, and taro leaves which naturally withered away. Today, people have been throwing away more waste than ever before. Our current lifestyle of living has changed which has led to the use of non-refillable products and an increase in packaging. Furthermore, the amount of non-biodegradable waste generated has doubled since the advent of modern goods and services. Essentially, FSM has become a "consumer society" where its people rely on short term products and items.

In the 1990's a study on waste streaming was conducted in Pohnpei by [8]WHO-EHC, and in the 2000's in Kosrae and Yap. The findings suggest that the greatest percentage of waste (by weight) was organic waste comprising vegetable or biodegradable (putrescible) material and garden waste. This means that if composting or other means of organic waste treatment can be successfully implemented then approximately half of the waste can be diverted from landfill. This type of waste is mainly responsible for the formation of leachate and landfill gas. Also, there was a fairly high percentage of plastics in the waste stream (17-19%). Plastics persist in the environment for over 100 years, and while this stability may be good in a landfill environment, it also means that valuable and limited land space is used up quickly. Finally, the third largest amount of municipal solid waste generated is metal (aluminum and steel). Additionally, container deposit schemes have been implemented in Kosrae, Yap and Pohnpei for aluminum cans, plastics and glass bottles, and lead acid batteries. This is a cost-effective way of turning what would otherwise be a waste into a resource and diverting it from landfill.

[9]Since 2011, JICA Volunteers working in the environmental sectors in each state, with their counter parts, have conducted three volumes of research to correct basic data on the current status on waste generation and disposal through uniformed method among the four states. The three main audits conducted under the J-AWARE project were as follows:

- J-AWARE1 (2011, Feb-Mar) :

Amount and component of waste generated by households

- J-AWARE 2 (2012, Feb) :

Amount and Source of waste curried into the final disposal site

- J-AWARE3 (2013, Feb-Jun) :

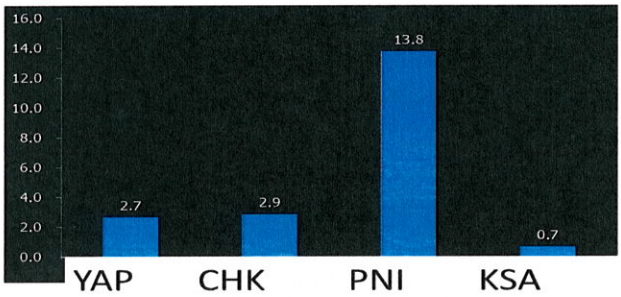
Amount of waste and way of waste disposal generated by business and public facilities

JAWARE 1: Estimate amount of waste generated by households	Yap	Chuuk	Pohnpei	Kosrae
Weight (kg) by day	3,758	2,822	3,457	662
Volume (litre a day)	24,910	26,809	62,233	6,616

[8] WHO EHC. (1996). *Guides for Municipal Solid Waste Management in Pacific Island Countries*

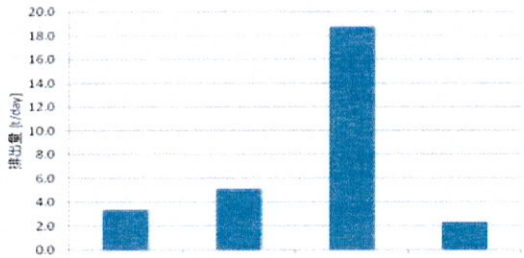
[9] JICA's Activity on Waste Audit Research (J-AWARE 2011-2013), JICA Survey Report

Result
J-AWARE2



Estimated Amount of waste curried to the final disposal site (t/Day)

Result
J-AWARE3



Estimated amount of waste emmited by business and public facilities (t/Day)

In 2011, through the J-AWARE project a household waste survey was conducted, and in 2013 a Business waste survey was conducted which provided the sum of the overall waste generated.

	Yap	Chuuk	Pohnpei	Kosrae
Household waste + Business waste =	7.1/t	8.3/t	22.2/t	2.2/t

Under the J-PRISM project, the states are currently conducting Household waste baseline surveys in 2015.

2.3.2 RECENT INITIATIVES/PARTNERS IN THE AREA OF WASTE MANAGEMENT

The Japan Technical Cooperation Project for the Promotion of Regional Initiative on Solid Waste Management Programme (J-PRISM) is a five year project coordinated in partnership with SRPEP, and funded by the Japan Government that has been building capacity in the FSM through its "learning by doing approach" technical support programs

for waste disposal and landfill maintenance. The FSM states have been able to identify areas to improve in waste management through technical assistance provided by J-PRISM. Through pilot projects, there have been considerable improvements in the Collection and Disposal systems in each of the states. Furthermore, train- the trainer vocational courses in Waste Management and Landfill Techniques Trainings have been implemented through JICA/J-PRISM and AFD/SPREP initiatives. J-PRISM activities are centered around the "Reduce, Reuse, and Recycle (3R)" concept.

2.4 DIFFICULT WASTES

2.4.1 SCRAP METAL

Scrap metals refer to the fragments or pieces of metal that are discarded. Some of these metals include copper, steel, aluminum, brass, iron and wires, but they are often tossed in the garbage due to the lack of knowledge and sources for metal recycling. The FSM has a large legacy of scrap metal and derelict vehicles which are abandoned at the dumpsite, along roadsides and on vacant lots. Efforts to clear derelict vehicles on some lands have been made, however, the lack of consistent enforcement to prohibit their settlement on lands remain a problem. Furthermore, malfunctioned car batteries continue to pose a threat to the environment as there are no regulations against properly disposing them. Recently, efforts to collect Scrap metals among the four states was initiated.

2.4.2 USED OIL

The main sources of used oil generation are from the mechanic shops and the electricity company. Storage and disposal of used oil are growing concerns throughout the states. To date, the establishment of a waste oil recycling system supported by extended producer responsibility has been proposed through an AFD initiative.

2.5 HAZARDOUS WASTE

Hazardous waste in the FSM includes POPs, and electrical and electronic waste (e-waste). The management strategy for POPs is covered by the Stockholm Convention National Implementation Plan (NIP) which is in the process of finalization. It is expected that there will be some overlap in the area of organic waste management, since the burning of organic waste produces UPOPs. An assessment on E-waste was completed in 2009 by FSM Department of Health and Social Affairs (H&SA). The assessment proposed a system for managing e-wastes in FSM, and noted that the POPs in PICs project was successful in removing a large volume of hazardous materials, including some e-waste substances. To date, the four FSM states do not have specific procedures to properly handle e-waste. However, with the recent endorsement of SPREP's Regional E-waste Strategy in 2012, the states have a guide in developing their e-waste program.

2.6 STAKEHOLDERS

There are many stakeholders involved in the management of solid waste in the FSM as shown in Table 6. This list is not exhaustive and should be revised as new information becomes available to ensure that the relevant people are consulted and included in solid waste management activities.

[10]Table 6: Major Stakeholders for Waste Management in the FSM

Major Stakeholders	Level of Participation	Reason for level of Participation
Solid Waste Management		
Chuuk Women's Council	High	Public awareness on SWM, community cleanups
Communities	High	Waste generators
Conservation Society of Pohnpei	High	Community outreach, cleanups
Dept of Agriculture	High	Composting practices
Dept. of Public Safety	High	SWM Law enforcement
DTC&I	High	Delivers waste management services
Division of Environmental Health (Yap)	High	Awareness
Island Paradise Metal Company (Yap)	High	Recycling, scrap metal removal
JICA	High	Donor/development partner
J-PRISM	High	Technical Assistance
Kosrae Conservation and Safety Organization	High	Public awareness on SWM, community cleanups
Kosrae DT&I	High	Delivers waste management services
Micronesia Eco Inc. (Kosrae)	High	Recycles aluminum cans, batteries
Municipal Governments	High	Collection, litter removal
OEEM	High	Coordinates SWM in FSM
PIRRIC	High	Recycling initiative created through the Micronesian Chiefs' Executive Summit
Pohnpei Waste Management Services	High	Private contractor (disposal & collection)
Public Auditor's Office	Medium	Performance audit of SWM
SOPAC	Medium	Covers integrated water resources management
SPC	High	Organic production (recycling of organic waste)
SPREP	High	Policy advice, technical assistance on SWM
State EPAs/ KIRMA	High	Regulate waste management
State Public Works Offices	High	Deliver waste management services
State Transportation and Infrastructure	High	Deliver waste management services
Tourism Offices & visitor bureaus	Medium	Beautification
Private waste collection providers	High	Waste collection services
UN Joint Presence Initiative	Medium	UNDP-funded recycling projects
Yap Environmental Waste Solutions (YEWS)	High	Local, private waste collector
Medical waste management		
State Health Departments	High	Service delivery
State Health Services (hospitals, dispensaries)	High	Medical waste generators and managers
Difficult Wastes		
Automobile repair shops	High	Used oil and scrap metal generators
FSM Petro Corporation	High	Oil importer
Oil product retailers	High	Oil importers
SS Thorfinn	High	Used oil consumer
State power utility companies	High	Used oil generators

[10] Stakeholders represent different organizations supporting waste management

3.0 THE WAY FORWARD

The overall goal of this NSWMS is to develop, adopt, 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 FSM's population and environment.

There are several broad strategic objectives as follows:

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

These strategic 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, (6) Capacity Building, (7) Awareness.

The next sections address each of the strategic objectives and thematic areas by first looking at the current situation (where are we now?), setting targets (where do we want to be?), and finally by specifying the plan to achieve the target (how will we get there?). The numbering of the actions in the plan is continuous from one thematic area to the next.

3.1 STRATEGIC OBJECTIVE 1

Develop and implement policies, plans, legislations, regulations, and institutional arrangements, which set the right environment to encourage sustainable solid waste management.

3.1.1 Policy and Legislation

The National Government is tasked to protect and preserve the environment in close consultation with the states through the formulation of policy, enforcement and other activities. State governments are responsible for their own environment related issues. Hence, each state has its own set of regulations and laws regarding solid waste matters. In general, the state governments regulate chemical and waste management while the National Government as mandated by the FSM Constitution provides regulatory oversight.

Where are we now?

In 2012, [11]Congressional Act No. 17-55 was signed and became Public Law No. 17-57 which amended Title 25 of the Code of the Federated States of Micronesia. Amending Title 25 with Congressional 17-57 serves several purposes which include: **a.** reflect the current functions and responsibilities of the National Government in the area of environmental management and protection; **b**. eliminate duplication of responsibilities between the National and state governments in the area of environmental management and protection, and **c.** provide the Office of Environment and Emergency Management with the necessary legal authority to implement via regulation four multilateral environmental agreements (MEAs) that FSM has ratified.

In cases where legislation has been enacted, non-compliance is common due to lack of awareness and carefree attitudes. There is also limited human and financial capacity to enforce the legislation. This is compounded by a lack of infrastructure and programs to support compliance such as waste collection service to support proper waste disposal.

Where do we want to be?

- At least 1 environmental violation for illegal dumping or other waste management infraction successfully prosecuted in each State for the first year, and increasing thereafter.
- Roles and responsibilities for solid waste management at State level clearly defined and institutionalized

How will we get there?

Action	Lead Agency	Time Frame
1. Review existing legislation and institutional arrangements for solid waste management and hazardous waste management and make recommendations	OEEM/EPA/KIRMA	Annually
2. Develop and implement enforcement plans in each state. These plans should contain activities that help to internalize policies in government departments, and address training, education, and awareness, culturally-sensitive communication, and community empowerment, using existing traditions, religious groups and governance structures	OEEM/EPA/KIRMA	On-going
3. Double the EPA staff in each State designated as fulltime enforcement officers out of existing EPA staff	OEEM/EPA/KIRMA	On-going
4. EPA enforcement officers in all States trained in legal procedures, evidence handling, case development, etc.	OEEM/EPA/KIRMA	Annually
5. Create awareness within the judiciary about the seriousness of SWM issues by holding advocacy meetings	OEEM/EPA/KIRMA	Annually
6. Implement recommendations and enforcement plans	OEEM/EPA/KIRMA	On-going

[11] Congressional Act 17-55: An Act to amend Title 25 of the Code of the Federated States of Micronesia

3.1.2 SUSTAINABLE FINANCING

Where are we now?

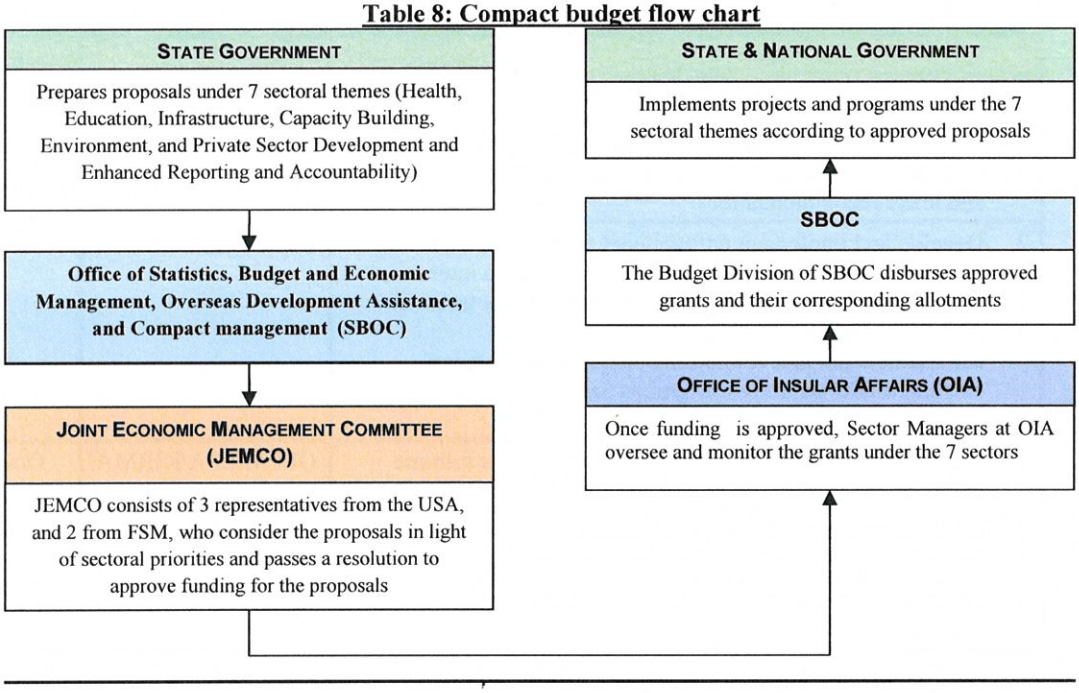
There is no national funding for Solid Waste Management. Funding for solid waste management in the FSM is obtained under the Compact of Free Association (CFA) Agreement with the United States of America through each state. [12]Table 7 illustrates the grant portion awarded to the four states under the Compact Management Fund for FY 2015. The process for obtaining this financing is outlined in table 8 below.

Table 7: Environment Sector Grant: FY 2015 (Solid Waste Management portion)

FSM STATES	SOLID WASTE MANAGEMENT PORTION
YAP (PW & Transportation)	59,082
CHUUK (EPA)	94, 749
POHNPEI (OT&I)	111,240
KOSRAE (DT&I)	24, 336
TOTAL	289,407

The majority of the funding for waste management programs is obtained from economic assistance provided under the Amended Compact of Free Association or through other development assistance, with the exception of the container deposit legislation in Kosrae and Yap, a soft-drink tax in Chuuk, and private collection fees. A total of 289,407 was awarded to the Federated States of Micronesia under the Environmental Sector Grant for Fiscal 2015 for Solid Waste Management components. [13]Table 8 outlines the process for obtaining funds under the Compact of Free Association with the United States (CFA).

Table 8: Compact budget flow chart



[12] Environment Sector Grant, Compact Management Fund, FSM SBOC 2015
[13] Compact Budget Flow Chart, FSM SBOC, 2010

Where do we want to be?

- At least two States launch a fund financed by a deposit refund scheme to finance the cost of removing abandoned vehicles by 2016
- Funds secured to sustainably support SWM activities in FSM

How will we get there?

Action	Lead Agency	Time frame
7. Formulate a plan to implement an economic instrument at the state level for vehicles which would finance the cost of removing abandoned vehicles	OEEM,EPA/KIRMA	FY 2016
8. Formulate a plan to implement other appropriate economic instruments, based on reliable and accurate information of the costs and benefits of available economic instruments – this could include the development of container deposit legislation. Development and implementation of the plan could be a responsibility of a SWM Taskforce.	OEEM,EPA/KIRMA	FY 2016
9. Establish management systems to ensure that waste management revenues are used for waste management activities	SGOV	FY 2015
10. Identify full/partial funding sources with seed funding provided from State or National Government, and develop resource mobilization strategy to secure these resources to support waste management activities. This will involve developing capacity for proposal writing and project implementation	OEEM	On-going

3.1.3 PLANNING

Where are we now?

Solid waste management plans should be based on accurate and reliable information of the waste stream; however, information is limited. Several analyses have been conducted, although the data does not cover the different areas of FSM (urban, rural, atolls, etc).

- Kosrae (KIRMA) completed a household waste survey in 2005/2006;
- Pohnpei completed a landfill survey in 1991 (WHO EHC, 1996);
- Yap undertook a household waste generation survey and limited waste characterization survey in 2011 (J-AWARE1)
- Chuuk completed a survey in collaboration with WHO/University of Hawaii
- Waste composition and disposal volume at dump site surveys were completed in 2011 and 2012 for the states of Yap, Chuuk, Pohnpei, and Kosrae (J-AWARE1 & 2 project). JAWARE Survey 3 was conducted in 2013 in which business waste was measured in all four states
- Household waste surveys are currently conducted in all four states in 2015 to determine trend of waste volumes

Furthermore, planning for solid waste management is undertaken separately to planning for hazardous waste, which may result in some duplication and overlap of efforts. For example, the Stockholm Convention NIP was developed separately from this Solid Waste Strategy.

Where do we want to be?

- Establish a waste stream analysis program (e.g. at dumpsite, household, or customs) for all States
- Establish and maintain a database for waste management information
- Integrate planning for solid and hazardous wastes to take advantage of any synergies

How will we get there?

Action	Lead Agency	Time Frame
11. Design and conduct a waste stream analysis in each State, and updated types of waste (e.g. e-waste). This should include providing the necessary training and instruction to conduct the analysis.	OEEM/EPA/KIRMA	On-going
12. Establish a database at the State level, which will be compiled by the National Government	OEEM/EPA/KIRMA	2015
13. Create SWM Taskforce at the State and National levels to develop SWM	OEEM/EPA/KIRMA	On-going
14. Develop, update and/or complete the State solid waste management plans. State solid waste management plans will give the vision and direction for SWM and will help the State in identifying the financial and human capacity resources that are needed to achieve that vision.	OEEM/EPA/KIRMA	5 years

3.2 STRATEGIC OBJECTIVE 2

Adopt an integrated approach with strategies for reducing waste generation, waste reuse, recycling, composting, disposal, and waste collection.

3.2.1 Integrated solid waste management

Where are we now?

In this strategy, integrated solid waste management 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. [14]Refer to the guiding principles in Appendix 4. The guiding principles are used as the foundation on which to build the actions that will transform current solid waste management practices. Addressing these areas in a combined integrated approach recognizes the interconnectedness of the solid waste issues.

[14] Guiding Principles: Appendix 4

Waste Minimization (Reduce, Reuse, Recycle, Redirect, and Redesign)

With the assistance of key development partners, and with the involvement of the private sector, several initiatives have been undertaken for waste recycling. These are summarized in Table 9.

Table 9: Recycling and related activities in FSM

State	Waste Recycling (and related) Activities
Pohnpei	• Scrap metals (junk cars, batteries, etc) are collected by two private companies and shipped off island. Kolonia Town Government collects aluminum cans, bales and ships them off island. Waste oil from the power plant is collected by a dive boat (Thorfinn) from Chuuk State. Waste Oil is also used to supply medical incinerators. Pohnpei Waste Management Service also recycles waste oil while the Chinese Company Mai Xiong recycles batteries and aluminum cans..
Kosrae	• UNDP provided financial and technical assistance to revive the State's recycling program in October 2006, through a deposit/refund system for vehicle batteries, cans, plastic and glass bottles. This program is being implemented by KIRMA. • 800 tonnes of scrap metal and bulky wastes have been collected and shipped off-island • Over 20,000 gallons of used oil have also been shipped off-island to Nauru • Micronesia Eco Corps is Kosrae's recycling Center. Aluminium cans, glass bottles, plastic bottles, and car batteries have been recycled.
Yap	• Technical assistance has been provided by UNDP to improve the state's Recycling Program to (1) ensure sustainability by matching deposits and increasing refund rates and (2) to be able to take in more recyclable materials i.e. Glass, PET #1 beverage container plastics, and PET #1 cooking oil container plastics • Island Paradise Metal Co. is a local private company serving as the Recycling Operator for the State's Recycling Program. As of Dec 2009, improvements to the Program came into effect taking in aluminum cans, plastic PET beverage containers, plastic PET cooking oil containers, and glass beverage containers at higher refund rates. Company is also involved in scrap metal removal.
Chuuk	• Chuuk Visitors Bureau started a recycling operation, but this ceased due to financial constraints. Currently, Mai Xiong Family Recycling Company collects and recycles aluminum, metal, copper, brass, cars, and charges by the kilo.

Recycling

The four FSM states have had recycling schemes at one time or another for aluminum cans. Currently, Kosrae and Yap are the only FSM states that has a comprehensive waste recycling system. [15]At a recent regional 3R training sponsored by J-PRISM in Palau, the states had the opportunity to address issues regarding their recycling schemes through an action plan. The training centered on enhancing member countries' container deposit legislations (CDL).

Other waste minimization activities have included composting, collection, and disposal as discussed below.

Composting

Composting is a means of minimizing the amount of organic or biodegradable waste that ends up at the dumpsite or landfill, and some households practice backyard composting. The Secretariat of the Pacific Community (SPC) Land Resources Programme (LRD) has

[15] Regional 3R Training held in Koror, Belau. November, 2013

provided support for compost field work in the FSM. The GEF-Funded and UNDP-implemented Sustainable Land Management (SLM) project has also established practical demonstration sites on composting with relevant training for farmers, and awareness-raising to promote organic production. Additional Composting sites have been established in Pohnpei state through the College of Micronesia-Cooperative Research Extension (COM-CRE), and the states of Kosrae, Chuuk, and Yap through their agriculture programs.

Collection

A regular, reliable, and efficient waste collection service is a key aspect to proper solid waste management, as it can often account for up to 60% of the waste management costs. Throughout the FSM, the waste collection service varies from state to state mostly due to the inadequate budget allocation. Most states do not have an organized door-to-door collection service and lack appropriate equipment. The predominant collection vehicles in use are dump trucks; however, there is a move towards compacting trash vehicles. Yap state has procured a new compacting trash truck, while Kosrae, Pohnpei and Chuuk have received two compactors from the Japan Embassy Grassroots Program.

Collection service, if available, is provided by municipalities (free of cost to the residents), and also by private contractors who may be directly hired by single households or groups of households to provide the service. In Pohnpei, municipal governments of Nett, Uh, Sokehs, and Kolonia provide collection services to residents without a fee, while Kitti and Madolenihmw municipal governments are in the process of establishing collection services. Similarly, in Chuuk State, residents on Weno island do not have to pay for the collection services provided by the Government. "Horn Collection" in Chuuk is a collection method used by the Government to collect residential trash in Mwan, Neauo, and Nepukos. In Yap state, collection service is handled by Public Works and a private company while Yap EPA regulates the service. Kosrae state provides collection service to all four municipalities and collection fees vary by municipality.

The following [16]table highlights some of the main features of the collection service in the four states of the FSM.

[17]Table 10: Main features of the waste collection system in the FSM

State	Waste Collection Service (frequency and characteristics)
Pohnpei	Municipal governments of Sokehs, Kolonia, Nett, and Uh provide collection service in their respective areas. Kitti and Madolenihmw municipalities are in the process of setting up collection services. Collection service in Kolonia Town requires a monthly fee for Kolonia Town residents. To date, the relevant regulations only require residents to get their waste to the dumpsite and do not directly address waste collection. Pohnpei Waste Management Services (PWMS) provides a collection service to interested parties for a fee.
Kosrae	Collection Services provided by the Government are available to all the four municipalities. There are two compactor trucks. Each truck'services two municipalities. Fees for collection service vary by

[16]Table 10 outlines current Waste Collection Services
[17] Yap SWM Plan, Chuuk SWM Plan, Pohnpei SWM Plan, and Kosrae SWM Plan

	municipality.
Yap	The waste collection service is delivered by a combination of government (PW&T) and a private waste collectors, contracted to provide waste collection services to public and government offices. Collection from private households and similar entities are conducted for a fee. Collection frequency varies from three times weekly for Colonia, which is the main business area, to twice monthly for other areas.
Chuuk	Department of Transportation, Communication & Public Works is mandated to provide waste collection services at least two times a week. Horn Collection and public bins serve as collection disposal delivery system and sites. Horn Collection is serviced in Mwan, Nepukos, and Neauo. Implementing a collection system for the other villages is being proposed.

Disposal

The methods of waste disposal in FSM vary from state to state and ranges from open dumps to semi-aerobic Fukuoka Landfill. The main waste disposal facilities in each state are shown in Table 11. Many of the existing dumpsites are almost full, and development of sanitary disposal sites have been proposed.

Land acquisition is a major problem, especially in states where there is very little public or government-owned land available, and there is often a lack of land use plans which take into account the need for landfills. Furthermore, there are often no landfill management plans, monitoring capacity or equipment, as well as supporting funds for operation and maintenance.

[18]Table 11: Location and characteristics of disposal facilities in FSM

State	Disposal Facilities (location and characteristics)
Pohnpei	• Only 1 official open dumpsite exists for the main island and it is located in Dekehtik in a mangrove swamp close to the Pohnpei International Airport with negative environmental impacts on surrounding area. A rehabilitation pilot project took place at the Dekehtik dumpsite for a demonstration of construction of a semi aerobic landfill. To date, the Dekehtik dumpsite has promoted a new "facelift." • A proposal is being considered to develop a new semi-aerobic landfill site in Palikir.
Kosrae	• Semi-aerobic Landfill with plastic liner was constructed in Tofol with assistance from the Embassy of Japan • Designated Open dumpsites in other municipalities • Community visits for Solid Waste Management Project
Yap	• One public site (open dumpsite) located close to Colonia Town servicing Colonia area and surrounding areas. Compaction and cover soil when possible; primary issues include leachate runoff, burning of waste, and segregation. Rehabilitation of current site is being focused on to expand use. Several smaller, municipal dump sites/areas have been established by rural communities. Semi-aerobic landfill in Rull has been completed and is currently open to the public.
Chuuk	• There is one open dumpsite located at Neauo village on Weno Island about 100 km from the town center. Additional funding is provided to maintain the open dumpsite, while a new landfill site has been identified.

[18] Yap SWM Plan, Chuuk SWM Plan, Pohnpei SWM Plan, and Kosrae SWM Plan

Where do we want to be?

Waste Minimization (Reduce, Reuse, Recycle, Redirect, and Redesign)

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

Collection

- Cost-effective solid waste collection and transportation services serving 80% of the population in all State centers
- 50% of solid waste collection and transportation services privately managed
- Hazardous [or difficult] waste (waste oil, batteries, etc.) collection services or centers established in at least one State
- Collaboration among states to create a mode of transport for collection of difficult waste

Disposal

- Safe solid waste disposal sites designated, established and serving at least 75% of the population in the four State center islands (Yap proper, Weno, Pohnpei, Kosrae)
- 50% of the remaining areas of the country (other than the 4 State center islands) improve or establish and properly manage a designated waste disposal site
- Private entities (community, company, etc) will manage 50% of waste disposal sites
- All abandoned vehicles removed from public areas and safely disposed of (including use as artificial reefs) in all States

How will we get there?

Action	Lead Agency	Time Frame
MINIMIZATION (Reduce, Reuse, Recycle, Redirect, and Redesign)		
15. Collect baseline data on waste generation	OEEM/EPA/KIRMA	On-going
16. Divert and isolate green waste from landfill by encouraging mulching or composting, first at source, and then at the landfill	OEEM/EPA,KIRMA	On-going
17. 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)	OEEM/EPA,KIRMA	On-going
18. Identify and target potential sources of funding support for recycling programs (e.g., FSM Infrastructure Sector funds, and external donors)	OEEM/EPA,KIRMA	On-going
19. Improve and enhance current recycling programs	OEEM/EPA,KIRMA	On-going
20. Develop long-term contractual arrangements with the private	OEEM/EPA/KIRMA/State	On-going

Action	Lead Agency	Time Frame
sector, which will encourage private sector investment in long-term infrastructure	DT&I	
WASTE COLLECTION		
21. Improve waste collection services and private sector engagement, by contracting out to the private sector	OEEM/EPA/KIRMA/DT&I	On-going
22. Examine an equitable user pay system for waste collection as a pilot project considering ability and willingness to pay	OEEM/EPA/KIRMA/DT&I	On-going
23. Implement collection service for bulky waste	OEEM/EPA/KIRMA/DT&I	On-going
24. Introduce hazardous waste collection services into atolls	OEEM/EPA/KIRMA/DT&I	On-going
WASTE DISPOSAL		
25. Implement a vehicle removal project to clean public areas of abandoned vehicles	OEEM/EPA/KIRMA/DT&I	FY 2014
26. Provide oil tanks at dumpsites as storage for waste oil	OEEM/EPA/KIRMA	FY 2014
27. Improve dumpsite location by building a dumpsite warehouse where people will bring their waste to designated bins for bulky waste, medical waste, green waste, waste oil, etc.	OEEM/EPA/KIRMA	FY 2014
28. Develop and implement landfill plans	OEEM/EPA/KIRMA/DT&I	Ongoing for state of Pohnpei and Chuuk

3.2.2 MEDICAL WASTE MANAGEMENT

Where are we now?

Responsibility for medical waste management at the national level is shared between the Division of Health Services in the Department of Health and Social Affairs (DHSA) and the Office of Environment and Emergency Management. Recently, FSM became part of the EU funded and SPREP implemented PACWASTE project through which assistance to manage health care waste, asbestos, and e-waste will be rendered.

Where do we want to be?

- Cost-effective systems for treatment and final disposal of medical wastes which complies with applicable standards (WHO, or others), and obligations under international conventions such as the Stockholm Convention
- Trained operators in place to operate medical waste systems

How will we get there?

Action	Lead Agency	Time Frame
29. Develop a national medical waste management strategy, which may be a	OEEM/EPA/KIRMA	FY 2016

stand-alone strategy, or which may be ultimately incorporated as an element in the national waste management strategy		

3.3 STRATEGIC OBJECTIVE 3

Teach, train, and educate the population to facilitate efficient implementation of systems and programs and enable compliance with these systems and programs.

3.3.1 CAPACITY BUILDING

Where are we now?

Through recent partnerships with JICA and SPREP, FSM has enhanced its capacity building needs through short term trainings in Waste Management and Landfill Techniques. However, current educational scholarships and programs do not prioritize SWM and are limited in their ability to develop future capacity. Consequently, training in general areas such as financial management, project management, proposal development, legal expertise, environmental management, and data analysis are needed

Where do we want to be?

- Increase technical capacity of State government and non-government environmental organizations staff to deal with solid waste management issues (e.g. through attachments, fellowships, etc)
- Government and non-government organizations throughout the country will be linked together in strong networks and actively sharing best practices/ successes, lessons learned, and opportunities for assistance
- Enhance current, existing capacity through clarification of roles, trainings, certifications, incentive award programs, etc
- Develop future capacity through supporting educational programs
- Engage at least 2 traditional and/or church leaders in each state for SWM issues
- Collaborate with J-PRISM to coordinate SWM trainings among states

How will we get there?

Action	Lead Agency	Time Frame
30. Assess capacity gaps for solid waste management in FSM against regional benchmarks. Assessment of the capacity constraints, their root causes, and options for addressing the constraints is an essential component to avoid wastage of scarce financial resources. The results of this assessment should help to determine national training priorities.	OEEM	Quarterly
31. Implement capacity building programmes, to address capacity gaps. These programmes should promote research and scientific analysis, mainstream capacity building into national plans, and recognize that awareness is a tool for building capacity, and should therefore use cultural practices, and various tools and media for information, education, and communication. They should also include: - Specific educational scholarships and programs for environment	OEEM	Annually

and SWM - Enhanced incentive award programs for existing capacity - Learning exchange opportunities between States for SWM personnel - Capacity development at the institutional level - Technical on-the-job training, and short-courses for SWM		
32. Develop a waste management network in FSM (e.g. through email listserv, online discussion forum, database, etc)	OEEM	On-going
33. National government to develop and implement comprehensive training program in partnership with US Government agencies, JICA, and SPREP	OEEM	On-going
34. Offer at least two internships in State waste management agencies to FSM students at the College of Micronesia or studying abroad	OEEM/EPA,KIRMA,, DT&I	On-going

3.3.2 AWARENESS

Where are we now?

Some waste education and awareness initiatives have been undertaken in the various states. Waste awareness messages are often delivered to the public in various forms in FSM, such as posters, signs, newsletters, banners, leaflets, audio-visual materials (DVDs), radio programs, school visits, and community meetings. The table below shows the work that has been done in each state to raise the level of awareness and education to the public.

Table 12: Waste education and awareness activities in FSM

State	Education/Awareness Activities on Waste
Kosrae	• School visits to dump site for solid waste education • Annual *Cleanup the World* Campaign (local Cleanup efforts on urban and residential areas) • Annual underwater and coastal areas cleanup for two municipalities. • Vital ecosystems cleanup (mangrove, swamps, watershed, etc…) • Proposed compost kit developed and distributed freely :4 R's campaign which includes CD and booklet
Yap	• General waste education and clean-up activities are intermittent. Waste Literature and activities published; 16 Recyclable material type trash bins have been distributed to 8 private schools; 24 to 12 Public Schools; 14 to 7 Government Agencies, and 2 to College (COM Yap Campus) in Yap proper with signs (Aluminum/Plastic Bottles), and 4 plastic ones to Yap Air Port. Awareness posters have been distributed to 12 public schools; 4 private schools; 1 college (COM Yap Campus); 7 government agencies, and Yap Recycling Center.
Pohnpei	• Awareness campaign (clean up) 4 times a year • Environmental Club activities with target group of 7th and 8th public elementary school students
Chuuk	• Monthly clean-up campaign with village communities, schools and youth groups/NGO

Stakeholders consulted also indicated that there was often very little communication among the various stakeholders, not enough budget assigned to waste awareness programs, limited human resources (in some cases only volunteers were available), and limited equipment to facilitate awareness programs.

Where do we want to be?

- Ongoing waste management and reduction campaigns conducted in all States
- Resource management and environmental studies are integrated into all levels of the nation's education curricula
- Sharing and transfer of environmental information between government, private sector, communities and NGOs through website or online discussion groups
- To have a public which disposes of its waste properly
- Improved mode of communication between all stakeholders

How will we get there?

Action	Lead Agency	Time Frame
35. Integrate environmental education into school curriculums	OEEM/EPA/KIRMA	On-going
36. Develop a specific communication plan for informing politicians, judiciary, policy makers to increase awareness of SWM	OEEM/EPA/KIRMA	FY 2012-ongoing
37. Develop a communication strategy for SWM which will identify and use the best communication methods and tools (e.g. contests, posters, ads, community groups, community meetings, etc) to achieve the SWM strategic objectives (i.e., Integrated Waste Management, Capacity Building, Public/political support	OEEM	FY 2012-ongoing

3.4 MEASURING PROGRESS

Measuring the implementation success of this strategy should be based on national key performance indicators such as the amount of waste generated, amount of waste diverted from landfill (reused, recycled, or composted), number of dumpsites and landfills, level of illegal dumping and littering, and number of people qualified in certain areas of waste management, etc. Since baseline data in these indicative areas and the mechanism to enable this information to be collected are limited, one of the goals of this strategy is to set in place an overarching waste committee.[19] The waste committee will be responsible for the review and monitoring of the action plans under each area. The committee will be composed of identified leading and supporting agencies that will review the progress of work under each area over a six month . If there should be any concern regarding the work implemented before the six months period by anyone outside the committee, it should be noted in writing to the committee. The Office of Environment and Emergency Management will be the secretariat to the committee. A review of the entire document will be carried out out every two years during the Environment Conference.

[19] Waste Committee will be under OEEM and will be responsible for monitoring and reporting as outlined in Appendix 3.

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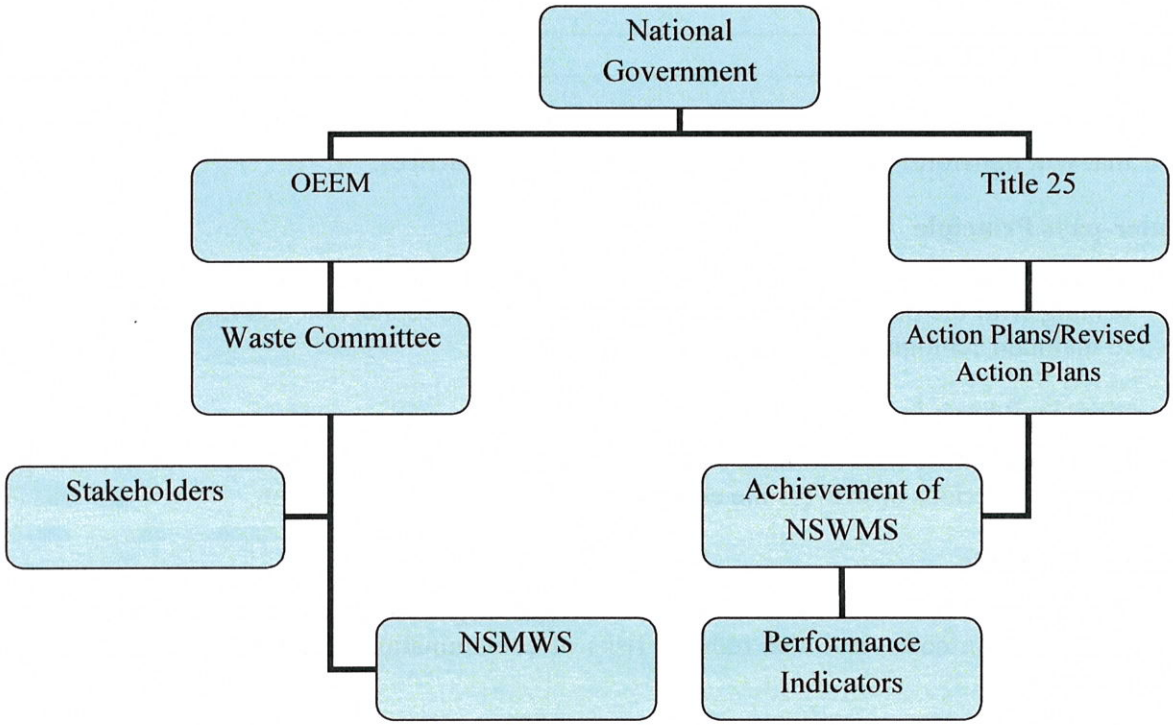
Appendix I – High-level Implementation Plan

ACTION	LEAD AGENCY	TIME FRAME
1. Identify full/partial funding sources with seed funding from State/National Governments	OEEM/EPA/KIRMA	ON-GOING
2. Identify and target potential sources of funding support for recycling programs	OEEM/EPA/KIRMA	ON-GOING
3. Assess capacity gaps for SWM in FSM against regional benchmarks	OEEM/EPA/KIRMA	ON-GOING
4. Implement capacity building programs to address capacity gaps	OEEM/EPA/KIRMA	ON-GOING
5. Develop a waste management network in FSM	OEEM/EPA/KIRMA	Established
6. Develop and implement comprehensive training program	OEEM/EPA/KIRMA	ON-GOING
7. Develop a specific communication plan for informing politicians, judiciary, policy makers to increase awareness of SWM	OEEM/EPA/KIRMA	ON-GOING
8. Develop a communication strategy for SWM	OEEM	ON-GOING

Appendix II – NSWMS Monitoring/Reporting Form

ACTIONS (as listed in the Strategy)	DESCRIBE PROGRESS	DATE OF PROGRESS
Review existing legislation and institutional arrangements for solid & hazardous waste management	EPA developed the terms of reference for a legislative review of solid and hazardous waste and hired a consultant. The consultant's report is expected at the end of 2010	Dec 2009
Examine an equitable user pay system for waste collection as a pilot project	Baseline survey was completed in order to prepare for this pilot project. The Baseline survey looked at the socio-economic conditions of the residents in the pilot area and conducted a survey of residents' willingness and ability to pay for waste collection service. The results of this survey are available at OEEM office	Nov 2009

Appendix III: Diagram of Institutional Monitoring Framework in FSM



*Waste Committee include EPA/KIRMA and T&I/PW -responsible for the monitoring of SWM activities in general.

Appendix IV : SWM Guiding Principles

GUIDING PRINCIPLES

The following guiding principles are used as the foundation on which to build the actions that will transform current solid waste management practices.

Polluter-pays Principle

Those responsible for causing pollution or generating solid waste should pay the cost for dealing with the pollution, or managing the solid waste (collection and disposal) in order to maintain ecological health and diversity.

Precautionary Principle

Lack of scientific data/information certainty should not be used as a reason for not acting to prevent serious or irreversible environmental damage or degradation.

Proximity Principle

Waste should be dealt with as close to the source of generation as possible. This reduces transportation costs, and also reduces risks of contamination of the environment during transport.

Consultation Principle

All levels of Government should consult and work with people and organizations throughout the development and implementation of waste management strategies and action plans.

Waste Hierarchy

The Waste Hierarchy is a strategic tool which prioritizes actions for SWM. The general hierarchical model is based on 3R model consisting of Reduce, Reuse, and Recycle. However, two R's have been added: Redirect and Redesign.

Appendix V: Waste Glossary

The following definitions are solely for the purpose of this strategy.

Biodegradable: Capable of decomposing rapidly by microorganisms under natural conditions Most organic materials, such as food scraps and paper are biodegradable

Commercial Waste: Solid waste generated from business, sports, or trading activities.

Composting: The controlled biological degradation of organic waste.

Decompose: Break down or rot to a natural state.

Difficult Waste: Waste which require special disposal because of particular hazards such as asbestos, car bodies, tires, disposable diapers, non recyclable plastics, low grade scrap metal, and domestic white goods.

Disposable: Able to be thrown away usually after one use. Examples of disposal items include plastic bags, paper plates, and soft drink containers.

E-waste: Discarded electronic appliances such as computers, televisions, and mobile phones.

Green Waste: Organic waste (anything growing) originating from the garden.

Hazardous waste: Substances or industrial by products that are potentially damaging to the environment and human health.

Industrial Waste: Waste produced from activities occurring in factories, mills, and mines.

Institutional Waste: General Solid Waste produced by public buildings, government offices, schools, and colleges.

Integrated Solid Waste Management: A collection of activities implemented to manage solid waste that includes waste avoidance (refuse), reduction at source, reuse, recycling, waste collection, waste treatment, and sanitary disposal.

Landfill: A waste disposal site for depositing waste onto or into land (i.e. underground).

Leachate: Liquid that has seeped through solid waste in a landfill and has picked up soluble dissolved or suspended materials in the process.

Medical Waste: Any solid waste generated during medical diagnosis or human treatment that can potentially cause infection. Other terms used for medical waste include health waste and clinical waste.

Natural resources: Minerals, metals, forests, lakes, rivers, oceans, sunshine and other elements naturally found on Earth. These elements can be used as a resource by man for manufacturing and production.

Non-biodegradable: Not able to break down or rot quickly e.g. plastic.

Organic: Living or once living material; compounds containing carbon formed by living organisms such as human and animal sources

Ozone layer: Ozone (O_3) is a gas that occurs naturally in the atmosphere (and is also produced by chemical reactions of gases produced by human activity). The Ozone layer is a concentration of Ozone gas found 10-50 kilometers above the earth's surface. The Ozone layer deflects ultraviolet radiation, which is harmful to life.

Recycling: Process of extracting raw materials from waste.

Reduce: To cut back or decrease. Reducing waste means to not create waste in the first place by avoiding it.

Reuse: The process of using an item more than once as an alternative or for its intended use.

Scrap Metal: Discarded metal for reprocessing.

Solid Waste: Any waste which is solid or hard. Not liquid waste.

Sustainable: Can be continued or maintained in the long term. Sustainable development means using the environment and its resources at a rate that does not exceed their capacity for renewal and ensures they are available for future generations. Management of natural resources in a way, which ensures that the benefits are also available in the future.

Used Oil: Any oil that has been refined from crude oil; or any synthetic oil that has been used and has been contaminated with physical and chemical impurities.

Waste: Anything left over, or excess material which is not wanted. An item which has been used and is no longer needed or of use