

2010



SAMOA AUDIT OFFICE

Performance Audit Report on Solid Waste Management



Tafaigata Landfill

5/5/2010

TELEPHONE: 27751
FAX: 24167
EMAIL: tamaseur@samoa.ws
Website: www.audit.gov.ws

P.O. Box 13
APIA, SAMOA



*Please address all correspondences
to the Controller and Chief Auditor*

SAMOA AUDIT OFFICE

2nd July 2010

Taule'ale'ausumai La'avasa Malua
Chief Executive Officer
Ministry of Natural Resources and Environment
Development Bank of Samoa Building
APIA

Dear Taule'ale'ausumai,

Performance Audit Report on the Management of Solid Waste – Tafaigata Landfill

The purpose of this correspondence is to bring to your attention matters arising from the performance audit on the management of solid waste at the Tafaigata Landfill. The audit involved fieldwork at MNRE and at the premises of the Tafaigata Landfill for the period from 1st July 2009 to 31 March 2010.

We report our findings on the objectives of the audit in the remainder of this report. The results of our audit have been discussed with management and their comments have been noted under each issue.

Our report is solely for the purpose set forth in the first paragraph of this report and for your information. This report relates only to the accounts and items specified above.

We would also like to take this opportunity to express our appreciation to the management and staff for the co-operation and assistance given to us during the course of our audit and would be pleased if you could extend our thanks to them.

Please contact Dennis Chan Tung (Assistant Controller and Chief Auditor) or Sina Palamo-Iosefo (Audit Manager) on 27751 if you or your staff have any questions regarding the audit.

Yours sincerely,

Tamaseu Leni Warren
CONTROLLER AND CHIEF AUDITOR

PERFORMANCE AUDIT REPORT ON TAFaIGATA LANDFILL

Table of Contents

| | |
|---|----|
| TABLE OF CONTENTS..... | i |
| LIST OF ACRONYMS AND INTERPRETATIONS..... | ii |
| 1.0 EXECUTIVE SUMMARY..... | 1 |
| 2.0 INTRODUCTION..... | 3 |
| 3.0 AUDIT OBJECTIVES & SCOPE | 7 |
| 4.0 AUDIT METHODOLOGY | 9 |
| 5.0 FINDINGS & RECOMMENDATIONS | 10 |
| 5.1 Existence of a legal and policy framework | 10 |
| 5.1.1 Existence of an approved strategy | 10 |
| 5.1.2 Timelines for implementation | 11 |
| 5.2 Process by which the legal & policy framework is implemented | 11 |
| 5.2.1 Community awareness programs | 11 |
| 5.2.2 Measuring waste and availability of data | 13 |
| 5.2.3 Segregation of waste at source | 14 |
| 5.2.4 Agreement with the recycling businesses..... | 15 |
| 5.2.5 Contracts for waste collection | 16 |
| 5.2.6 Fees structure to charge wastes | 18 |
| 5.2.7 Physical security of the landfill..... | 19 |
| 5.2.8 Appropriate sign posts at landfill | 19 |
| 5.3 Compliance with the legal and policy framework including monitoring arrangements .. | 21 |
| 5.3.1 Monitoring and reporting at the landfill | 21 |
| 5.3.2 Occupational health and safety standards..... | 22 |
| 6.0 CONCLUSION | 23 |
| 7.0 APPENDICES | 24 |

List of Acronyms and Interpretations

Acronyms

ACEO – Assistant Chief Executive Officer
ADB – Asian Development Bank
CEO – Chief Executive Officer
IDI – INTOSAI Development Initiative
INTOSAI – International Organization of Supreme Audit Institutions
JICA – Japan International Cooperation Agency
LOE – Lines of Enquiry
LSE Act – Land, Survey & Environment Act 1989
MEA – Multilateral Environmental Agreements
MDGs – Millennium Development Goals
MOF – Ministry of Finance
MNRE – Ministry of Natural Resources & Environment
PASAI – Pacific Association of Supreme Audit Institutions
PICs – Pacific Island Countries
SAO – Samoa Audit Office
SDS – Strategy for the Development of Samoa 2008 - 2012
SPREP – Secretariat of the Pacific Regional Environment Programme
SWM – Solid Waste Management
UNDP – United Nations Development Programme

Interpretations

In this Report, unless the context otherwise requires:

“Bill” means the Waste Management Bill 2009.

“Leachate” means water from general waste in the landfill.

“Manual” means Simple Manual for Operation and Maintenance at Sanitary Landfill 2009.

“Ministry” means the Ministry of Natural Resources and Environment.

“SAT” means the Samoan Tala currency.

“Strategy” means the Draft National Solid Waste Management Strategy 2008-2018.

1.0 Executive summary

Solid Waste Management is widely recognized as a major concern for Pacific Island Countries (PICs) with the potential to cause negative impacts on national development activities including tourism and trade, public health and the environment. The introduction of the Waste Management Bill 2009 is an indication that Government recognizes the importance of proper waste management. The Ministry of Natural Resources and Environment (MNRE) is the agency that has the mandate to manage waste and ensure that any issues related to solid waste management are addressed appropriately.

In accordance with section 3(c) of the Audit Regulations 1976 the Audit Office conducted the performance audit of the management of solid waste at the Tafaigata Landfill.

The objective of this audit is to assess the effectiveness of the management of solid waste at Tafaigata landfill. In order to achieve this objective the following issues were reviewed and assessed:

- i. The existence of a legal and policy framework for solid waste management;
- ii. The process by which the legal and policy framework is implemented, including whether risks to implementation have been considered; and
- iii. Compliance with the legal and policy framework, including monitoring arrangements.

Key Findings

Existence of a legal and policy framework

- The national strategy for solid waste management was not approved.
- The draft strategy should have timelines for implementing the expected outcomes.
- The Waste Management Bill is currently before parliament.

Implementation of the legal and policy framework

- The Ministry does not at present, have a well designed community awareness program which utilizes a variety of media to inform the public about recycling opportunities, general waste collection services, good waste management practices and how the community can participate.
- There is no mechanism to measure the volume of wastes disposed at the landfill accurately.
- There is no segregation of the type of waste at source and at the landfill which makes recycling activities difficult.
- There is no formal arrangement between the Ministry and the recycling company.
- There are no contracts between the Ministry and the companies responsible for collecting general wastes from households so that performance can be monitored.
- There is no fee structure and no proper system to charge wastes disposed at the landfill.
- Physical security at the landfill is poor, with ease of entrance and exit. The lack of fencing means that the public can enter the landfill at any time. This has lead to wide-scale scavenging at the landfill.

Compliance with the legal and policy framework

- Landfill operations do not comply with occupational health and safety standards as well as other processes prescribed in the Manual for Operation and Maintenance of Sanitary Landfill.

Conclusion

Effective solid waste management is important to Samoa, given the development aspirations outlined in the *Strategy for the Development of Samoa 2008-2012 – Ensuring Sustainable Economic and Social Progress*.

In 2009, the Waste Management Bill was introduced in Parliament – a bill specifically dedicated to waste management, demonstrating the importance of the issue for the Government. At the time of the audit, the bill was being read for the second time and is expected to be approved in 2010.

While recognizing that progress has been made in the management of solid waste in Samoa, the audit found areas requiring further attention by the responsible agencies. Overall the audit concluded that the management of solid waste at the Tafaigata Landfill was not effective. Areas that need improving included the approval of the strategy; the effective implementation of the legal and policy framework; and monitoring and reporting of compliance with the legal framework.

Hopefully, the ratification of the draft Bill will help address the shortcomings noted in the report. In addition, an approved strategy will bind the MNRE to achieve its objectives and improve coordination of waste management activities with other implementing agencies.

Similarly, if a weighbridge is constructed, this will provide a mechanism for measuring the volume and type of waste. Consequently, this will provide baseline data that will assist in developing effective waste minimisation strategies and future plans for waste management.

Having proper signed contracts in place will ensure that terms and conditions for the waste collection companies are clearly identified and performance can be assessed.

Separating the monitoring role of the Ministry and its implementing role at the landfill will hopefully achieve good governance and accountability. Compliance with the legal and policy framework is enhanced if the monitoring role is independent from the implementing role.

Overall Agency Response

The Ministry of Natural Resources and Environment has provided responses accordingly to issues raised from audit's assessment. The responses from the Ministry depended on the interpretation by the Ministry of the issues raised.

2.0 Introduction

Background

Solid Waste Management (SWM) is an important part of modern infrastructure as it ensures the protection of the environment and of human health. SWM is closely related to issues concerned with population increase, rapid urbanization and industrialisation. There is a growing recognition that economic development, and the health and well-being of citizens are closely linked with improved environmental management and sustainable waste management practices.

Waste is a product that is no longer suited for its intended use. It may be worn out or it may be an unwanted by-product of a process. The different categories of waste are listed below:

Non-hazardous (Solid Waste) or “garbage”¹, although non-hazardous waste can cause harm or damage to people and the environment;

Hazardous waste has inherent chemical and physical characteristics (toxic, ignitable, corrosive, and carcinogenic) and can cause significant adverse effects;

Radioactive waste is highly toxic; exposure to radiation can cause illness and even death.

Different kinds of waste require different treatment and final handling due to both the physical and chemical composition of the waste and associated levels of danger. The composition of the waste will have an impact on the collection process and on whether the waste can be re-used for energy production, composting etc.

Why audit Solid Waste Management?

Solid Waste Management (SWM) is widely recognized as a major concern for Pacific Island Countries (PICs) with the potential to cause negative impacts on national development activities, including tourism and trade, food supplies, public health and the environment.

The audit on Solid Waste Management was undertaken by the Samoa Audit Office as part of an initiative developed by the Pacific Association of Supreme Audit Institutions (PASAI) with the support of the Asian Development Bank (ADB) and the INTOSAI Development Initiative (IDI). Ten PASAI member countries, including Samoa, are participating in the cooperative audit. Other participating audit offices include: Cook Islands, Federated States of Micronesia, Fiji, Guam, Palau, Papua New Guinea, and the Republic of the Marshall Islands, Tonga and Tuvalu.

Each of the participating audit offices is auditing the same topic of Solid Waste Management within their respective jurisdictions, with a focus on national policies and how these apply to a particular site or entity. This is the first performance audit on an environment issue carried out by the Samoa Audit Office.

Introduction to Solid Waste Management in Samoa

Samoa is located in the Polynesian region of the Pacific Ocean. The total land area is 2820 km². The country consists of the two large islands of Upolu and Savai'i which account for 99% of the total land area, and seven small islets. Samoa has a population of around 180,741 (2006) and the main island of Upolu is home to nearly three-quarters of Samoa's population.² The capital city, Apia, is located on Upolu and 21 per cent of the population lives in Apia.

¹ Garbage includes household and commercial waste, glass materials, aluminium cans, scrap metal and 'green' waste, that is, waste that can be re-used for other purposes.

² SDS 2008 - 2012

Figure 1: Map of Samoa



As with other Pacific Island Countries (PICs), the Government of Samoa is concerned about the increasing volume of hazardous and non-biodegradable waste being generated in the country resulting in negative impacts on the environment and public health.³ As the population grows and disposable income increases, the quantity of solid waste is also increasing.

The *draft National Solid Waste Management Strategy 2008-2018* recognizes that waste minimization is an essential element of Solid Waste Management. The following table details domestic solid waste composition on the two main islands of Savai'i and Upolu. There is little data available on commercial solid waste generated.

Table 1: Data on Domestic Solid Waste Composition

| Category | Percentage (%) |
|--------------|----------------|
| Green Waste | 45 |
| Metals | 14 |
| Plastics | 11 |
| Paper | 8 |
| Cardboard | 5 |
| Food Scraps | 5 |
| Textile | 4 |
| Other | 8 |
| TOTAL | 100 |

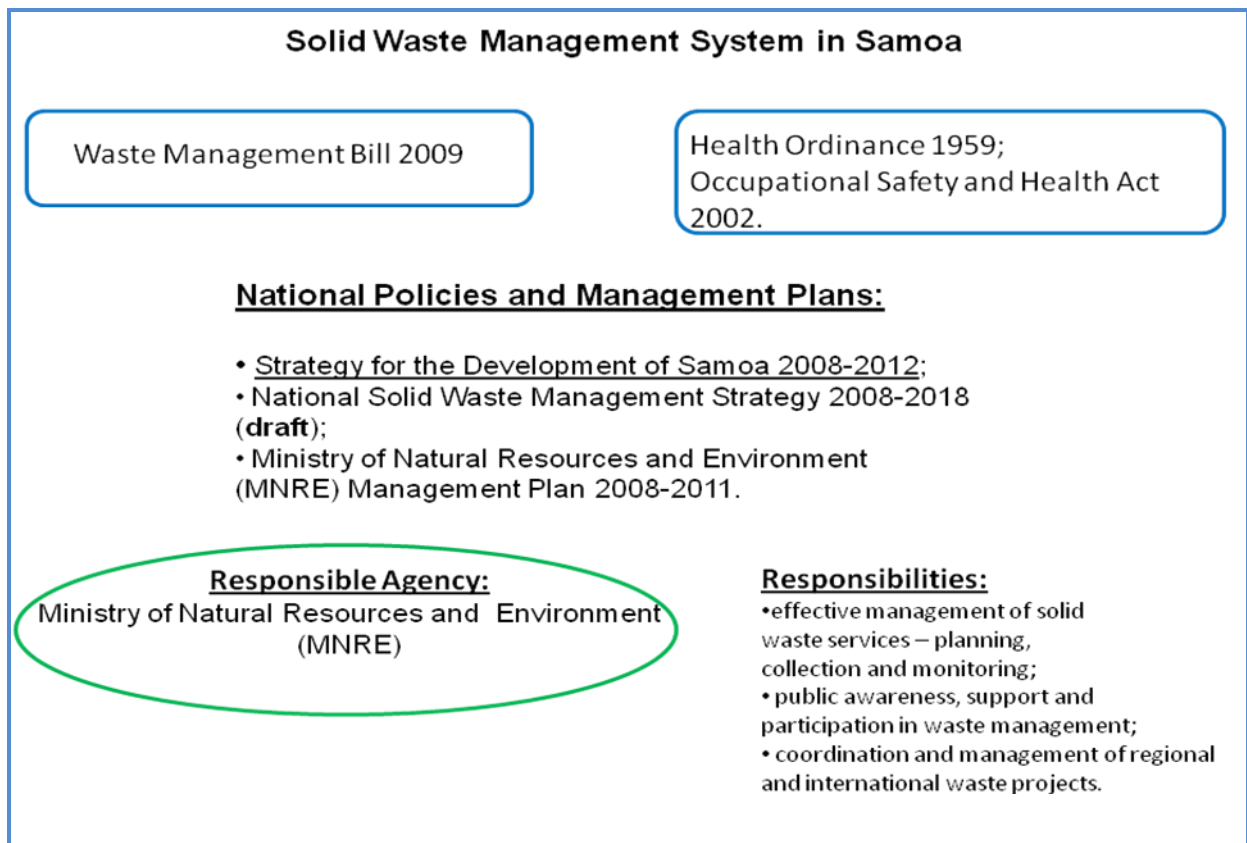
Present status of Solid Waste Management in Samoa- who is responsible?

The following diagram outlines legislation and national policies that apply to the management of solid waste in Samoa. At the time of the audit, the Waste Management Bill was before the

³ MNRE, *draft National Solid Waste Management Strategy 2008-2012*.

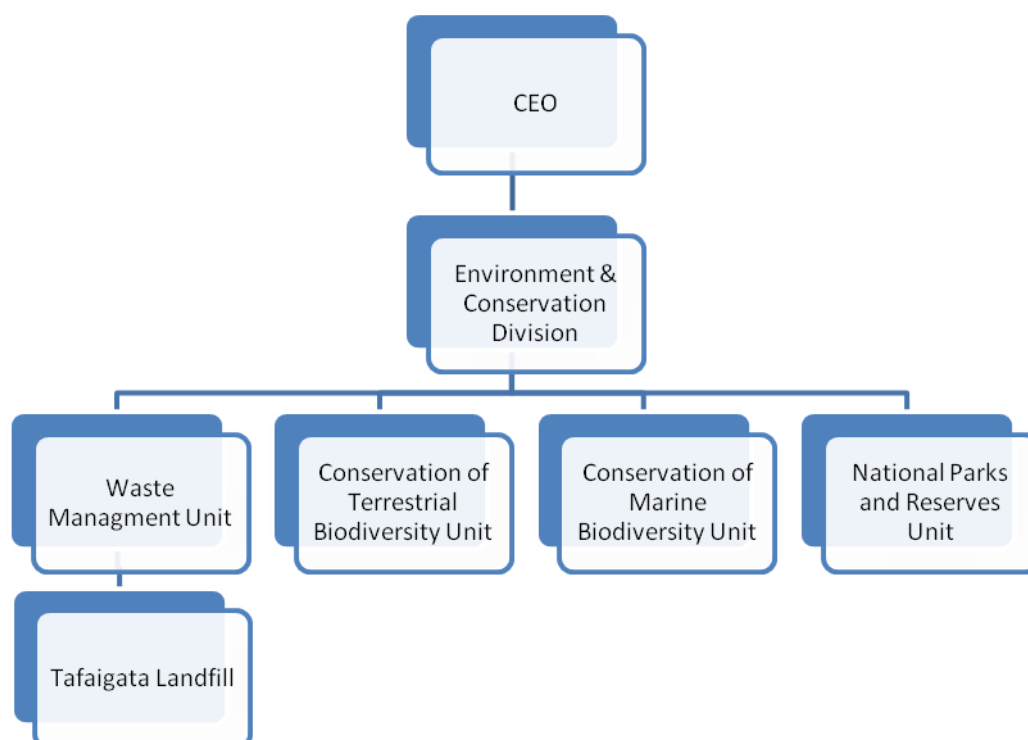
Parliament for its third reading and due to be ratified in 2010. The Ministry of Natural Resources and the Environment (MNRE) formerly known as the Department of Lands, Survey and Environment (DLSE), is the agency in Samoa that has the mandate to manage waste and ensure that any issues related to Solid Waste Management are appropriately addressed. The Division of Environment and Conservation of the ministry is responsible for the daily operations of the landfill. Figure 3 depicts the division responsible for solid waste in the Ministry as an extract of Appendix B.

Figure 2: The Solid Waste System in Samoa



Source: Samoa Audit Office.

Figure 3: Extract of Organisational Structure for MNRE Showing Waste Management Unit.



International Conventions

Samoa is signatory to the following multilateral environmental agreements (MEAs), dealing with the international management of various types of waste:

- the Basel Convention (1989) on the control of trans-boundary movement of hazardous waste and disposal;
- the Waigani Convention (1995) to ban the importation of hazardous radioactive waste and to control the trans-boundary movement and management of hazardous waste within the Pacific region;
- the Rotterdam Convention (1998) on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; and
- the Stockholm Convention (2001) on Persistent Organic Pollutants (POPs).

In addition, the Government of Samoa is signatory to the *Strategy for Solid Waste Management in Pacific Island Countries and Territories*.

3.0 Audit objectives & scope

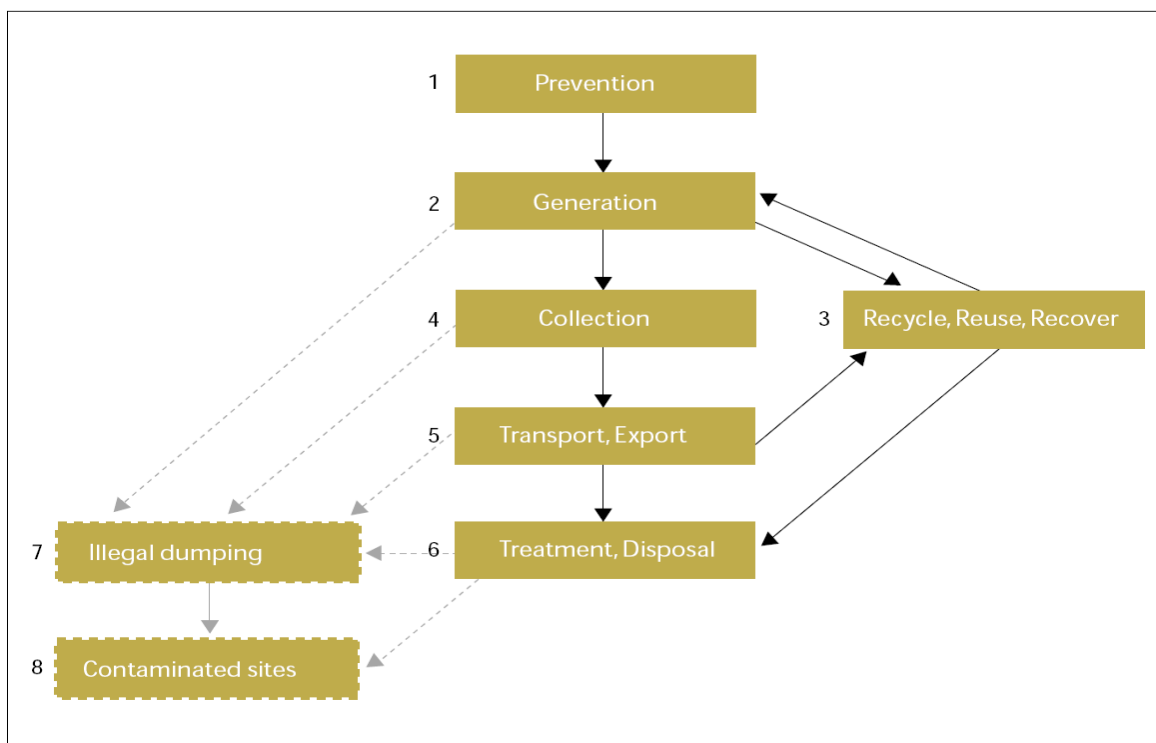
The objective of the audit is to assess the effectiveness of the management of solid waste at Tafaigata Landfill within the audit jurisdiction of the Samoa Audit Office. In order to achieve this objective the following lines of enquiry (LOE) were used:

- LOE 1: The existence of a legal and policy framework for Solid Waste Management;
- LOE 2: The process by which the legal and policy framework is implemented, including whether risks to implementation have been considered; and
- LOE 3: Compliance with the legal and policy framework, including monitoring arrangements.

Audit scope

The audit will focus primarily on the operations of Tafaigata Landfill and the roles of key Government agencies, especially the Ministry of Natural Resources and Environment. This is concerning aspects of the Waste Stream represented below at Figure 4.

Figure 4: The Waste Stream



Source: INTOSAI WORKING GROUP ON ENVIRONMENTAL AUDITING (WGEA), *TOWARDS AUDITING WASTE*.

The following aspects of the waste stream are the focus of the audit:

1. *Prevention*

Information/education that is available to the community and businesses to increase awareness of how they can limit the amount of solid waste that is produced.

2. *Generation*

This aspect examines who produces the waste – households, businesses and government and what measures are in place to minimize the generation of solid waste.

3. *Recycle, Reuse and Recover*

This aspect examines policies and procedures that are in place to assist waste generators to recycle waste products and also examines what processes there are, as part of the collection process, to maximize opportunities for recycling and reuse of components of solid waste.

4. *Collection*

Under the above waste stream the audit will look into the process of waste collections from the generators (households, businesses and government). The means, fee structure and the frequency of collection will also be covered.

5. *Transport*

This aspect of the waste stream refers to the transportation to the landfill of waste once collected from the generators.

6. *Treatment/Disposal*

This covers the treatment and disposal of waste and the suitability of areas designated for these activities.

4.0 Audit methodology

Audit had an introductory meeting with the Chief Executive Officer (CEO) and the Assistant Chief Executive Officer (ACEO) for Environment and Conservation division of the Ministry of Natural Resources and Environment. At this meeting the CEO was informed of the performance audit that will be carried out on the Tafaigata landfill. The CEO affirmed his office's support and the provision of information and data required for our audit fieldwork to enable us to achieve the audit objectives.

The following audit procedures were used to gather evidence:

- i. Discussions with MNRE employees responsible for solid waste management:

| Name | Designation |
|----------------------|---|
| Faleafaga T. Tipamaa | ACEO –Environment & Conservation Division |
| Setoa Apo | Principal Waste Management Officer |
| Josephine Stowers | Legal Officer - MNRE |
| Fuatino Leota | Principal Officer – Hazardous Waste |

- ii. Review of key documents:
 - a. Draft National Strategy for Solid Waste Management 2008 – 2018
 - b. Manual for Operation and Maintenance at Sanitary Landfill
 - c. Waste Management Bill 2009
 - d. Government of Samoa Approved Estimates for the financial year ended 30 June 2009
 - e. Government of Samoa Approved Estimates for the financial year ended 30 June 2010
 - f. Minutes of meetings of the Monitoring Committee
- iii. Site visit to the Tafaigata Landfill.

5.0 Findings & recommendations

Audit criteria were developed to assess the achievement of each of the three lines of enquiry (LOE). Based on the audit procedures and evidence gathered during our audit fieldwork we discovered the following findings and made respective recommendations.

5.1 Existence of a legal and policy framework

5.1.1

Criteria: Existence of an approved strategy for implementing solid waste management.

The legal and policy framework is set by the Strategy for the Development of Samoa (SDS) 2008-2012. Lands, Survey and Environment Act 1989 (LSE Act 1989) is the enabling legislation that prescribes the Ministry's functions to prevent and control pollution as well as promote litter control. Division 8 of the LSE Act relates to control of litter which is defined as solid wastes in sections 125-134 of the LSE Act.

Currently the Waste Management Bill 2009 which is in its third reading in Parliament is specifically for the collection and disposal of solid wastes and the management of all wastes in Samoa. The Bill describes the Ministry's responsibilities with regards to waste management including the formulation and implementation of a National Waste Management Strategy. *Appendix A* has a summary of some key activities which the Bill will help coordinate and enforce.

This national strategy prescribed the solid waste management activities and how these activities should be coordinated so that the objectives are achieved. The draft National Solid Waste Management Strategy 2008-2018 is also in line with Goal 7 of the UNDP's Millennium Development Goals which is to ensure environmental sustainability.

Issue

The National Solid Waste Management Strategy 2008-2018 is still in draft form and is yet to be approved. As such, there is no formal arrangement binding the Ministry to achieve the outcomes prescribed in the strategy if the strategy is to be implemented in the period to which it relates. Having the strategy approved is evidence of the consent to all the activities and expected outcomes included in the strategy.

For the legal framework to be fully effective and to ensure a smooth transition from existing policies and legislations to the proposed Waste Management legislation, the National Waste Management Strategy 2008-2018 needs to be approved and include the specification of timelines for achieving the objectives of the strategy accompanied by performance measures suitable for assessing progress towards goal achievement. It is very important to have the strategy approved as an indication that the proper authorities have consented to and are aware of the strategies and the outcomes described in the strategy.

Recommendation

SAO recommends that management should make it a priority to get the strategy approved by the appropriate authority. To ensure the effective implementation of this strategy, the approval signifies the commitment to implement and ultimately accountability for expected outcomes to be achieved.

Management Comments

Division 8 of Part VIII of the Lands, Survey and Environment Act 1989 provides for management of solid waste. Therefore a legal and policy framework existed for solid waste management in Samoa. Section 126 in particular empowers Minister to designate land for depositing litter and rubbish. This was the empowering provision that led to shift of old landfill from Vaitoloa to Tafaigata. The management of solid waste is premised upon conservation officers to prevent illegal disposal or depositing of litter and rubbish. Under the PUMA Act 2004, section 63 provides for amenity of an area or place to be maintained in good order. Where waste material and waste water become excessive or ill managed, the agency takes action to have these rectified.

5.1.2

Criteria: The approved strategy should have time lines for implementation and a single agency to coordinate activities across Government.

Issue

The draft strategy does not have time lines for implementation. The strategy identifies the outcomes and strategies but there are no time lines to indicate when the outcome should be achieved.

Solid Waste Management is a national priority involving many stakeholders. Where efforts are required by more than one government agency to implement an activity of the national strategy, for example the development of a public awareness campaign; the Ministry of Natural Resources and the Environment (MNRE), as the lead agency, should assume a coordination role so that the efforts of other stakeholders involved in implementing the strategy are maximized.

Recommendation

SAO recommends that:

- Time lines should be identified in the strategy
- MNRE should exercise its authority as the lead agency to coordinate activities with other implementing agencies to achieve the objectives in the draft strategy.

Management Comments

Recommended improvements to NSWMS 2008-2018 welcomed.

5.2 Process by which the legal & policy framework is implemented

To ensure sound management of a solid waste policy, the ministry can intervene at key points in the waste stream. The audit assessed the implementation of the legal and policy framework in Samoa at six of these intervention points.

5.2.1

PREVENTION

Criteria – The Ministry should have well designed community awareness programs and up-to-date website which allows the community to access policy and information on solid waste management.

A well designed community awareness program is a plan that identifies the different types of awareness programs to be carried out, how often the program should be carried out – weekly, monthly, bi-annually or annually, the targeted audience, the form it should take (advertisement or notice on TV or radio, consultation, training, pamphlets, internet, etc) and the solid waste management issue that the program is addressing – prevention, generation, collection, recycle, reuse, reduce, transport and disposal. It's important to identify the targeted audience so that the appropriate language is used to ensure that the message is understood. The plan should identify who in the Ministry / Division is responsible for carrying out these programs and should include ways of monitoring or evaluating whether the program was effective – whether the purpose of the awareness program was achieved.

Waste management activities started way back in 1992 when the Department of Environment Conservation (DEC) was up and running within the Ministry when it was known as the Department of Lands, Survey and Environment. Every year since 2000, a “Kids Corner” and environment pages in the local newspaper, Samoa Observer, featured waste management. There were solid waste awareness advertisement on television and a school recycling project was conducted for the Apia area to promote separation of rubbish into the different types of waste. Seminars have been conducted for village mayors and women's committee by the Ministry of Women, Community and Social Development to promote solid waste management in villages. The Waste Management Unit conducted awareness programs at selected primary schools in Upolu for the months of February to April 2010.

Issue

The Ministry does not at present, have a well designed community awareness program. Although the Ministry had carried out some community awareness programs, these programs were fragmented. In the absence of a plan identifying the awareness programs and the responsible officers, there is no way of ensuring that awareness programs have been conducted as expected. Furthermore there is no way of monitoring or evaluating whether the program was effective and had contributed to improving solid waste management. The Ministry should use the appropriate means of communication depending on the information that it wishes to pass on to the public and its stakeholders. For instance, there should be public notices on television and on the radio about who can access the landfill, the working hours at the landfill to limit after-hours access and the schedule for collection of wastes from households for the different zones.

Websites have become increasingly effective and economical in disseminating information. Therefore it is important to have a specific link for Solid Waste Management within the Ministry's website so that it is easier for the public to have access to information and policy on solid waste management as well as any issue concerning solid waste management.

To ensure effective implementation of the draft national solid waste management strategy, a well-designed, current and targeted community awareness program is required. The targeted audience should be considered when determining how the information should be given to the public. The urgency of the matter should also be considered so that everyone is aware of the matter as soon as possible.

Recommendations

Samoa Audit Office (SAO) recommends the following:

- That the Waste Management Unit should submit a proposal to the Chief Executive Officer of the Ministry for setting up a website specifically for Solid Waste Management.

- A senior waste management officer should be responsible for updating this website with the correct information and policy.
- Waste Management Unit should develop a national awareness program on the management of solid waste.
- MNRE should choose the appropriate means of communication in awareness programs in order for the awareness program to be effective.

Management Comments

We have a very good public awareness programme and it's an ongoing activity in our yearly work plan for the Waste division. This has been in place over the last 20 years.

5.2.2

GENERATION

Criteria – The volume of waste should be measured and there should be data available.

The National Solid Waste Management strategy acknowledges that solid waste generation requires great attention due to the high percentages of package materials that represent about 40% of the generated solid waste at both landfills (Tafaigata and Vaiaata).⁴ However there is very little information on commercial solid waste generated at source despite the importance of and potential risks associated with such wastes. It is equally important to have baseline information on the volume of waste so that strategies can be formulated to minimize waste and the effectiveness of these strategies can be measured.

Issue

The MNRE has general data on the composition of waste which is disposed of at the Tafaigata landfill. From discussions with the Waste Management Officer as well as observations during our site visit, we noted that there is currently no means available to calculate the volume of waste generated by the residential sector, the commercial sector or the government sector which arrives at the landfill. The Waste Management Unit is awaiting assistance from JICA to build a weighbridge that will be used to measure the volume of waste.

Figure 5 below is a copy of the receipt book at the landfill that records the fees collected based on the description of the vehicle bringing wastes to the landfill. There are no dimensions or estimates of weight identified on the receipt book which means that the volume of waste is dependent on personal judgement.

⁴ MNRE, *draft National Solid Waste Management Strategy 2008 – 2018*.

Figure 5: Copy of receipt

| LANDS, SURVEYS & ENVIRONMENT | | 22002 | |
|--|---------------------------|--------------|-----------|
| CHARGES FOR WASTE DISPOSAL - TAFaIGATA LANDFILL | | | |
| NAME: | | DATE: | |
| | | \$ | NO. LOADS |
| 1 GENERAL WASTE (Domestic, industrial and green) | Container load | 50.00 | |
| | Large truck/trailer load | 20.00 | |
| | Medium truck/trailer load | 10.00 | |
| | Small truck/trailer load | 5.00 | |
| 2 BULK WASTE (tyres, machinery, appliances, scrap metal) | Container load | 75.00 | |
| | Large truck/trailer load | 30.00 | |
| | Medium truck/trailer load | 20.00 | |
| | Small truck/trailer load | 10.00 | |
| 3 SEWAGE | (Septic tank truck load) | 30.00 | |
| 4 SPECIAL HOSPITAL WASTE | (Per discharge) | 20.00 | |
| 5 HAZARD WASTE (chemical, toxic, asbestos, waste oil) | | | |
| FAAMAMA LOU SIOSIOMAGA | | | |
| CHECKED BY: | | RECEIVED BY: | |

The lack of any baseline data makes it very difficult to assess the effectiveness of waste minimisation strategies and to develop future plans for waste management. In the absence of data it would make it difficult to accurately determine the lifespan of the Landfill.

Recommendation

SAO recommends that dimensions for vehicles and estimates of waste volume should be identified in the receipt book to give a reasonable estimate on the volume of waste brought to the landfill, prior to the construction of the weighbridge.

Management Comments

There is no mechanism at site such as a weigh bridge to determine volume of waste due to high costs for such equipment. What the Ministry used however was to determine the volume of waste at source. This is a common and approved approach used in NZ and Aust. I myself conducted two of these, one in 1994 and another in 2000 which enabled the estimation of a generation rate of solid waste in Samoa, bulk density and volume. A simple mathematical estimate was used to determine volume through a multiplier factor per truck size, although it will only be a crude guess as carriages of solid waste are not always filled to capacity. Both methods provide estimates rather than actual form a weigh bridge.

5.2.3

RECYCLE, REUSE, RECOVER

Criteria- Waste at landfill should be separated into general, recyclable, organic, industrial, septic and hazardous waste.

Issue

Currently there is no segregation of waste at source. During our site visit we noted that the vehicles entered the landfill freely without the Waste Management Officer checking the vehicles to identify and confirm the type of waste being brought to the landfill for disposal. Thus there is no proper mechanism in place to ensure that waste at the landfill is properly segregated.

Recommendation

SAO recommends that a proper gate at the entrance to the landfill must be built so that it is easier for the officers at the landfill to stop vehicles coming to the landfill at the gate, inspect the waste to confirm the type of waste to be disposed then direct the vehicle to the designated area depending on the type of waste already inspected. This daily process will compensate for the non-segregation of waste at source and will ensure that wastes being disposed at the landfill are properly separated.

Management Comments

We do segregate at the landfill where the bulky waste is separated from the general solid waste and also the E-waste separate from the hazardous waste and medical waste. Waste separation was encouraged at source but the garbage trucks being used by contractors end up mixing the waste before it gets to the landfill.

5.2.4

Criteria – There should be an agreement for recycling businesses to collect recycled items from the landfill.

Issue

There is no legal agreement for recycling businesses to collect recycled items from the landfill. However the Ministry acknowledges the effort by recycling companies in waste minimization for landfill. Currently, there is only one company operating from within the Government land at Tafaigata. The Government provides the land and this is the only company who is allowed to recover recyclable items from the landfill. Sometimes scavengers are present at the landfill and they play an informal role in separating wastes and taking recyclable items to the recycling company. The scavengers get paid by the recycling company for the volume of items they can collect. In the absence of a formal arrangement, no one is responsible for the health and safety of people who are scavenging recyclable items from the landfill and handed them to the recycling company in return for some monetary payment.

This is an ineffective practice and attention needs to be given to developing recycling policies so that opportunities for recycling, reuse and recovery of wastes are more widely available to the community. Policies on recycling, reuse and recovery of wastes should consider health and safety measures for those involved in such activities.

Figure 6: Scavengers at the landfill



Recommendations

SAO recommends that MNRE:

- Explores additional options to encourage recycling activities
- Formalise the agreement with the recycling company taking into account occupational health and safety measures as prescribed in the Manual for Operation and Maintenance at Sanitary Landfill

Management Comments

Recycling companies are given an entry letter to remove recyclables from the landfill. Two recycling companies have also established operations to south of the main office at Tafaigata. They currently assist in absorbing recyclables from the main stream. Ministry is also aware of other waste recyclers operating in Samoa whom have received incentives and facilitated through MNRE endorsements.

5.2.5

COLLECTION

Criteria- There should be contracts for rubbish collectors. There should be a specific telephone number for complaints regarding solid waste management and there should be a database to record these complaints.

There are six companies responsible for the collection of solid waste in Samoa; two in Savaii and four in Upolu. These companies are as follows:

1. TNT
2. Jaffa's Sanitary
3. Bluebird Company
4. Leva'a Sauaso
5. Apia Lua (Savaii)
6. Sakalafai (Savaii)

The country is divided into thirteen (13) zones for collection purposes; there are ten (10) zones in Upolu, two (2) in Savaii and one in Manono.

Issue

There are no contracts between the Ministry and the companies responsible for collecting general wastes from households. Furthermore there is no monitoring mechanism that enables the Ministry to confirm that the companies are actually carrying out their tasks as expected. It is worth noting that the government appropriation for solid waste management services for the financial year ended 30 June 2009 was SAT\$2,513,390⁵ and the actual total payments for the same year was SAT\$2,201,898. Solid waste management services included solid waste collection, maintenance of landfill, maintenance of public cemetery as well as the maintenance of public toilets.

In the absence of a written contract, it is very difficult to assess the effectiveness of the solid waste collecting arrangements because the performance measures for the companies are not clearly identified and consequently any assessment of their performance cannot be made because there are no measures to gauge the performance. Considering that there was actual spending of SAT\$2.2 million for solid waste management services, it is a significant amount of public funds being spent without proper arrangements or contracts to ensure that such funds were well spent and were spent in accordance with the purpose as appropriated.

Complaints

There is no specific telephone number for complaints regarding issues on solid waste management. Complaints regarding solid waste collection are received from time to time through the main office. There are complaint forms also at the Waste Management Unit which are used to record any complaints. However these forms are not filed or kept in a proper place so that they can be used in the absence of a database.

Complaints are a measure to monitor the performance of the contracted solid waste collectors and to support the payments made to them.

Waste collection services are carried out by the private sector. This activity needs to be supported by sound contractual arrangements which set out the deliverables sought by government and measures enabling the assessment of contractor performance against the agreed tasks. A complaints handling procedure would support the management of contractual arrangements and alert the MNRE to less than optimal contractor performance.

⁵ Government of Samoa Approved Estimates for the financial year 30 June 2009.

Recommendations

SAO recommends that:

- There should be signed contracts between MNRE and the solid waste collectors specifying the deliverables
- The contracts should include the minimum standards for collection contractors set out in the Manual for Operation and Maintenance at Sanitary Landfill
- MNRE establishes a suitable system for handling complaints

Management Comments

Yes, in the last round of contract management there was none done except a formal letter was written to the companies for the duration of contract and what the contracts should comply with. There was an investigation conducted by the PSC and MOF as well as your office for the Tenders Board. This led to stalling of these contracts' execution. New contracts have been advertised and are expected to be signed end of this month.

5.2.6

TRANSPORT AND EXPORT

Criteria – There should be a fee structure depending on the different types of waste and its volume for vehicles coming to the landfill site.

Issue

There is no fee structure and no proper system to charge wastes disposed at the landfill. The charges are explained in the receipt book located at the landfill. The fee is based on the type of waste – general, bulk, sewage, special hospital waste and hazard waste and the size of the vehicle delivering the waste to be disposed at the landfill.

The receipt book does not provide for a distinction between types of waste or a good process to determine the volume of the waste deposited. An arbitrary decision as to cost is made by the landfill staff. Where funds available for good waste management practices are scarce, the MNRE needs to ensure that an appropriate fee structure is established for the landfill, and is implemented and monitored.

A proper system would be able to identify how many vehicles coming to the landfill, the type of vehicles and type of waste that are brought to the landfill. This information is reconciled against the cash collected for the day and will confirm the accuracy of the daily collection. The current system cannot identify how many vehicles brought waste to the landfill and therefore there is no proof of the accuracy of the total cash collected at the landfill every day.

Recommendation

SAO recommends:

- that there should be a proper system in place to charge the types and volume of waste disposed at the landfill;
- that record keeping processes at the landfill should be enforced to support revenue collection.

Management Comments

The MNRE has been charging and collecting entry fees for the landfill since its inception in 1992. The fees and charges rates were directed by the MOF. We need to review these fees.

5.2.7

TREATMENT AND DISPOSAL

Criteria – There should be proper and adequate controls surrounding the physical security of the landfill.

Issue

Physical security at the landfill is poor, with ease of entrance and exit. The lack of fencing means that the public can enter the landfill at any time. This has led to wide-scale scavenging at the landfill. Scavengers are actively involved in the separation of waste at the landfill and receive compensation from the Recycling Company, based at the landfill, for what they collect. While such a practice supports recycling activities in Apia, it can also pose public health risks for the scavengers and the community more broadly. The MNRE needs to manage these risks.

Recommendation

SAO recommends that the landfill be fenced with a secured gate at the entrance to minimize illegal visitors or personnel on the landfill. This will also help address the occupational health and safety issues by limiting access.

Management Comments

We have security through officers of the Ministry at the landfill. There is also a night watchman. However a fence is critically needed but lack of resources has been an obstacle. Part of the MNRE awareness includes informing public not to enter the landfill as it is a dangerous place.

Figure 7: One of the waste cells at Tafaigata Landfill



5.2.8

Criteria – Disposal sites and Prohibited areas should be clearly identified.

Issue

There are no sign posts in the landfill to identify the disposal sites for the different types of wastes. Moreover, the Approved Estimates for the year ended 30 June 2010 required the implementation of a colour coding system for waste segregation at the landfill.

Recommendation

SAO recommends that the Waste Management Unit should implement a colour coding or appropriate means of identification to ensure that wastes are properly segregated at the landfill.

Management Comments

Recommendation noted.

Figure 8: Leachate facility at Tafaigata landfill



5.3 Compliance with the legal and policy framework including monitoring arrangements

The Ministry of Natural Resources and Environment (MNRE) is the main Ministry responsible for implementing the national strategy for solid waste management as well as monitoring the implementation and achievements of the activities specified in the strategy. There is an apparent drawback with this procedure because the same ministry or organization is the implementing agency and it is also monitoring itself as to whether it is achieving the expected outcomes specified in the strategy. Good governance and accountability practice is best achieved when there is a separation between the implementing and the monitoring roles. Compliance with the legal and policy framework is assured if the monitoring agency is independent from the implementing agency.

5.3.1

Criteria – The operations at the landfill should be monitored and the outcome of the performance measure(s) for the landfill be reported.

The monitoring committee consists of JICA expert, a local consultant and a representative from SPREP's regional solid waste project. This committee meets on a monthly basis. It monitors the progress of the landfill and recommends ways for improving the operations at the landfill.

In addition to the monitoring committee's monitoring role, the Division of Environment and Conservation within the MNRE holds monthly meetings to monitor the application of policies at the landfill.

The results of the performance measures for the landfill are reported in the Ministry's annual report.

Issue

We have not received copies of minutes of meetings of the Division of Environment and Conservation as well as copies of the Ministry's annual report and six-monthly reports.

The monitoring and implementing roles are assumed by the sole agency – MNRE. Good governance and accountability practice is best achieved when there is independence between the implementing and the monitoring roles. Compliance with the legal and policy framework is assured if the monitoring agency is independent from the implementing agency. Therefore the segregation of the implementing role and the monitoring role at the landfill will enhance the accountability of the responsible employees implementing waste management activities.

Any matters discussed at meetings relating to the progress of activities at the landfill should be properly documented and kept in a safe place. Decision making and appropriate actions to be taken are dependent on the availability of the information.

Recommendation

SAO recommends:

- that the monitoring role performed by the Ministry should be separate to its implementing role at the landfill in order to enhance the accountability and improve the monitoring and reporting framework for all agencies with responsibilities for waste management;

- that minutes of meetings be certified and kept as evidence of resolutions discussed in the meeting.

Management Comments

This is not true, as I am monitoring the work plan of the waste section which reflects this activity. The annual reports of the Ministry (latest is 2007/08) reports these activities. On a monthly basis the division responsible for waste management reports to me on these.

5.3.2

Criteria- Landfill operation should comply with occupational health and safety standards as well as other processes prescribed in the Manual for Operation and Maintenance of Sanitary Landfill.

The manual prescribes the appropriate clothing to ensure occupational health and safety standards are upheld. Safety helmet, sunglasses, long sleeve working wear, safety vest, gloves and safety boots are the prescribed safety attire for the landfill.

The manual also prescribes information on waste type and quantity of waste as well as the minimum standard requirements for collection agencies.

Issue

Occupational health and safety standards such as wearing protective clothing are not complied with by the Waste Management Unit. From discussion with the Waste Management Officer, they are mindful of the health risks relating to not wearing safety clothing. However, there is always the financial hindrance which is the main reason why there are no safety clothing worn; because there are no funds available to provide the proper safety clothing required to be worn at the landfill.

Furthermore there are several operations at the landfill that do not comply with the standards and processes prescribed in the manual. For instance, there is no data on type and quantity of waste to improve daily operations and for the future planning of waste management. Information on the minimum standards for collection contractors as specified in the manual is not available at the landfill.

Landfill operations do not comply with occupational health and safety standards. The MNRE has a duty of care to ensure that the employees working at the landfill are appropriately equipped with the necessary clothing and equipment to handle the types of waste disposed of at the landfill. Similarly, contracting staff engaged in waste collection processes also need to be appropriately attired. The MNRE needs to monitor compliance with the government's occupational health and safety laws.

Recommendations

SAO recommends that:

- MNRE should secure funding to purchase the appropriate safety clothing as prescribed in the Manual for Operation and Maintenance at Sanitary Landfill;
- The Waste Management Unit should ensure that any person entering the landfill must wear the proper safety clothing so that health risks are minimized;

- MNRE should ensure that the standards and processes prescribed in the manual are complied with to ensure that the operations at the landfill are effective and safe.

Management Comments

All safety equipment is provided for the workers. However each worker needed at least five sets of gear for 12 months. Only one set is available which deteriorates within a couple of month. Manuals developed based on overseas standards where resources can afford gear.

6.0 Conclusion

Effective solid waste management is important to Samoa, given the development aspirations outlined in the *Strategy for the Development of Samoa 2008-2012 – Ensuring Sustainable Economic and Social Progress*.

In 2009, the Waste Management Bill was introduced in Parliament – a bill specifically dedicated to waste management, demonstrating the importance of the issue for the Government. At the time of the audit, the bill was being read for the second time and is expected to be approved in 2010.

While recognizing that progress has been made in the management of solid waste in Samoa, the audit found areas requiring further attention by the responsible agencies. Overall the audit concluded that the management of solid waste at the Tafaigata Landfill was not effective. Areas that need improving included the approval of the strategy; the effective implementation of the legal and policy framework; and monitoring and reporting of compliance with the legal framework.

Hopefully, the ratification of the draft Bill will help address the shortcomings noted in the report. In addition, an approved strategy will bind the MNRE to achieve its objectives and improve coordination of waste management activities with other implementing agencies.

Similarly, if a weighbridge is constructed, this will provide a mechanism for measuring the volume and type of waste. Consequently, this will provide baseline data that will assist in developing effective waste minimisation strategies and future plans for waste management.

Having proper signed contracts in place will ensure that terms and conditions for the waste collection companies are clearly identified and performance can be assessed.

Separating the monitoring roles of the ministry and its implementing role at the Landfill will hopefully achieve good governance and accountability. Compliance with the legal and policy framework is enhanced if the monitoring role is independent from the implementing role.

7.0 Appendices

Appendix A: Key Points from Waste Management Bill 2009

The bill will consolidate and harmonise the legal framework in the following ways:

- prescribe the registration and licensing of waste operators;
- introduce special levies on goods which may have adverse affects on the environment;
- require the development of environmental and public health standards relating to waste management practices and for the monitoring and enforcement of these standards by the responsible Ministry;
- impose obligations concerning certain types of waste, including requiring the lodging of a deposit in relation to certain objects, substances or things which may become wastes to ensure their appropriate disposal by recycling or otherwise;
- the implementation of relevant international conventions;
- set out the functions related to waste management operations;
- raise public awareness concerning the minimisation of the generation of wastes;
- set a fee and charges schedule for waste management services;
- require the development an approval of operational plans by waste management operators; and
- require approved waste management operators to promote the recycling of wastes.

Appendix B: MNRE Organisation Chart Showing Waste Management Unit

