FINAL DRAFT

SECRETARIAT OF THE PACIFIC REGIONAL ENVIRONMENT PROGRAMME

STRATEGY FOR SOLID WASTE MANAGEMENT IN PACIFIC ISLAND COUNTRIES AND TERRITORIES

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Acronyms

AFD	L'Agence Française de Développement
AS	American Samoa
CA	Coordinating Agency for solid waste management
CDL	Container deposit legislation
CDM	Clean development mechanisms
CNMI	Commonwealth of the Northern Mariana Islands
EA	Education and awareness
EEZ	Exclusive Economic Zone
EfW	Energy from waste
EIA	Environmental impact assessment
FSM	Federated States of Micronesia
JICA	Japan International Cooperation Agency
MA	Monitoring Agency for solid waste management
MCSF	Micronesian Centre for Sustainable Future
MDG	Millennium Development Goals
MEA	Multilateral Environmental Agreements
NIMBY	Not in my backyard
MNRE	Ministry of Natural Resources and the Environment (Samoa)
MOFA	Ministry of Foreign Affairs, Japan
NSWMS	National solid waste management strategy
PACER	Pacific Agreement on Closer Economic Relations
PCCR	Pacific Climate Change Roundtable
PICs	Pacific Island Countries
PICTs	Pacific Island Countries and Territories
PIFS	Pacific Island Forum Secretariat
PIRRIC	Pacific Islands Regional Recycling Initiative Committee
RMI	Republic of the Marshall Islands
RS2005	Pacific Regional Solid Waste Management Strategy 2005
SOPAC	South Pacific Applied Geoscience Commission
SPARTECA	South Pacific Trade and Economic Co-operation Agreement
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
SWM	Solid waste management
SWMPOR	Solid Waste Management Project in Oceania Region
WHO	World Health Organization

Foreword

Since the publication of the first Pacific Regional Solid Waste Management Strategy in 2005, the region has made progress in the way it manages waste. From the endorsement of national solid waste management strategies and plans, and enactment of legislation and regulations, to the establishment of sanitary landfills, closure of dumpsites, and improvement of waste collection systems, countries have shown how success can be achieved with a little hard work, determination, and most crucially, with political support.

Despite this progress, solid waste management continues to be a high priority work area for our precious Pacific Islands and for SPREP. Each country needs to move towards a system of solid waste management that can be self-sustained without reliance on external aid. Given the limited resources in many countries, the geographical constraints and isolation, this self-sustaining system should be based primarily on the sound principles of waste avoidance and minimization. In the same way that we strive to reduce our carbon footprint to reduce our contribution to climate change, we must reduce our 'waste footprint' to avoid being overwhelmed by waste.

Waste avoidance and minimization is an integral component of Integrated Solid Waste Management, which is a prominent feature in this strategy. We can no longer afford to look at the components of solid waste management in isolation, we must address minimization, recycling, and reuse in concert with waste collection and disposal of residual waste, in an integrated approach. Development of the appropriate framework within which the integrated approach functions, is also critical, and should include the development of appropriate policies, strategies, and legislation, and an appropriate level of awareness and human capacity. This strategy addresses these components.

The solid waste management problem is particularly magnified in the atoll countries and islands in the region. Within these coral-based, low-lying islands, waste avoidance, minimization and recycling activities are more critical because the land space just isn't available or suitable for managing large amounts of residual waste. Furthermore, the dependence of the people on their environment for sustenance means that these areas cannot afford the pollution associated with poor waste management.

In revising the strategy, we have consulted widely with our members and the result is a strategy, not just for SPREP, but for our member Governments, and the island communities. We are grateful for the generous support and partnership of JICA for the review of the strategy, and we are especially encouraged by the renewed commitment of the Government of Japan to solid waste management in the region for 2010-2015, as announced at the Pacific Islands Leaders Meeting in Hokkaido, Japan in May 2009.

The challenge going forward for the next 5 years is in replicating the incremental success of some countries, finding unique solutions to waste management in atolls, increasing donor involvement in the region in a coordinated approach to give us a jump start, and increasing the self-reliance of the Pacific Island Countries and Territories for solid waste management. To overcome these challenges, we rely on the commitment and support of each member Government to implementing the strategy in order to continue to improve the state of solid waste management in the region.

In this spirit of mutual cooperation, I am pleased to present to you our Pacific Regional Solid Waste Management Strategy 2010-2015.

David Sheppard
Director
SPREP

Executive Summary

This is the Pacific Islands region's Strategy for solid waste management, setting the strategic direction for the period 2010-2015. It is supported by a high-level implementation plan which sets out the key actions that will be taken to deliver the vision of the strategy.

This Regional Solid Waste Management Strategy, 2010-2015 provides a framework within which to achieve the vision of "*A healthy and a socially, economically and environmentally sustainable Pacific for future generations*", and the overall goal 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 has been developed in consultation with key stakeholders through a series of sub-regional workshops. It represents a renewed and updated vision of the Regional Solid Waste Management Strategy 2005 (RS2005), taking into account emerging challenges and opportunities, and progress achieved under RS2005.

The first chapter – The Regional Solid Waste Management Strategy, 2010-2015 – sets out the broad intentions of the strategy and the context within which it operates.

The second chapter – Background – provides some basic background information on PICTs and the development of the original strategy RS2005.

Chapter three – Waste Management in the Pacific – outlines some of the success stories for waste management in the region, achieved under RS2005, and also summarizes the implementation progress of RS2005. It also highlights some of the key challenges, issues, and opportunities for waste management in the region. It concludes with a summary of the nine key strategic areas for action, and a basic framework for measuring progress.

The next nine chapters focus on the key strategic areas for action in order to achieve the Strategy's goals. Each chapter summarizes the desired outcome, the current conditions, and the strategic goals, and also proposes a high-level implementation plan with specific actions, timeframe and lead actors. The specific strategic areas are:

- Economic and Financial Issues
- Integrated Waste Management, covering the 4Rs (refuse, reduce, reuse, recycle), collection and disposal
- Legislation
- Awareness, Communication and Education
- Capacity Building
- Environmental Monitoring
- Policy, Planning and Performance
- Solid Waste Industry which covers the
- Medical Waste

The strategy identifies forty-one high-level actions for implementation under the nine broad areas above. Implementation of the strategy at the regional level will be coordinated by SPREP, while at the national level, commitments will be undertaken by the Coordinating Agency for waste management in each country.

Initial priorities for implementation within the strategy period have been identified through the consultation workshops and the top 5 priorities are (1) Economic and Financial issues; (2) Integrated Solid Waste Management; (3) Legislation; (4) Awareness, Communication, and Education; and (5) Capacity Building.

1.0 The Regional Solid Waste Management Strategy, 2010-2015

1.1 Vision

"A healthy and a socially, economically and environmentally sustainable Pacific for future generations"

1.2 Overall Goal and Objectives

The overall goal for the Regional Solid Waste Management Strategy, 2010-2015 is 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 specific goals of this strategy are to:

- Adopt measures to support financially sustainable solid waste management programmes
- Adopt an integrated approach which includes strategies for avoiding and reducing waste generation, waste reuse, recycling, composting, disposal, and waste collection
- Adopt appropriate legislation which are practical, effective, and culturally-sensitive
- Develop culturally-sensitive communication strategies to support SWM activities
- Enhance the capacity of the people and institutions in PICTs to manage solid waste
- Establish policy, planning and monitoring systems that will ensure the development, implementation, and monitoring of solid waste management policies and strategies
- Develop environmental monitoring programs to protect the environment
- Adopt strategies for effective and compliant management of medical waste

1.3 Scope and Coverage

This regional strategy covers the following waste types:

- domestic, commercial, institutional, and industrial solid waste
- medical wastes from public institutions such as hospitals and health care clinics
- special and difficult wastes such as scrap metal, asbestos, mining, and disaster waste

It does not address the management of:

- municipal wastewater and other liquid wastes, which are being targeted through regional initiatives such as the Pacific Wastewater Framework for Action (SOPAC, 2001)
- chemical wastes, which are addressed through national initiatives

The implementation of this strategy will cover all SPREP members as shown in Table 1. The non-island members identified will play a vital role through support for activities undertaken by SPREP and the PICTs.

Table 1: Members of SPREP

Pacific Island Countries	Pacific Island Territories	Non-Island Members
Cook Islands	American Samoa (USA)	Australia
Fiji	Northern Mariana Islands (USA)	France
Kiribati	French Polynesia (France)	New Zealand
Marshall Islands	Guam (USA)	United States of America (USA)
Federated States of Micronesia	New Caledonia (France)	
Nauru	Pitcairn Islands (United Kingdom)	
Niue	Tokelau Islands (New Zealand)	
Palau	Wallis & Futuna (France)	
Papua New Guinea		
Samoa		
Solomon Islands		
Tonga		
Tuvalu		
Vanuatu		

1.4 Guiding Principles

Implementation of the RSWM strategy will be guided by the following principles and approaches:

- Active involvement, education, and communication with all stakeholders through a comprehensive, consultative and participatory approach to influence behaviour change
- Personal and corporate responsibility, including the user/polluter pays approach, the extended producer responsibility principle and appropriate economic incentives
- Sustainable approach to integrated waste management
- Holistic and precautionary approach, mindful of future demographic trends and technological advances

2.0 Background

2.1 The Pacific Region

The Pacific islands region is as large as it is diverse. Its 22 countries and territories are spread over an area of 30 million square kilometers—almost a sixth of the earth's surface and three times larger than either the USA or China. Only two percent of this area consists of land mass taking the form of about 7,500 islands, 500 of which are inhabited. The geography of these islands varies greatly and can range from large volcanic landforms with steep and mountainous terrain to low-lying, coral-based atolls. A map of the region is shown in Appendix II.

The Pacific island countries and territories (PICTs) are generally classified into three sub-regions, namely, Melanesia (west), Polynesia (southeast) and Micronesia (north), based on their ethnic, linguistic and cultural differences. Across these three sub-regions, the sizes, populations, economic prospects, natural resources, and political systems can vary widely. Some of these characteristics are captured in Table 2.

Table 2: Geographic and population information for PICTs

	Country or Territory	*EEZ (km^2)* ***(SOPAC, 2009)***	*Land Area (km^2)* ***(SPC, 2008)***	*Population* ***(SPC, 2008)***	*Population Density (people/km^2)* ***(SPC, 2008)***	*Annual Growth Rate (%)* ***(SPC, 2008)***
Melanesia	Fiji	1,290,000	18,272	837,271	46	0.6
	New Caledonia (FT)	1,230,891	18,576	246,614	13	1.7
	Papua New Guinea	3,100,000	462,840	6,473,910	14	2.2
	Solomon Islands	1,340,000	28,370	517,455	18	2.7
	Vanuatu	680,000	12,190	233,026	19	2.6
Micronesia	Federated States of Micronesia (CFA)	2,978,000	701	110,443	158	0.4
	Guam (AT)	218,000	541	178,980	331	2.8
	Kiribati	3,550,000	811	97,231	120	1.8
	Marshall (CFA)	2,131,000	181	53,236	294	1.0
	Nauru	310,000	21	10,163	484	2.3
	Northern Mariana Islands (AT)	777,000	457	62,969	138	-1.7
	Republic of Palau (CFA)	629,000	444	20,279	46	0.6
Polynesia	American Samoa (AT)	434,700	199	66,107	332	1.6
	Cook Islands	1,830,000	237	15,537	66	0.4
	French Polynesia (FT)	5,030,000	3,521	263,367	75	1.2
	Niue	390,000	259	1,549	6	-2.4
	Pitcairn*(T)	800,000	5	66	15	-
	Samoa	120,000	2,935	179,645	61	0.1
	Tokelau (NZT)	290,000	12	1,170	98	0.0
	Tonga	700,000	650	102,724	158	0.4
	Tuvalu	900,000	26	9,729	374	0.3
	Wallis and Futuna (FT)	242,700	142	15,472	109	0.7
	TOTALS	28,971,291	551,390	9,496,943	-	-

* Not a SPREP Member
AT = American Territory
CFA = Compact of Free Association with USA
FT = French Territory
NZT = New Zealand Territory

2.2 The 2005 Pacific Regional Solid Waste Management Strategy

The development of the first Pacific Regional Solid Waste Management Strategy (RS2005) was coordinated by SPREP in collaboration with the Pacific Island Forum Secretariat (PIFS) and the Ministry of Foreign Affairs (MOFA), and endorsed by SPREP members on 15 September 2005. RS2005 has been the regional guiding document for waste management in the Pacific Islands. This document represents the mid-term review of RS2005, which was also undertaken with the financial assistance and partnership of JICA.

One of the significant differences between this strategy and RS2005, is the inclusion of the concept of integrated solid waste management. This integrated approach advocates a holistic consideration of waste management, encompassing 4R activities (refuse, reduce, reuse, recycle), along with appropriate waste collection and disposal.

Why integrated waste management? As recent experience in Samoa has shown (see Box 1), it is important to use a holistic approach that not only looks at disposal, but also considers options for reducing the amount of waste that needs to be disposed. This strategy therefore considers the 4Rs, disposal, and collection collectively as one priority issue under the banner of Integrated Waste Management. Within this priority, the 4Rs, waste disposal, and waste collection are analyzed separately.

Box 1: Focus on waste disposal in Samoa – the upgraded Tafaigata Landfill

In December 2005, Samoa, with the assistance of JICA completed the transformation of the Tafaigata dumpsite into a semi-aerobic landfill utilizing the Fukuoka method. The project was implemented at a cost of US$400,000 and included a facility for treating leachate. The landfill structure consisted of five waste cells, each having a projected lifetime of 4 years. However, a few years into the operation of the landfill, it became clear that more wastes were being received than had been projected, with the result that the life of each cell was reduced to about 2 years.

Tafaigata Landfill in Samoa

The reasons for the increase in the waste generated might include improvements in the collection service and better awareness of the public, which meant that more people used the service and therefore more waste was collected, or changes in lifestyles that resulted in the use of more disposal products.

Whatever the reasons, it is clear that focusing on disposal alone (by improving the landfill) only solved a part of the problem, and as a result, the landfill will require expansion far sooner than was originally planned. An integrated waste management approach would have included components to look at source reduction, composting, and recycling. As a result of the lessons learnt on this project, an integrated waste management approach is being piloted in Lautoka City and Nadi Town in Fiji, with the assistance of JICA.

3.0 Waste Management in the Pacific

3.1 The Challenges

Poor waste management is a major threat to sustainable development in PICTs, since the lack of proper management has negative and serious consequences for a number of developmental areas such as health care, environmental quality, water resources, fisheries, agriculture, tourism, trade, and food security, to name a few. The threat arising from poor solid waste management is made worse due to:

- increases in waste generation caused by economic and population growth
- limited availability of suitable land on small islands and atolls for landfills—exacerbated by customary land tenures, and NIMBY attitudes
- remoteness of many PICTs resulting in high costs for consumables for waste management (e.g. spare parts, fuel, monitoring supplies) that must be imported
- small and sometimes sparse populations which limit any potential economies of scale
- limited institutional, and human resources capacity, and the fact that solid waste financing has not kept pace with growth in waste quantities

Political support for waste management can make or break a successful waste management programme, and in the Pacific region, the level of support can vary widely. In many cases, political support is provided in reaction to pressure from the electorate, NGOs, communities, commercial enterprises, etc, rather than from the preferred trigger mechanisms of environment protection, and economic considerations.

The scale of household waste generation in several urban centers in the Pacific is reflected in Table 3, with the average regional composition shown in Figure 1. This data shows that in most cases, the largest percentage of waste is biodegradable in nature, which suggests that composting or other treatments for biodegradable waste would have a significant impact in reducing the amount of waste entering landfills. There are also notable quantities of paper, plastic, metals, and glass, which imply that recycling operations for these wastes may be viable. Separation at source would be important for these recyclables in order to prevent cross-contamination from organic waste and other non-recyclables.

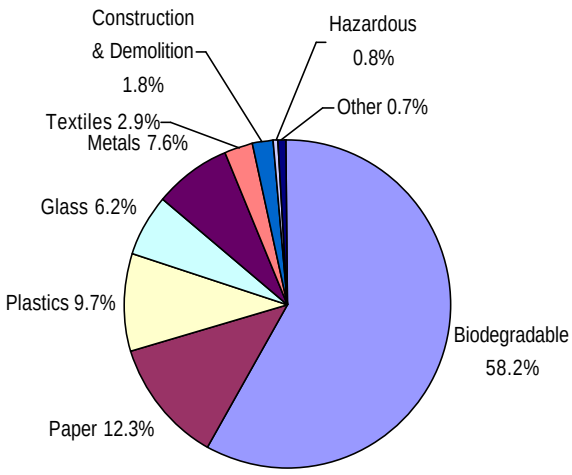

Figure 1: Regional waste composition (Raj, 2000)

Table 3: Waste Composition in PICTs

Pacific Island Country or Territory (Urban Center)	Weight of waste component (wt%)													
	Kitchen waste	Yard waste (grass, leaves, wood)	Paper	Plastics (films)	Plastics (PET, etc)	Glass/Ceramics	Metals (tin & aluminum)	Textiles	Nappies	Construction & Demolition	Potentially Hazardous	Other	Bulk density (kg/cubic meter)	Generation Rate (kg/capital/day)
Cook Islands (Rarotonga) [1]	19.0	0.9	0.6	7.0	15.1	23.5	33.5	0.3	-	-	-	-	-	0.57
Fiji (Lautoka) [2]	33.7	37.3	11.2	5.8	1.3	3.8	1.6	1.3				3.6	-	0.46
Fiji (Nadi Town) [2]	33.4	41.8	11.6	4.4	2.0	3.6	1.2	0.8				1.2	-	0.42
Kiribati (South Tarawa) [3]	51.3		7.0	7.2		13.6	9.4	3.0	0	7.7	0.8	0	130	0.33
Niue [4]	54.3		14.7	6.9		1.6	8.1	-	6.5	-	-	8.0	-	0.36
Palau (Koror State) [2]	7.0	1.0	22.0	48.0		2.0	13.0	2.0	-	-	-	5.0	85	0.25
PNG (Port Moresby) [3]	50.4		11.9	12.8		9.0	12.3	1.5	-	0.9	2.0	0	198	0.41
Samoa (Apia) [3]	61.0		6.1	10.6		3.5	8.4	6.1	-	0.6	1.2	2.3	120	1.10
Solomon Islands (Honiara) [3]	64.6		5.9	16.8		4.5	6.1	1.8	-	0.1	0.1	0	209	0.62
Tonga (Nuku'alofa) [3]	47.2		31.3	5.2		3.3	8.0	3.7	-	1.0	<1	0.3	159	0.82
Tuvalu (Funafuti) [3]	52.4		10.4	9.3		9.5	9.8	2.2	-	3.2	0.6	2.5	169	0.43
Vanuatu (Port Vila) [5]	21.9	7.4	15.6	18.6		18.3	10.1	0.9	-	0	0.2	7.0	-	0.53
Regional [3]	***58.2***		***12.3***		***9.7***	***6.2***	***7.6***	***2.9***		***1.8***	***0.8***	***0.7***	***164***	***0.66***

Sources:

[1] Raea, T, "Rarotonga Solid Waste Study", National Environment Service, Rarotonga, Cook Islands, 2002.
[2] Personal Communication, Esther Richards and Amano Shiro, October 2009.
[3] Raj, S.C., "Solid waste education and awareness in Pacific Island Countries", Pacific Regional Waste Awareness and Education Programme, SPREP, Apia, 2000.
[4] Wolff, G., "Niue Waste Management Plan", Government of Niue, 2000.
[5] Personal Communication, Esther Richards and Malcolm Dalesa, July 2009.

3.2 Our Successes

In spite of the challenges facing the PICTs, various initiatives have been successfully implemented to improve the management of solid waste. These success stories demonstrate the progress that can be achieved with persistence, hard work, and partnerships. Here are just a few of these stories.

Dump Transformation in Kosrae, FSM

In 2008, FSM completed a project to upgrade the Tofol dumpsite located in Kosrae State, FSM into a semi-aerobic (Fukuoka-type) landfill. With funding provided from the Embassy of Japan in Pohnpei through Grass-roots grant assistance (US$90,900) and the Kosrae State Government (US$36,100), the transformation to semi-aerobic landfill was started in February 2006 and took almost 2½ years to complete. As a result, Kosrae State has a sanitary facility to deal with the disposal of waste from four municipalities (Utwe, Malem, Lelu and Tafunsak). Similar rehabilitation works have taken place in Palau at the M-Dock site, and also in other countries.

M-dock semi-aerobic landfill site in Palau

Strategic Solid Waste Management Planning in Fiji

Under the umbrella of the JICA/SPREP/MNRE Solid Waste Management Project in Oceania Region (SWMPOR), Fiji received assistance to develop their National Solid Waste Management Strategy through a consultative workshop involving over 30 stakeholders. This took place in June 2007, and during the following months, the Department of Environment worked hard to finalize the strategy and secure Government endorsement. Fiji now has a clear strategic plan (2008-2010) for developing solid waste management in the country and they have begun implementing this strategy.

Partnerships for Recycling: RMI & Guam

RMI has joined with Guam to implement the “I-Recycle” campaign which promotes the recycling of aluminum cans in schools. Under this partnership, bins are provided to schools in Majuro, and are emptied by the *Majuro Atoll Waste Company* (MAWC). The cans collected are bailed by MAWC and transported to Guam by *Matson*, where they are stockpiled until filled containers can be transported by *Matson* to California where they are purchased by *Anheuser-Busch Recycling Corporation* (ABRC) at the US market value. The money goes to the partnership that distributes it to the schools in proportion to the amount of waste they collected. The money can be used to support any school programme. The I-Recycle programme has also spread to FSM (Pohnpei State) [I-Recycle, 2009].

Removal of legacy scrap in Cook Islands

In 2005, a tripartite arrangement of the New Zealand Government, Cook Islands Government and private sector began a long-term programme to remove the legacy of ferrous and non-ferrous metal waste from Rarotonga. The NZ funded an excavator and Hiab truck and subsidized the freight costs. The private sector provided training, and funded the purchase and operation of a guillotine and metal compactor. As a result of this on-going operation, The Cook Islands is able to remove approximately 12 containers of scrap metal annually.

3.3 Emerging Issues

Climate Change Impacts on Waste Management

Climate change is a global phenomenon with very real consequences for the Pacific Islands region. Some of the climate change impacts include sea level rise; more frequent and intense weather events such as storms, cyclones, floods and droughts; and increase in global temperature. The impact in PICTs from these changes will include water shortages, loss of marine resources and food sources, loss of agricultural production, loss of livelihoods, and increase in water-borne diseases such as cholera, typhoid, malaria and dengue. Climate change will also have impacts on the waste sector as explained below.

- ***Increased sea level rise.*** Many PICTs are low lying and small and many of the dumpsites can be found in swampy areas or along the coast. Sea level rise will result in inundation and flooding of coastal dumpsites and thus increased pollution of coastal waters by leachate. With increased sea level, solid waste containment equates to the construction of costly seawalls, which is particularly applicable to low lying atolls.
- ***Changing weather patterns.*** More intense events such as storms, cyclones, and floods can damage infrastructure and property, resulting in disaster waste which must be managed. More severe weather events can also disturb sunken World War II wrecks (of which there are over 800 in the Pacific) and increase the risk of marine pollution.

Cyclone damage in Cook Islands

Photo credit: Geoff Stoddart and the French Government

- ***Changing technology.*** Mitigation measures for climate change include a shift towards renewable sources of energy generation such as solar and hydropower. Current petrol-based generators may be decommissioned or become obsolete and will require disposal. Furthermore renewable energy technologies will have a specific operating lifetime and will eventually become a new waste stream which PICTs will have to manage.

Free Trade Agreements

Trade in goods between the PICs, Australia, and New Zealand is regulated by the 1981 South Pacific Trade and Economic Co-operation Agreement (SPARTECA). It allows most Pacific exports duty-free access to Australian and New Zealand Markets, but does not require reciprocal treatment for Australian and New Zealand products being imported into PICs. During 2009, the matter of a new free trade agreement between PICs and Australia and New Zealand was widely debated, and in June 2009, PICs trade ministers recommended to their Leaders to commence formal negotiations on a Pacific Agreement on Closer Economic Relations (PACER Plus). The recommendation was accepted.

There are implications for waste management under any free trade agreement, where taxes, tariffs, and other types of barriers cannot be imposed on imported goods:

- ***Increase in waste generation***. The removal of tariffs on imports would reduce the price and could lead to a surge in imports, which will include disposable products. This surge in disposable products will increase the waste generation and will increase the pressure on waste management resources (collection systems, landfills, etc).
- ***Lost opportunities for economic incentives***. The inability to apply tariffs, such as environmental tariffs or disposal fees, on goods being imported means that the opportunity to recover waste management costs or influence consumer behaviour might be lost. For example, a commonly used economic incentive is to increase import tax on non-desirable items, such as plastic bags, while decreasing tax on environmentally-friendly options (e.g., reusable bags). During trade negotiations, it should be argued to make an exception for advanced disposal fees and similar fees, which should be different to import tariffs.
- ***Lower environmental standards***. Increased competition brought on by free trade can put pressure on governments to lower their environmental protection standards to encourage investments. Competition can also create unsustainable practices in PICs, when local businesses cut costs in order to maintain a competitive edge; this can translate into higher levels of waste and "dirty but cheap" methods of production. Environmental standards should not be lowered and environmental protection should be a primary consideration during any trade negotiations [Nathan Associates Inc, 2007].

3.4 The Opportunities

Funding opportunities for SWM from Climate Change Sector

There are linkages between climate change and waste management which can be addressed through adaptation initiatives (e.g. 'climate-proofing' of landfills]. In terms of mitigation, landfills, dumps, and collection vehicles are sources of greenhouse gases (methane and carbon dioxide), and the usual practice of open burning of wastes also produces unintentional POPs. Although the overall contribution of the Pacific to global greenhouse gas emissions is small [SPREP, 2006], there is still an opportunity to implement mitigation initiatives by looking at the treatment and disposal of solid waste. Given the global attention to, and financing of climate change mitigation and adaptation initiatives, there is a good opportunity for solid waste management to be included because of the linkages already explained.

Regional Mechanisms

- **Pacific Islands Regional Recycling Initiative Committee (PIRRIC)**. This is a cooperative environmental agreement involving the Western Micronesian Pacific Islands (CNMI, Guam, FSM, Palau, and RMI). The objectives of this committee include providing a forum for waste management, private sector collaboration, and promoting the implementation of integrated solid waste management plans. Clearly, PIRRIC is an excellent mechanism for promoting sound waste management in the Micronesia region, and it may be a suitable model to be replicated in the Polynesia and Melanesia regions. Deeper collaboration between PIRRIC and SPREP for the implementation of the regional strategy should be pursued.

- **Micronesian Center for Sustainable Future (MCSF)**. MCSF arose out of the Western Micronesian Chief Executives' Summit (WMCES) and the Presidents' Summit. It is a mechanism fully supported by Presidents and Governors from the Micronesian region and is intended to develop and "implement regional solutions to regional problems by harnessing expertise from both within Micronesia and from external parties holding a positive interest in Micronesia's future". The MCSF is still in its formative stages, but its strategic development plan provides for solid waste and environment issues through the PIRRIC and other committees. [H.R. 16-63].

Regional Projects

The European Commission is funding a 4-year, multi-million euro, capacity enhancement programme for the implementation of multilateral environmental agreements (MEAs) in African, Caribbean, and Pacific (ACP) States. The broad aim for the Pacific component, which runs from 2009 to 2012, is to support and strengthen the regional environment institution, SPREP, to assist PICs in implementing their obligations under the MEAs. Programme. Activities will include increasing national capacity through negotiation training, project design and management, streamlined reporting, and information management. This project is a good opportunity, since there are several MEAs with strong linkages to solid waste management (see Table 4).

Table 4: PIC participation in MEAs (correct as of August 27, 2009)

Multilateral Environment Agreement	Cook Islands	FSM	Fiji	Kiribati	Nauru	Niue	Palau	PNG	RMI	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu
Basel Convention	A	A		A	A	R	S	A	A	A				
London Dumping Convention 72				R	R			R	A		R	A		A
London Dumping Protocol 96									R			R		R
Marpol 73/78 Convention				A				R	R			R	R	R
Rotterdam Convention	A								A	R				
Stockholm Convention	A	R	R	R	R	R	R	R	A	R	A		A	R
Waigani Convention	R	R	R	R	S	R	S	R		R	R	R	A	R

R = Ratified S = Signed A = Acceded

Waste Disposal Technologies

Traditionally, disposal of solid waste in the PICTs was by open burning, but, within recent years, it has shifted to landfills, which are a primary concern for small island states because of limited availability of land. Although alternative technologies for waste disposal and volume reduction exist (e.g. incinerators, shredders, compactors, etc), capacity to implement these technologies is limited, and their use in the region has been very rare, with poor success rates. Due to increasing pressures on land resources, and other reasons, some PICTs are now considering energy from waste (EfW) incineration as an option for reducing the volume of waste and generating electricity. The opportunity here is that careful application of the right technology could prove to be beneficial to PICTs, provided the long-term implications for financing, operation and maintenance, and environmental and health impacts, are carefully evaluated and addressed. For PICs that are Parties to the Stockholm Convention, the choice of waste disposal technologies would have to comply with the Convention's best available technology and best environmental practices guidelines.

3.5 Progress on implementation of RS2005

Since publication of the Regional Strategy in 2005, PICTs have made some progress in their waste management programmes—as mentioned briefly in Section 3.2. The original strategy addressed eleven strategic areas and 33 actions for achieving the goal of "self-sustaining solid waste management systems". The progress in each of these areas is summarized in Table 5.

Table 5: Progress on the 2005 Regional Solid Waste Management Strategy (RS2005)

	Strategic Activity	SPREP	Am. Samoa	Cook Islands	FSM	Fiji	French Polynesia	Guam	Kiribati	RMI	Nauru	New Caledonia	CNMI	Niue	Palau	PNG	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wallis & Futuna
A1	Pacific Year of Action Against Waste	●																					
A2	Integrated communication programmes					⦿									⦿								
B1	Annual training course	●																					
B2	Training for atoll countries and territories																						
B3	Assess national capacities																						
B4	National capacity building activities																						
B5	Country attachments																						
B6	Maintain a waste information network	●																					
C1	Review of laws and regulations					●			⦿											⦿			
D1	Develop waste minimization strategies				⦿	⦿									⦿					⦿			
D2	Develop waste recycling strategies				⦿	⦿									⦿					⦿			
D3	Enhance existing recycling programmes																			⦿			
D4	Assess/demonstrate new recycling methods			⦿					⦿											⦿			
E1	Sub-regional waste forums & finalize RSWMS	●																					
E2	Establish regional coordination mechanism	●																					
E3	Establish national coordination mechanism		●	●	●	●		●	●	●			●	●	●	⦿	●	●	●	●	●		
E4	Develop a NSWMS			⦿	⦿	●			●	⦿	⦿		●	●	⦿	⦿	⦿	●	⦿	⦿	●	⦿	
E5	Develop national disaster debris plan																						
F1	Incrementally improve collection systems									⦿							●			⦿			
G1	Incrementally improve disposal sites				⦿			⦿							⦿		⦿			⦿		⦿	
G2	Develop landfills for atoll																						
G3	Develop new sanitary landfill			⦿	⦿	⦿		⦿					●		⦿					●			
G4	Closure and post-closure of disposal sites					⦿														⦿			
G5	Assess regional options for difficult wastes	⦿																					
G6	Regional clean-up of difficult wastes	⦿																		⦿			
H1	Establish planning and monitoring systems					⦿				⦿													
H2	Collect and analyze waste data					⦿			⦿						⦿					⦿			
H3	Long term planning																						
I1	Landfill/disposal site monitoring programmes			⦿																●			
J1	Establish local recycling systems					⦿			●						⦿					●			
J2	Assess and develop recycling partnerships																			⦿			
K1	Review funding requirements/mechanisms																						
K2	Assess financial mechanisms for recycling/disposal																						

● = Completed ⦿ = Started or Ongoing

3.6 Proposals for Action

Chapters 4-12 outline the key priority areas for solid waste management in the Pacific Islands Region. These priorities were developed based on the original strategy and take into account the progress that has been made since implementation of RS2005. The priorities were developed through a series of consultative workshops with PICTs members of SPREP, and through consultation with donors and other stakeholders, before being finalized by a committee comprising PICT representatives. PICTs were asked to identify three priorities which were the most urgent needs at the time of consultation, and these are shown in the table below. A high-level implementation plan (see Appendix III) is also developed, which identifies the high-level actions, timing, and lead actors (see Appendix IV) for each priority area.

Within the next 9 chapters, each priority issue has been explored by examining the current situation ("where are we now"), the desired objectives ("where do we want to be?"), and then developing a specific strategy comprising of high-level actions ("how will we get there").

Table 6: PICTs Priorities for Solid Waste Management

PRIORITIES	American Samoa	Cook Islands	FSM	Fiji	French Polynesia	Guam	Kiribati	RMI	Nauru	New Caledonia	CNMI	Niue	Palau	PNG	Samoa	Solomon Islands	Tokelau	Tonga	Tuvalu	Vanuatu	Wallis & Futuna
Economic and Financial		●	●	●			●	●					●	●	●	●		●	●		
Integrated waste management		●	●	●			●		●			●		●	●	●	●	●		●	
Legislation								●	●			●		●		●				●	
Awareness/Communication/ Education				●				●							●		●		●	●	
Capacity Building							●					●	●				●	●	●		
Environmental monitoring		●																			
Policy, Planning, & Performance									●				●								
Solid Waste Industry																					
Medical Waste																					

3.7 Measuring Our 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, number of people qualified in certain areas of waste management, etc. However, there is a lack of baseline data in many of these indicative areas, and very few mechanisms to enable this information to be collected. One of the goals of this strategy is to change this situation and implement these improvements. Until this can be done, a six-monthly monitoring form (Appendix V) will be used by PICTs to report on any initiatives taken at the national level.

4.0 Economic and Financial Issues

Outcome: Solid waste management systems and programmes in PICTs are financially self-sustaining

Where are we now?

Financial Issues

Solid waste management funding is generally required for two areas, *project implementation* as in the case of infrastructure projects like landfill or incinerator construction; and *ongoing operations* covering areas such as the collection service, education and awareness, landfill operation and maintenance, etc. However, securing adequate financial resources for waste management continues to be a significant challenge for many countries. It has been suggested that 1–2 percent of a country's GDP is required for "full solid waste services" [Cointreau and Cravioto 2005]. However, it is believed that many countries are operating well below this threshold.

There are various ongoing activities for cost recovery in some PICTs as shown in Table 7 below. Many of these initiatives do succeed in generating revenue, however, the money is typically absorbed into a general revenue fund and not necessarily used to support waste management programmes. In other countries, specifically Kiribati and Palau, proceeds from container deposit programmes are deposited into dedicated waste management accounts and used to support recycling programmes.

The reality is that many PICTs find it difficult to fund their waste management initiatives, due to budget shortfalls. As a result, governments often face the dilemma of having to impose a fee on residents when the waste management service is poor in order to generate the revenue required to improve the service; and residents are often reluctant to pay this fee for the poor service provided.

Table 7: Financing Activities in PICTs

Financing Activity	Description	Applicable PICTs
Landfill tipping fees (gate fees)	Fee for dumping waste at a landfill	Cook Islands, Fiji, Guam, Palau*, PNG, Samoa, Vanuatu,
Container deposit charge	Charged on new beverage containers. Partial refund issued when the container is returned for disposal	Cook Islands, FSM (Yap) Kiribati, Palau
Advanced disposal charge	Disposal fee charged when certain products are imported, no refunds issued	FSM (Kosrae, Yap)
Visitor levy	Charged to each visitor to the country	Cook Islands
Waste service fee	Fee charged for providing a service (e.g. waste collection)	Fiji, Kiribati, PNG, Solomon Islands, Tonga
Annual Vehicle registration fee	Waste management fee payable when renewing vehicle registration	Guam
Penalties and fines	Fine for breaking the environment or waste management laws	Fiji, Kiribati, Palau, PNG, RMI, Solomon Islands
Permitting Fees	Fees paid when applying for various waste-related permits and licenses	Fiji, Kiribati, Palau, RMI, Samoa, Solomon Islands
Council taxes	General taxes which include a component for waste management (usually waste collection)	RMI, Solomon Islands, Vanuatu

* Legislated but not enforced

Economic Issues

Solid waste also has an impact on economic development. For example, the cost of solid waste related pollution in Palau [Hajkowicz et al. 2006] has been estimated at 1.6 percent of GDP, arising from healthcare costs, vector control, loss of marine and wetland resources, and loss of tourism revenue. This assessment does not include impacts which are difficult to value, such as loss or damage to biodiversity, damage to natural or man-made assets of cultural significance, and loss of recreational amenities. A similar study in Tonga [Lal and Takau 2006], estimates a waste related pollution cost of TOP 5.6 Million (US$ 2.9 Million[1]).

In some cases (e.g. Solomon Islands), there is a good understanding of these economic impacts by high levels of government, but not at the sectoral and general public levels. In other countries (e.g. Vanuatu), the exact opposite is true. Governments that understand the wider economic impacts of solid waste pollution, typically demonstrate this through full support of solid waste management activities and good levels of funding—this is the situation reported in Fiji, and PNG.

Where do we want to be?

- To have self-sustaining waste management programmes in place, which reduces reliance on external funding (especially Government), and provide enough resources to support a full range of activities (e.g. integrated waste management, monitoring, enforcement, etc).
- People at all levels (e.g. directors, ministers, general public, and other stakeholders) to understand the wider economic implications of solid waste-related pollution
- All PICTs develop efficient processes for collection of applicable fees, to ensure that revenue is distributed to the appropriate agency for waste management.

How will we get there?

Economic and Financial Issues have been identified as high priorities by Cook Islands, FSM, Fiji, Kiribati, RMI, Palau, PNG, Samoa, Solomon Islands, Tonga, and Tuvalu

Table 8: Actions for Economic and Financial Issues

	ACTION	TIME FRAME	LEAD AGENCY
1.	**Update and disseminate regional information on the application of economic instruments** to develop self-sustaining waste management programmes.	2012	SPREP
2.	**Formulate a plan to implement appropriate economic instruments in each PIC**, based on reliable and accurate information of the costs and benefits of available economic instruments. PICs will put in place the institutional arrangements for developing and implementing the plan (e.g., it may be through a national multi-stakeholder task force or through the Coordinating Agency for waste management).	2011	CA
3.	**Use a regional approach to develop sustainable financing initiatives**. For example, regionalize the development and implementation of CDL mechanisms in partnership with UNDP	2010	SPREP

[1] Exchange rate: 1 TOP = 0.52263 USD

5.0 Integrated Waste Management

Outcome 1 - 4Rs: Reduce waste generated and landfilled through involvement of all sectors and local initiatives

Outcome 2 - Disposal: Solid waste that cannot be avoided, reused, recycled or composted are disposed of using acceptable methods that have no negative impacts on human health and the environment

Outcome 3 - Collection: Well-managed, efficient, and self-sustaining waste collection systems introduced or upgraded in PICTs

5.1 4Rs (Refuse, Reduce, Reuse, Recycle)

Outcome: Reduce waste generated and landfilled through involvement of all sectors and local initiatives

Where are we now?

Refuse refers to avoiding waste from being generated in the first place, and covers areas such as extended producer responsibility. Cook Islands have begun using this approach by examining the supply chain and identifying opportunities for waste avoidance by talking directly to manufacturers and suppliers. In 2005, PNG attempted a major waste avoidance initiative as explained in Box 2.

Box 2 : Waste Avoidance in PNG

In PNG, the government tried to ban the importation and use of all plastic bags as a waste avoidance technique. However, they were barred from doing so by a court ruling in favour of two major plastic bag manufacturers—Colorpak Ltd, and W.H. Industries Ltd. Colorpak Ltd reported that a ban on plastic bags would cause the closure of their business, job losses and argued that the proposed ban contravened investment laws and the constitution. [Red Orbit 2005].

Reduction at Source is promoted by getting people to change their behaviours and engaging in activities, such as buying less, buying in bulk, using products more efficiently, composting of organic waste, or cutting down on the purchase of disposable products. Several coordinated source reduction activities have taken place such as the SPREP/ANZ Turtle Bag Campaign in Samoa, which encouraged the use of reusable shopping bags, and similar programmes in Fiji.

Reuse activities are driven by local entrepreneurs and typically involve repairing goods (e.g., computers, televisions, radios, printer cartridges, etc) to make them usable again, or modifying items to use for a different purpose (e.g., using tyres as decorative planters; empty containers for water storage; empty bottles cut to make drinking glasses, or crushed for aggregate, etc). This informal reuse industry provides a vital service by reducing the waste that goes to landfills, but there is very little information in the region about the size of this reuse sector.

Recycling in the Pacific Islands context, refers to the collection, compaction and shipping of recyclable waste to a recycling facility that is usually located off-island (usually in Australia, New Zealand or Asia). There is a fair amount of recycling activity in PICTs as shown in Table 9. There is also a unique arrangement between the Polynesian neighbours of Tokelau and Samoa for the recycling of aluminum cans—this is summarized in Box 3.

Table 9: 4R Activities in PICTs

Recyclable waste	PICT	Markets for Recyclables
Aluminum cans	CNMI, Cook Islands, Fiji, Guam, Kiribati, Niue, Palau, PNG, RMI, Samoa, Solomon Islands, Tokelau, Tonga, Vanuatu	Australia, California-USA, New Zealand
Scrap metal (ferrous metal)	Cook Islands, Fiji, Niue, Palau, PNG, RMI, Solomon Islands, Tonga, Vanuatu	Australia, China, Hong Kong, Mauritius
Paper/cardboard	Cook Islands, Fiji, Palau, Tonga	Australia, Local, New Zealand
Glass	CNMI, Cook Islands, Palau, Tonga	Local
Plastics (includes foam)	CNMI, Cook Islands, Fiji, RMI, Samoa, Tonga	Australia
Lead-acid batteries	CNMI, Cook Islands, Fiji, Kiribati, Niue, Palau, PNG, RMI, Samoa, Tonga, Vanuatu	Australia, China, New Zealand
Used oil	CNMI, Cook Islands, Fiji, Palau, Tonga, Vanuatu	Fiji, Indonesia, Nauru, New Zealand, Philippines
Tyres	CNMI, Fiji, PNG, Tonga	Indonesia, Malaysia, Korea, Vietnam
Organic waste (composting)	Cook Islands, Fiji, Palau, RMI, Samoa, Tokelau, Tonga, Tuvalu	Local

Box 3: Tokelau and Samoa: working together to solve waste problems

Tokelau is a small atoll territory of New Zealand with about 1500 people living on 10 square kilometers of land. Waste disposal by landfill is therefore a big challenge. They have entered into an MOU with Samoa wherein Tokelau collects, compacts and ships its aluminum cans to Samoa, where they are consolidated with Samoa's waste cans and shipped off the island for recycling. This collaborative approach to waste management benefits Tokelau as it reduces the waste that must be managed. The arrangement also benefits Samoa, since the extra cans mean that a container can be filled and shipped off the island more quickly, thus making the operation more viable.

Where do we want to be?

- Increase activity and quality of 4R initiatives across all sectors
- Reduction in the total amount of waste generated
- Composting programmes in place for segregation and treatment of organic waste

How will we get there?

Integrated Waste Management - 4Rs have been identified as a high priority issue by FSM, Fiji, Kiribati, Nauru, Niue, PNG, Samoa, Tokelau, Tonga, and Vanuatu

Table 10: Actions for Integrated Waste Management - 4Rs

	ACTION	TIME FRAME	LEAD AGENCY
4.	**Develop a model 4R regional strategy**. This strategy can be used by countries as a guide in developing national 4R management strategies.	2011	SPREP
5.	**Develop national 4R strategies.** These strategies should be a component of the NSWMS and should be based on reliable waste composition data and should address the management options discussed—refuse, reduce, reuse, recycle, and recover. The 4R strategy must include a comprehensive communication plan which outlines how communication, education, and awareness tools will be used to achieve the goals of the strategy.	2011	CA
6.	**Assess and demonstrate new recycling methods.** Recycling in PICTs involves collection and transportation off-island of recyclable wastes. There is a need to identify alternative methods of recycling waste on-island. For example, using crush glass for construction, small-scale paper recycling, or manufacturing plastic lumber/furniture; however these methods need to be evaluated and piloted to determine their technical and financial sustainability.	2013	SPREP

5.2 Waste Disposal

Outcome: Solid waste that cannot be avoided, reused, recycled or composted are disposed of using acceptable methods that have no negative impacts on human health and the environment.

Where are we now?

Disposal in dumps and landfills is the most commonly practiced form of waste management in PICTs; it is also the most visible. Most PICTs have 'official' dumpsites which are eyesores, public health and environmental hazards, and general nuisances—similar to dumpsites worldwide. One of the biggest challenges in the Pacific is the availability of suitable land for landfills. It is an issue...

- on coral atolls where disposal of waste on the edge of the reef or lagoon is usually the only option
- on coral-based high islands (e.g. Niue), where soil is very porous
- in many PICTS where customary land tenure is common, and acquiring customary land for a landfill almost impossible
- because no-one wants a landfill in their backyard

Despite the challenges, several PICTs, assisted by donors, have upgraded their dumpsites or have constructed new facilities. Sometimes, an existing facility is upgraded, but there are still other authorized dumpsites at other locations or in remote islands. This situation is summarized in Table 11.

There are various types of landfills that can be developed, however, the preferred strategy for the Pacific Islands region is to promote and develop semi-aerobic landfills based on the Fukuoka method. This method was first implemented in the region in Samoa. When managed properly, it is a cost-effective and speedy method of stabilising the waste, especially given the high organic content [Chong et al. 2005].

Table 11: Waste disposal facilities in PICTs

TYPE OF FACILITY	PICTs
Open dump[1]	Fiji, Kiribati, Palau, PNG, Solomon Islands, Tonga
Controlled dump[2] (rehabilitated dump)	Guam, RMI, Tuvalu
Semi-aerobic landfill (Fukuoka-type)	FSM (Kosrae State), Palau, Samoa, Vanuatu
Anaerobic landfill	Cook Islands, Guam, Fiji, Tonga (Tongatapu)
Incinerator[3]	MW: Fiji, Palau, RMI, Samoa, Solomon Islands, Tonga PW: PNG

1. This refers to designated or authorized dumpsites, it does not refer to illegal dumps
2. This means a dump that has been upgraded, but without certain features like leachate collection and treatment
3. Mainly for medical wastes (MW), and port wastes (PW)

Where do we want to be?

- Establish and operate landfills that are suitable to atolls and which minimizes the impacts on the environment and public health
- Improved, well-operated semi-aerobic landfills in the high countries
- Disposal options provided for difficult wastes and medical wastes
- Understand the feasibility of incineration as an option in PICTs

How will we get there?

Integrated Waste Management - Waste Disposal has been identified as a high priority issue by FSM, Fiji, Kiribati, Nauru, Niue, PNG, Samoa, Tokelau, Tonga, and Vanuatu

Table 12: Actions for Integrated Waste Management - Waste Disposal

ACTION	TIME FRAME	LEAD AGENCY
7. **Develop regional guidelines for waste disposal and environmental monitoring of disposal facilities.** These guidelines will be linked to the regional benchmarks to be developed in the Capacity Building priority	2010	SPREP
8. **Improve existing disposal sites**. Existing dumpsites need to be upgraded to minimum acceptable standards to minimize the impact on human health and the environment, as well as the wider economy. This can be achieved by first conducting a feasibility study for upgrading the dumpsite, and then seeking funding to implement the findings.	2010-2015	CA
9. **Develop new landfills**. When improvements to existing facilities are not possible, then new landfills should be developed. Developing a new site can be a long process involving acquiring new land, conducting environmental impact assessments, seeking financing, detailed engineering designs, and construction. The process must therefore be started well in advance (5-10 years) of when the new site is actually needed.	2010-2015	CA
10. **Engage in research and development to identify suitable disposal techniques for different situations**. E.g., developing suitable disposal methods for atolls, and application of EfW incineration in PICTs.	2010	SPREP
11. **Develop regional options for managing difficult wastes**. An assessment of sub-regional options for some difficult wastes (scrap metal, school chemicals, disused pesticides/POPs, and used oil) has already been undertaken [Ashton et al. 2009] and implementation will be financed through a proposed AFD initiative. These options should also include special considerations for bulky, disaster, and mining wastes, and should identify national activities that PICTs can implement to address difficult wastes.	2011	SPREP

5.3 Waste Collection System

Outcome: Well-managed, efficient, and self-sustaining waste collection systems introduced or upgraded in PICTs.

Where are we now?

In many PICTs, waste collection systems are still characterized by inconsistent and unreliable services—caused by shortage of appropriate collection equipment, poor management, shortage of trained personnel, and limited availability of supporting infrastructure and equipment such as transfer stations and public bins.

Waste collection truck in Samoa

In some PICTs, including atoll countries, Fiji, Nauru and FSM, the waste collection system covers only the main urban areas, with limited service in the rural areas. Consequently there is inequity in the level of service provided to residents.

In terms of segregation, organic or green waste segregation at source is encouraged, and this reduces the collection and disposal burden. Often times, waste segregation of recyclable waste at source is practiced and encouraged, however, the segregated wastes are collected by a single truck re-combined during collection—usually because there are no recycling facilities in place at the dump or landfill. This practice can cause the public to loose their faith in the waste management system, and will make it more difficult to get their participation in future initiatives.

When a waste collection service is available, public participation varies, and this can be measured by the amount of litter and illegal dumping activities taking place.

Where do we want to be?

- A more reliable and efficient collection service for residential, commercial and industrial waste extended to include rural areas
- Equipment and infrastructure in place to support the collection system. This includes transfer stations, waste storage facilities in high rise buildings, and suitable storage bins and collection points.
- Specialized collection services for other types of waste (e.g. bulky, difficult, and recyclable)

How will we get there?

Integrated Waste Management - Waste Collection has been identified as a high priority issue by Cook Islands, FSM, and Solomon Islands.

Table 13: Actions for Integrated Waste Management - Waste Collection

ACTION	TIME FRAME	LEAD AGENCY
12. **Develop an action plan for improving the waste collection service.** The action plan should address the storage and collection of solid waste. Proposals should be prepared and submitted to Cabinet, donors, and development partners for funding assistance to implement the plan. These proposals must highlight how the waste collection service will be self-sustaining	2011	CA

6.0 Legislation

Outcome: Solid waste management activities in PICTs are supported by practical, effective, enforceable, and culturally-sensitive legislation

Where are we now?

Since RS2005, some countries have drafted solid waste legislation (Samoa), while others (Fiji, RMI, and Tonga) have enacted such legislation. In the case of Cook Islands, Kiribati, Solomon Islands, Tokelau, and Tuvalu, Environment Acts have been passed, however, these address broader environmental issues and there is still a need to develop comprehensive solid waste legislation. Finally, there are still a handful of countries that rely on generic legislation such as Public Health Acts. The current situation with respect to solid waste related legislation is shown in Table 14.

Table 14: Legislation related to solid waste management in PICTs

PICT	Legislation
American Samoa	Environment Quality Act
Cook Islands	Environment Act (2004) (Rarotonga)
	Public Health Act 2004
	Sewerage Regulations 2008
FSM	
Fiji	Waste & Pollution Regulations 2008
	Litter Promulgation 2008
	EIA Regulations 2007
	Environmental Management Act 2005
	Public Health Act
	Fijian Affairs Act
	Municipal Council Byelaws
French Polynesia	
Guam	Solid Waste Management and Litter Control Act
	Guam Environment Protection Agency Act
	Guam Environmental Pollution Control Act
Kiribati	Special Fund (Waste Material Recovery Act 2004
	Environment Act 1999
Nauru	Nil
New Caledonia	New Caledonia Act 1999
CNMI	Resource Conservation and Recovery Act
	Litter Control Act 1989
	Safe Drinking Water Act
	Solid Waste Management Act
Niue	Environment Act 2003
	Public Health 1982
Palau	Public Law 1-58
	Palau National Code 34, subsection 1004
	Recycling Law RPPL 7-94
	Environmental Quality Protection Act
	Solid Waste Management Regulations

PICT	Legislation
PNG	Marine Pollution Bill (draft)
	Environment Act 2000 & regulations
	Environmental Contaminants Act 1978
	Organic Law on Provincial & Local Level Govt
	Public Health Act
	NCDC Act
	Conservation Areas Act 1978
RMI	National Environmental Protection Act 1984
	Public Health Act
	Majuro Local Government Ordinance
	Littering Act 1982
Samoa	Waste Management Bill (draft)
	Land, Surveys and Environment Act 1989
Solomon Islands	Environment Regulation 2008
	Environment Act 1998
	Shipping Act 1998
	Agriculture Quarantine Order 1995
	Ports Act 1990
	Environmental Health Act 1980
Tokelau	Marine Pollution Regulations 1990
	Marine Pollution (Dumping & Incineration) Regulations 1982
	Marine Pollution Act 1974
Tonga	Waste Management Act 2005 (Tongatapu)
	Public Health Act 2008
Tuvalu	Waste Operation and Services Act 2009
	Environment Protection Act 2007
	Marine Pollution Act 1991
	Public Health Act and Regulation 1926
Vanuatu	Environment Management & Conservation Act Cap. 283 (2002)
	Bio-security Bill (draft)
Wallis and Futuna	

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 an uncoordinated approach where regulation is spread among a number of agencies without clearly defined roles and responsibilities, lack of consolidated legislation, and social pressure exerted in small communities, where enforcers are related to offenders. This is sometimes made worse where the legislation is in conflict with traditional cultural values (e.g. Hindu practice of burning the deceased).

Where do we want to be?

- Comprehensive solid waste management legislation in place in all PICTs, with bylaws enacted for rural areas and outlying (remote) islands, and which is sensitive to the culture of PICTs
- Compliance with solid waste laws and facility operating guidelines
- Better monitoring and enforcement of solid waste laws in all PICTs to reduce environmental pollution and prevent illegal activities

How will we get there?

Legislation has been identified as a high priority issue by Nauru, Niue, PNG, RMI, Solomon Islands, and Vanuatu

Table 15: Actions for Legislation

ACTION	TIME FRAME	LEAD AGENCY
13. **Undertake a sub-regional project to review and develop draft solid waste legislation in priority countries**, which are identified in the next section. PICs will coordinate with the Attorneys General offices to ensure that the legislation can be enacted in a timely manner.	2010-2011	SPREP
14. **Enhance the capacity of PICTs to enforce legislation through regional resources and initiatives**. SPREP will (i) provide PICTs with resources such as enforcement toolkits containing enforcement advice, or activities such as enforcement training; (ii) strengthen existing networks such as SPREP online waste forum, for knowledge sharing on enforcement; and (iii) develop a regional inventory of experts in solid waste management legislation	2012	SPREP
15. **Develop and implement enforcement plans in each country**. 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.	2012	CA or MA
16. **Engage the office of the Attorney General in each PICT**, to raise awareness of the need for environmental lawyers within the environment units. This is with a view to improving the enforcement of solid waste management legislation.	2010	CA or MA

7.0 Awareness, Communication, and Education

Outcome: An informed and aware population who support and participate in waste management activities

Where are we now?

PICTs have implemented various activities aimed at educating and raising awareness, however, many have not formally adopted the integrated communications approach recommended in RS2005. Consequently, many of the education and awareness (EA) programmes seem not to have any measurable impacts on attitudes, and the evidence for this is a lack of improvement (and in some cases worsening) of conditions such as littering and illegal dumping. This may be due to not using the right methods, not targeting the right people, not sending the right messages, or simply lack of interest and commitment from the target audience to engage in waste management activities. Lack of supporting activities, infrastructure and enforcement—such as placing litter bins to support "no littering" messages—may also be contributing factors to the failure of many EA programmes.

In 2009, Fiji began the development of their national communications strategy, while others such as Palau and FSM, have already developed communication plans but lack the resources to fully implement these plans.

Although most countries undertake several types of EA activity, there are still a few such as Nauru, where there is very little awareness activity on solid waste management, due mainly to limitations in financial and human resource capacity.

One of the greatest challenges in solid waste management is changing behaviours and attitudes. This is the reality in Guam where the majority of the public are willing to accept change; however there is a small minority that seems to lack pride in the beauty and health of their islands and refuses to comply with awareness activities. This carefree attitude towards waste management is at times magnified in areas where the residents do not consider themselves a part of the community (e.g., people who may have relocated temporarily to urban areas to find employment).

Where do we want to be?

- Behavioural change effected through implementation of effective and successful EA programmes
- Better coordination and communication across departments and agencies implementing waste education and awareness, with lead agencies in each country clearly defined
- Traditional and culturally-sensitive methods used more frequently in waste EA to ensure that the message reaches the intended audience, especially in places where televisions and radios are not common and literacy levels are low
- Waste management education integrated into current curricula at the primary and secondary school levels
- Public faith in the waste management system restored

How will we get there?

Education and awareness has been identified as a high priority issue by Fiji, RMI, Samoa, Tokelau, Tuvalu, and Vanuatu

Table 16: Actions for Awareness, Communication and Education

	ACTION	TIME FRAME	LEAD AGENCY
17.	**Develop and disseminate a model national communication strategy** utilizing the social marketing approach	2011	SPREP
18.	**Develop a national integrated communication strategy which encompasses social marketing**. The integrated approach is more holistic as it raises awareness of issues, and focuses on changing attitudes and behaviours by addressing perceived barriers to sustainable living habits. The strategy should target awareness and education activities for key stakeholder groups (politicians, traditional leaders, private sector, communities) and address the other priorities identified in this strategy (economic & financial issues, 4Rs, legislation, etc).	2011	CA
19.	**Develop a Pacific Year of Action Against Waste Campaign**, which will involve a year of intense activities meant to raise awareness of waste management issues throughout the region and contribute to positive changes in waste management attitudes	2012	SPREP
20.	**Conduct regular regional waste forum or conference** which brings together actors in the waste sector and promotes regional networking through knowledge sharing. Existing forums could be used to strengthen regional networking for waste management, including the PIRRIC, MCSF, and the Pacific Climate Change Roundtable (PCCR).	2012-2013	SPREP
21.	**Activate and implement existing education/awareness plans**. Existing plans should be strengthened and implemented.	2010	CA

8.0 Capacity Building

Outcome: Skilled and trained people available in-country, who effectively manage solid waste management systems

Where are we now?

There have been a lot of capacity building activities in the region mainly in the form of various training workshops. Some of these have been delivered regionally or sub-regionally through SPREP, and others through country bilateral cooperation with donors. Table 17 provides a summary of all the known regional capacity building activities that have taken place since RS2005.

Table 17: Summary of capacity-building activities since RS2005

Date	Activity	Partners
Feb/Mar 2007	6th JICA-SPREP-WHO Municipal SWM Training Workshop for PIF Countries, Samoa	JICA, SPREP, WHO
Nov 2007	2nd JICA-SPREP SWM Workshop for PIF Countries Senior Waste Managers, Samoa	JICA, SPREP
Nov 2007	Healthcare Waste Management Workshop for PIF, Samoa	WHO, SPREP
May/Jun 2009	JICA SWM Workshop for PIF Countries, Japan	JICA, SPREP

The approach to waste management in the region has largely been based on a do-it-yourself (DIY) approach, whereby training is delivered to country participants and they are then expected to take the responsibility for implementing the necessary improvements. In theory, this approach is a good one, however, in some cases there a number of barriers limiting the success of this approach:

- There is generally a high turnover of trained staff within national waste management agencies, and at times insufficient numbers of trained staff are appointed for the tasks to be done, as a result they are over-committed, and may give priority to other areas.
- Staff who receive training are often unable to apply their training because of lack of the tools needed.

Where do we want to be?

- A pool of well-trained, competent and qualified people available in PICTs or regionally to manage solid waste systems.
- Formal (Bachelors, Masters, and PhD degrees) and informal (mentoring, conferences, workshops, etc) training available in the region for solid waste management. Training can address specific components of solid waste management (e.g., landfill management for anaerobic and semi-aerobic methods, collection system, dump improvement, developing guidelines, etc).
- SWM mainstreamed into other government departments, facilities, village structures, etc
- Strengthened capacities (e.g., institutional, financial) for solid waste management

How will we get there?

Capacity Building has been identified as a high priority issue by Kiribati, Niue, Palau, Tokelau, Tonga, and Tuvalu

Table 18: Actions for Capacity Building

ACTION	TIME FRAME	LEAD AGENCY
22. **Develop regional benchmarks in solid waste management**, guided by regional and international standards, and against which capacity can be measured.	2010	SPREP
23. **Assess capacity gaps for solid waste management in PICTs** against the 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	2011	CA
24. **Develop regional training priorities** on the basis of national priorities, which should be identified to regional training institutions	2011-2012	SPREP
25. **Implement capacity building programmes, to address capacity gaps**. Among other things, the programme 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.	2012	CA
26. **Conduct an annual training course in municipal solid waste management.** This should be done in conjunction with current partners such as JICA, and WHO, while cultivating new training partnerships.	2010-2015	SPREP
27. **Develop and deliver a specific training programme for atolls** (countries, territories and high countries with atolls), including a component for country attachments.	2012	SPREP
28. **Develop a country attachment scheme** between PICTs to boost national capacities. The preferred modality is for regional experts from one country to spend a period in the country requiring the expertise.	2013	SPREP
29. **Develop a solid waste training programme in conjunction with regional institutions**, for the professional and vocational levels.	2010	SPREP
30. **Develop and maintain a regional inventory of skilled people** and previous recipients of national and regional training in key areas of solid waste management	2010	SPREP

9.0 Environmental Monitoring

Outcome: The environmental impact of solid waste is assessed to provide accurate data on performance and provide information for planning and decision-making

Where are we now?

Making environmental monitoring a distinct requirement in this strategy, recognizes the fact that many PICTs have dumpsites without monitoring mechanisms in place. In this case, monitoring provides baseline data, which can be used to assess (i) the impact of these sites on the environment, (ii) the extent of remedial actions necessary, and (iii) potential for future impacts. The data gathered can be used as a tool to influence positive changes, and provide information for planning.

There are several challenges to environmental monitoring in PICTs, specifically:

- Limited analysis capability and availability of appropriate testing laboratories.
- Limited availability of field monitoring tools
- Lack of capacity for environmental monitoring

There are three basic types of environmental monitoring activities for landfills and similar disposal facilities: leachate, gas, and water quality monitoring. PICTs engaging in these activities are summarized in Table 19.

Table 19: Environmental Monitoring Activity in PICTs

Monitoring Activity	Examples of Basic Parameters Measured	PICT
Leachate testing	BOD, COD, pH, conductivity, nitrates, nitrites	Fiji, Samoa, Tonga
Gas monitoring	Carbon Dioxide, Methane	Samoa, Tonga
Surface- or ground-water quality	BOD, COD, pH, conductivity, nitrates, nitrites	Palau, RMI, Samoa, Tonga

BOD = Biological Oxygen Demand
COD = Chemical Oxygen Demand

Where do we want to be?

- Better monitoring systems and testing facilities in place
- Recording and tracking of environmental quality data
- Improved monitoring of mitigation measures in EIAs

How will we get there?

Environmental Monitoring has been identified as a high priority issue by Cook Islands,

Table 20: Actions for Environmental Monitoring

ACTION	TIME FRAME	LEAD AGENCY
31. **Develop national environmental monitoring plans** to monitor the impact of waste management activities	2013	CA
32. **Develop institutional capacity of national, sub-regional, and regional laboratories for environmental monitoring**. One option might be to build on the US Freely Associated States Water Quality Laboratory Certification Program, which certifies laboratories based on the USEPA standards.	2014	SPREP

10.0 Policy, Planning, and Performance

Outcome: PICTs implement national waste management policies and strategies, which are based on accurate data, with monitoring systems established to report on performance

Where are we now?

With the assistance of SPREP and JICA, many countries have conducted consultation workshops to develop national strategies, however, there are capacity challenges hindering the completion and implementation of these strategies. The current situation with respect to waste management policies and strategies is shown in Table 21. In these countries, the monitoring system is ad-hoc and there is sometimes inadequate emphasis on monitoring and evaluation during the planning process. Coordination is sometimes an issue—as in the case of Vanuatu, where a national coordinating agency has not been designated.

At the regional level, implementation and monitoring of the regional strategy is coordinated by SPREP. There are no formal mechanisms for collecting information and data from PICTs regarding activities for which SPREP is not involved–in these cases, data is collected through informal conversation and during in-country visits.

Table 21: National Waste Management Policies and Strategies in PICTs

Waste Management Policy or Strategy	PICTs (year of endorsement)
Policy	Samoa (2001), Vanuatu (2001),
Endorsed strategy or plan	CNMI, Cook Islands, Fiji (2007), Niue (2000), Tonga (2007), Palau, Solomon Islands, Tuvalu
Draft Strategy or plan	FSM, Nauru, RMI, Samoa, Tokelau, Tonga

Where do we want to be?

- Accurate and updated information regularly available, which can be used as the basis for developing and reviewing policies and strategies
- Better implementation of the regional strategy
- Better coordination of waste management activities by designated agencies at the national level

How will we get there?

Policy, Planning, and Performance have been identified as high priority issues by Nauru, and Palau

Table 22: Actions for Policy, Planning, and Performance

ACTION	TIME FRAME	LEAD AGENCY
33. **Develop national waste management policy, Strategy and action plan**. The policy is a mechanism for mainstreaming waste management issues into national development planning, and is implemented through the strategy and action plan. Development of the strategy should be preceded by and based on baseline studies (e.g. waste audit/characterization, public opinion/awareness, etc).	2013	Government, CA
34. **Strengthen regional coordination of solid waste management.** SPREP coordinates the implementation of the regional strategy, which is overseen by the Waste Management and Pollution Prevention Division. Strengthening SPREP as the regional coordinating agency will allow SPREP to deliver more support and assistance to PICTs in implementing their national commitments under this regional strategy.	2010-2015	SPREP
35. **Establish and review national coordination of solid waste management.** There are three arms of solid waste management: (i) systems operations, which include collection and disposal; (ii) monitoring and enforcement; and (iii) strategic planning. It is more effective and transparent to have all three arms residing in different agencies. This will prevent the untenable situation of self-regulation.	2010-2015	Government
36. **Develop standardized system for collecting, storing and analysing waste management data**. Analysing raw data produces information which can be used to (i) inform policies and strategies, and (ii) monitor performance.	2011-2012	SPREP

11.0 Solid Waste Industry

Outcome: Solid waste management in PICTs is supported by a thriving and competitive solid waste industry involved in reuse, recycling, collection, and disposal activities

Where are we now?

The waste industry in the atoll countries is still in its infancy and ranges from national and local government-run operations to private sector involvement. In Kiribati for example, private sector is fully engaged in running a self-sustaining recycling operation for aluminum cans, whereas in Marshall Islands, a Government owned corporation fulfils this function. In other countries such as Tuvalu and Tokelau, the local councils and government still bear primary responsibility for carrying out services and activities; however, this limits the development of a waste industry. The scope of the current solid waste industry in PICTs is shown in Table 23.

Table 23: Activities involving private sector in PICTs

Activity	PICT
Waste Collection	Cooks, Fiji, Palau, PNG, Samoa, Solomon Islands, Tonga
Landfill operation	Fiji, Samoa
Recycling	Cook Islands, Fiji, Palau, PNG, Samoa, Solomon Islands, Tonga
Reuse	Cook Islands, Fiji, Samoa, Vanuatu
Composting	Fiji, Samoa, Tonga

A thriving solid waste industry requires supporting policies, legislation, and incentive mechanisms to be in place. PICTs are working towards implementing these mechanisms in increments and there have been several successes, including:

- Kiribati's implementation of container deposit legislation, and contracting out the administration of the container deposit system
- Policies in Vanuatu and Cook Islands, which put responsibility for waste oil management on the suppliers of oil.

Where do we want to be?

- A strong and sustainable solid waste industry in place to promote good waste management practices
- Increased private sector involvement in waste recycling activities
- Local reuse and recycling activities in place

How will we get there?

Table 24: Actions for Solid Waste Industry

ACTION	TIME FRAME	LEAD AGENCY
37. **Implement institutional and economic incentives, and subsidies based on market conditions** which encourage private sector involvement. Institutional incentives could include introducing codes of conduct for different sectors which address waste management (e.g. for end-of-life vehicles, waste oil, etc). Economic incentives might include tariff breaks on specialized equipment, income tax breaks, low-interest rate loans, etc).	2010	CA
38. **Provide information and data on the solid waste sector to increase awareness of viable opportunities.** Information might include suitable waste management technologies, waste composition data, recyclable market information, etc	2010-2015	CA
39. **Cultivate and strengthen partnerships with key stakeholders**, such as recycling businesses (on- and off-island), and research and development institutes, which can help promote involvement through research such as reusing waste material for sea walls, and assessment of opportunities such as the Clean Development Mechanisms (CDM)	2010-2015	CA SPREP

12.0 Medical Wastes

Outcome: Medical wastes are managed in an environmentally-sound manner without adverse impact on human health and the environment

Where are we now?

Medical waste in PICTs is a common problem facing PICTs and it is usually disposed of by burial, flushed directly to sewer, or incineration. There may also be ineffective segregation of medical wastes at source, and as with all waste streams separation should occur. In many cases where incinerators exist, they are often plagued by technical problems, or there is a lack of properly trained operators. Often times, the incinerators were donated but they do not comply with the best available technique or best environmental practice as specified by the Stockholm Convention. In many situations, the incinerators are located at hospitals in densely populated areas, so there is potential for significant negative impact on public health.

Medical Waste Incinerator in Samoa

Many countries also have inadequate collection systems for medical waste. Moreover, they typically do not have a strategy in place for dealing with medical waste.

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?

Table 25: Actions for Medical Waste

ACTION	TIME FRAME	LEAD AGENCY
40. **Develop model medical waste management strategy**, which can be used by PICTs to develop their national medical waste management strategies	2013	SPREP
41. **Develop a national medical waste management strategy**, which may be a stand-alone strategy, or which may be incorporated as an element in the national waste management strategy	2013	CA

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APPENDIX I: Glossary of Terms

These definitions are for the purposes of this Strategy only

4Rs: A combination of (i) waste avoidance or "refuse", (ii) waste reduction at source or "reduce"; (iii) reuse; and (iv) recycle.

Advanced disposal fee: A fee which is usually applied on imported products to pay for the disposal of the product when it becomes a waste.

Atoll: An island of coral which partially or completely surrounds a lagoon. Some countries consist entirely of atoll islands (e.g. Kiribati, RMI, Tokelau, Tuvalu).

Commercial waste: Solid waste generated from premises engaged in business, trade, or sporting activities

Composting: The controlled biological degradation of organic wastes including kitchen and yard waste

Difficult waste: (i) large items of wastes, (ii) wastes for which there are no viable recycling options, and (iii) wastes which require special disposal because of particular hazards. Difficult waste includes asbestos, car bodies, tyres, domestic white goods, low-grade scrap metal, non-recyclable plastics, disposable diapers/nappies, and disaster waste.

Energy from Waste incineration: the process of creating energy in the form of electricity or heat from the incineration of a waste source

Industrial waste: Waste which is produced by industrial activity, such as that of factories, mills and mines.

Institutional waste: General solid waste produced by institutions such as schools, universities, prisons, government offices, and other public buildings,

Integrated solid Waste Management: A combination of activities which are collectively implemented to manage solid waste. It includes (i) waste avoidance (refuse) (ii) reduction at source, (iii) reuse, (iv) recycling, (v) waste collection, (vi) waste treatment, such as energy from waste incineration, and (vii) sanitary disposal

Medical Waste: Also referred to as healthcare or clinical waste. Any solid waste generated in the medical diagnosis or treatment of humans, and which has the potential to cause infection (e.g. discarded needles, scalpels or broken instruments)

Recycling: The extraction of raw materials from waste—for example, extracting aluminum from aluminum cans.

Reuse: Using an item more than once, for the purpose it was intended or for an alternative purpose

Social Marketing: Using tools that communicate the benefits of doing 'social good' to achieve specific behavioural changes with specific audiences.

Waste Management Industry: Any business, institution, organization, Government Corporation, or any other entity involved in commercial activities that encourage good solid waste management practices

APPENDIX II: Map of the Pacific Islands Region

APPENDIX III: High-level Implementation Plan

ACTION	TIME FRAME	LEAD AGENCY[2]
FINANCIAL AND ECONOMIC ISSUES		
1. Update and disseminate regional information on the application of economic instruments	2012	SPREP
2. Formulate a plan to implement appropriate economic instruments in each PIC	2011	CA
3. Use a regional approach to develop sustainable financing initiatives	2010	SPREP
INTEGRATED SOLID WASTE MANAGEMENT		
4. Develop a model 4R regional strategy	2011	SPREP
5. Develop national 4R strategies	2011	CA
6. Assess and demonstrate new recycling methods	2013	SPREP
7. Develop regional guidelines for waste disposal and environmental monitoring of disposal facilities	2010	SPREP
8. Improve existing disposal sites	2010-2015	CA
9. Develop new landfills	2010-2015	CA
10. Engage in research and development to identify suitable disposal techniques for different situations	2010	SPREP
11. Develop regional options for managing difficult wastes	2011	SPREP
12. Develop an action plan for improving the waste collection service	2011	CA
LEGISLATION		
13. Undertake a sub-regional project to review and develop draft solid waste legislation in priority countries	2010-2011	SPREP
14. Enhance the capacity of PICTs to enforce legislation through regional resources and initiatives	2012	SPREP
15. Develop and implement enforcement plans in each country	2012	CA or MA
16. Engage the office of the Attorney General in each PICT	2010	CA or MA
AWARENESS, COMMUNICATION & EDUCATION		
17. Develop and disseminate a model national communication strategy	2011	SPREP
18. Develop a national integrated communication strategy which encompasses social marketing	2011	CA
19. Develop a Pacific Year of Action Against Waste Campaign	2012	SPREP
20. Conduct regular regional waste forum or conference	2012-2013	SPREP
21. Activate and implement existing education/awareness plans	2010	CA
CAPACITY BUILDING		
22. Develop regional benchmarks in solid waste management	2010	SPREP
23. Assess capacity gaps for solid waste management in PICTs	2011	CA
24. Develop regional training priorities	2011-2012	SPREP
25. Implement capacity building programmes, to address capacity gaps	2012	CA
26. Conduct an annual training course in municipal solid waste management.	2010-2015	SPREP
27. Develop and deliver a specific training programme for atolls	2012	SPREP
28. Develop a country attachment scheme	2013	SPREP
29. Develop a solid waste training programme in conjunction with regional institutions	2010	SPREP
30. Develop and maintain a regional inventory of skilled people	2010	SPREP
ENVIRONMENTAL MONITORING		
31. Develop national environmental monitoring plans	2013	CA
32. Develop institutional capacity of national, sub-regional, and regional laboratories for environmental monitoring	2014	SPREP
POLICY, PLANNING, and PERFORMANCE		
33. Develop national waste management policy, Strategy and action plan	2013	Government, CA
34. Strengthen regional coordination of solid waste management	2010-2015	SPREP
35. Establish and review national coordination of solid waste management.	2010-2015	Government
36. Develop standardized system for collecting, storing and analysing waste management data	2011-2012	SPREP
SOLID WASTE INDUSTRY		
37. Implement institutional and economic incentives, and subsidies based on market conditions	2010	CA
38. Provide information and data on the solid waste sector to increase awareness of viable opportunities	2010-2015	CA
39. Cultivate and strengthen partnerships with key stakeholders	2010-2015	CA, SPREP
BIOMEDICAL WASTE		
40. Develop model medical waste management strategy	2013	SPREP
41. Develop a national medical waste management strategy	2013	CA

[2] See Appendix IV

APPENDIX IV: Lead Agencies for SWM in PICTs

Note: This information is correct as of August 31, 2009

PICT	Coordinating Agency (CA)	Monitoring Agency (MA)	Agency for Waste Management Services
American Samoa	AS Environmental Protection Agency	AS Environmental Protection Agency	American Samoa Power Authority (ASPA)
Cook Islands	National Environment Service	National Environment Service	National Environment Service
Fed. States of Micronesia	Office of Environment and Emergency Management	Office of Environment and Emergency Management	
Fiji	Department of Environment	Department of Environment	Department of Environment
French Polynesia			
Guam	Guam Environmental Protection Agency	Guam Environmental Protection Agency	Department of Public Works
Kiribati	Ministry of Environment, Lands & Agricultural Development	Ministry of Environment, Lands & Agricultural Development	Ministry of Environment, Lands & Agricultural Development
Marshall Islands	Office of Environmental Planning and Policy Coordination (OEPPC)	RMI Environmental Protection Agency	Majuro Atoll Waste Company
Nauru	Department of Commerce Industry & Environment	Department of Commerce Industry & Environment	Nauru Rehabilitation Corporation
New Caledonia			
Niue	Department of Environment	Department of Environment	Department of Environment
Northern Mariana Islands	Division of Environmental Quality	Division of Environmental Quality	Department of Public Works
Palau	Environmental Quality Protection Board	Environmental Quality Protection Board	Bureau of Public Works (Ministry of Public Infrastructure, Industries & Commerce)
Papua New Guinea	Department of Environment & Conservation	Department of Environment & Conservation	National Capital District Commission
Samoa	Ministry of Natural Resources & the Environment (MNRE)	Ministry of Natural Resources & the Environment (MNRE)	Ministry of Natural Resources & the Environment (MNRE)
Solomon Islands	Environment and Conservation Division (Ministry of Environment, Conservation and Meteorology)	Environment and Conservation Division (Ministry of Environment, Conservation and Meteorology)	Environmental Health Department (Ministry of Health and Medical Services)
Tokelau	Department of Economic Development, Natural Resources & Environment	Department of Economic Development, Natural Resources & Environment	Department of Economic Development, Natural Resources & Environment
Tonga	Ministry of Environment and Climate Change	Ministry of Environment and Climate Change	Tonga Waste Management Authority
Tuvalu	Department of Environment, Ministry of Natural Resources & Environment	Department of Environment, Ministry of Natural Resources & Environment	Department of Environment, Ministry of Natural Resources & Environment
Vanuatu	Environment Unit	Environment Unit	Port Vila Municipality
Wallis and Futuna			

APPENDIX V: Regional Strategy Monitoring Form

COUNTRY or TERRITORY: _____

ACTIONS (as identified in the Strategy)	DESCRIBE PROGRESS	DATE OF PROGRESS
5. Develop national 4R strategies	- Consultative workshop held to identify national priorities for 4R activities - Draft action plan produced	Sept 2009
9. Develop new landfills	- draft proposal prepared to seek funding from donor for construction of new landfill. Proposal currently being finalized	Oct 2009