

# Table of Contents

1. FO	REWORD
2. IN	IRODUCTION
2.1.	PURPOSE OF THE PLAN
2.2.	SCOPE OF THE PLAN
2.3.	WHEN THE PLAN WILL BE REVIEWED
2.4.	CURRENT STATUS OF THE PLAN
3. VI	SION, GOALS AND TARGETS
3.1.	VISION FOR THE FUTURE
3.2.	Waste Management Goals
3.3.	Waste Management Targets5
3.4.	INTENDED ROLE OF SPG AND LMC
3.5.	Consultation
4. PO	LICIES PLANS AND REGULATION
4.1.	LEGISLATION
4.2.	OTHER CONSIDERATIONS
5. TH	E WASTE SITUATION
5.1.	BACKGROUND
6. SU	MMARY OF WASTE QUANTITY
6.1.	OVERVIEW OF EXISTING INFRASTRUCTURE AND SERVICES
6.2.	Assessment of future demand
6.3.	PROVINCE SPECIFIC ISSUES
7. PR	OPOSED METHODS FOR ACHIEVING WASTE MANAGEMENT13
8. FU	NDING THE WASTE MANAGEMENT PLAN16
8.1.	How the implementation of the Plan is to be funded16
9. M	DNITORING AND REPORTING PROGRESS

### **1. FOREWORD**

Waste Management and Pollution Control is a current priority issue for the government of Vanuatu. The government is committed under regional and international multilateral agreements relating to Waste Management and Pollution Control to ensure obligations under these agreements are met, to conserve and protect our natural resources and environment.

In 2001, the National Waste Management Policy was developed to provide a national framework for Waste Management and Pollution Control in a sustainable manner. In 2010, the Pollution Control Bill and the Waste Management Bill and the National Waste Management Strategy were developed to ensure there is a solid foundation for waste management.

In 2012 and 2013, the Sanma Provincial Government and the Luganville Municipal Council conducted waste characterisation surveys to determine the amount of waste generated in households and businesses. The results show that from the 50 households surveyed, each household generates an average of 44kg per week. The majority (53%) of the waste generated is organic waste - food waste and yard waste. Therefore of the 2.1 tonnes generated each year by households, 1.7 tonnes or 81% is potentially recyclable - organic waste can be composted, and glass, tin cans, aluminum cans, plastic bottles, paper and cardboard can all be recycled.

The businesses houses are individually producing approximately 95 kgs of waste per week. This equates to 5 tonnes per business house per year or 988 tonnes per year from the entire business community. Much of this waste is also recyclable in fact 81% or 801 tonnes per years could be prevented from being buried in landfill.

The Sanma Province and Luganville Municipality Waste Management Plan 2013 - 2016 is the first plan to be developed in Vanuatu. Congratulations to the Waste Management team at Sanma Province and Luganville Municipality for the taking a huge step to prepare this paper. This Plan sets out the framework for the Province and the Municipality for the delivery of effective waste management, and to ensure waste is treated in a sustainable and efficient manner. The Department of Environmental Protection and Conservation will continue to provide assistance to the Province and the Municipality to ensure waste management is properly addressed not only in the urban areas but rural areas as well.

In closing, this Plan is a guide for all citizens of Sanma and Luganville to improve waste management practices for a cleaner and safer environment. Let us all take good care and protect our environment. Our tomorrow depends on what we do today.

Albert Williams Director Department of Environmental Protection and Nonserv ET LA CONSERVATION DEPARTMENT OF ENVIRONMENT AND CONSERVATION BILLOUE DE LA DEPARTMENT OF ENVIRONMENT AND CONSERVATION BILLOUE DE LA DEPARTMENT OF ENVIRONMENT AND CONSERVATION BILLOUE DE LA DEPARTMENT OF ENVIRONMENT AND CONSERVATION	ation
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# **2. INTRODUCTION**

### 2.1. Purpose of the Plan

The purpose of a Waste Management Plan ('WMP' or 'The Plan') is to promote effective and efficient waste management within a certain geographical or legislative boundary and consideration must be given in the Plan to waste reduction, reuse, recycling recovery, treatment and disposal.

Whilst it is not currently a legislative requirement for a Province to write its own Waste Management Plan, the Sanma Provincial Government ('SPG' or The Province') and the Luganville Municipal Council ('LMC' or 'The Municipality') believe that this is an essential process that will ensure a coordinated and efficient approach to waste management for the foreseeable future.

The purpose of this Plan is to:

- Describe the vision for solid waste management for Sanma Province and how it will meet its long-term strategic goals for these
- Identify the strategies and policies needed to support the achievement of the goals as well as targets, so that SPG and LMC can measure how well they are progressing towards achieving their waste management goals
- Provide information on how the SPG and LMC intend to fund the activities of this WMP over the next three years to 2016.

### 2.2. Scope of the Plan

The Plan sets out how SPG and LMC will promote efficient and effective waste management and minimisation in the Province by considering the waste and diverted materials in the order of priority (waste hierarchy).

- Reduction
- Reuse
- Recycling
- Disposal



For the purposes of this WMP, waste is defined as 'waste to landfill' and the term 'diverted materials' refers to materials collected for recycling, composting or other recovery or treatment options.

The Plan covers solid waste from residential, commercial, institutional and industrial sources. It also includes hazardous and medical waste and waste from natural disasters. The Plan excludes liquid and gaseous wastes including sewage and septic waste. The Plan covers all aspects of waste management,

from management and minimisation to treatment and disposal of waste. It also includes actions for the management of waste for the following activities:

- Waste minimisation education and behaviour change
- Data management
- Rubbish and recycling services
- Landfill status
- Illegal dumping
- Treatment of hazardous waste

### 2.3. When the Plan will be reviewed

It is recommended that this Waste Management Plan cover the period from 2013-2016 and then be reviewed every five years after adoption so as to be in line with the National Waste Management Strategy 2011-2016. However, as this is the first WMP for the Province a mid-term review should be completed in 2014 to ensure it is up to date and reflects any changes in conditions. A waste characterisation must be completed in order for the WMP to be reviewed. The next review will therefore be carried out before December 2014.

### 2.4. Current Status of the Plan

This is the first Provincial Waste Management Plan to be written in Vanuatu. As such it has been prepared based on best practice in the South Pacific (including New Zealand and Australia) and is guided by the Pacific Regional Solid Waste Management Strategy 2010 – 2015, developed by the Secretariat of the Pacific Regional Environment Programme (SPREP).

# 3. VISION, GOALS AND TARGETS

### 3.1. Vision for the future

The overall vision of this WMP is that the Province and the Municipality will provide effective, efficient and safe waste management and minimisation services in order to protect the environment from harm, and provide environmental, social, economic, and cultural benefits.

In turn, all residents, business, school and industry will take responsibility for the waste they produce and work to reduce it, enhancing the environment in which we live, work and play.

### 3.2. Waste Management Goals

The main goal of the Plan is to develop the most cost effective range of waste management services possible with the aim of ensuring sustainable management, conservation of resources and protection of the environment and public health, therefore the goals of the Plan are to:

- Reduce the amount of waste entering the waste stream
- Increase the volume of waste diverted from landfill through recycling
- Provide financial incentives to the public to reduce residual waste
- Provide a network of collection methods that balance service levels to the public with cost effectiveness
- Provide for the safe and efficient disposal of residual waste to landfill
- Ensure that hazardous wastes do not enter the waste stream
- Recover the cost of waste management from those who produce the residual waste
- Encourage the community to take ownership/personal responsibility for waste
- Encourage the community to view waste as a resource
- Provide robust regular monitoring of the Provinces solid waste stream.
- Gain better information/data upon which to base future decisions regarding waste management

### 3.3. Waste Management Targets

We will reduce the quantity of Organic waste disposed of to landfill by 10% per capita by 2016

We will reduce the quantity of Cardboard waste disposed of to landfill by 20% per capita by 2016

### 3.4. Intended role of SPG and LMC

#### Collection

To provide effective and efficient collection and handling of recyclable materials and residual waste and meet future demands. Council will continue to provide collection services for residual waste and where appropriate will introduce a collection system for recyclables.

#### Recycling

To develop new opportunities where possible for the recycling of cardboard, plastic, glass, tin, and aluminium. To educate and enable home composting of organic waste.

#### Disposal

The Municipality currently operates the landfill. This site will be closed capped and remediated in the next two years and a new site is currently being explored in the Chapuis area. The LMC intends to meet future demands for waste, and waste minimisation measures will be put in place to reduce waste disposal to landfill.

### **Education and Awareness**

In partnership with other agencies and Non Government Organisations SPG and LMC will ensure that any new collection systems and initiatives are accompanied by a comprehensive education and awareness programme.

### 3.5. Consultation

The SPG and The LMC will consult with businesses, community in both the urban and rural environment and where possible on the islands that make up the Province. This will enable informed decisions to be made and ownership of the Waste Management Plan by the entire community.

### **4. POLICIES PLANS AND REGULATION**

There are several policy and legislative documents that must be taken into consideration in the development and future reviews of this WMP. This section summarises the key legislation and policy documents that have been considered.

### 4.1. Legislation

### Pacific Regional Solid Waste Management Strategy 2010 – 2015

The Pacific Regional Solid Waste Management Strategy 2010 – 2015, developed by the Secretariat of the Pacific Regional Environment Programme (SPREP) serves as the umbrella document in developing waste management policies and action programmes at both the regional and local level in Vanuatu. This document states that Vanuatu's priority areas are:

- Integrated Waste Management
- Legislation and
- Awareness/Education/Communication

### National Waste Management Strategy 2011-2016

In April of 2011 Vanuatu adopted its first National Waste Management Strategy 2011-2016, as a way of achieving the National targets set out in the Pacific Regional Solid Waste Management Plan. The overall goal of the National Waste Strategy is:

'To create an environmentally sustainable Vanuatu, in which all types of generated wastes are collected, reused, recycled and treated by environmentally sound technologies suited to local conditions and waste going to landfill is minimized to the lowest possible amount'.

### Waste Management Act 2012

In July 2012 a Bill for the Waste Management Act was drafted and is scheduled to be passed by Parliament in November 2012. With a focus on the collection and disposal of solid waste the objectives of the Act are:

- To provide a sound legal basis to implement a more effective waste management system;
- To clearly define roles and responsibilities for waste collection and disposal;
- To harmonise new waste related laws with existing powers and roles performed by a range of government departments and agencies;
- To encourage cooperation between all levels of government and private enterprise.

### 4.2. Other considerations

Other key legislation that has been considered in the preparation of this plan includes:

- The Environmental Management and Conservation Act No 12 of 2002
- Priorities and Action Agenda (PAA) 2011-2016
- Stockholm Convention on Persistent Organic Pollutants 2009?
- Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (Noumea Convention)
- Pacific Islands Framework for Action on Climate Change 2006-2015
- The Public Health Act 22 of 1994
- Fisheries Regulations Order No. 28 of 2009
- The Municipalities Act Chapter 126
- The Decentralization Act (Provincial Government) Chapter 230

## 5. THE WASTE SITUATION

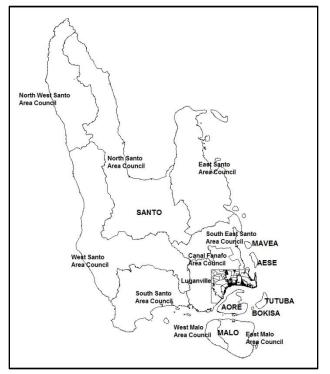
### 5.1. Background

#### Sanma Province

The Sanma Province area covers approximately 4,262Km<sup>2</sup> with a total population of 45,855, it includes the major Islands of Aore and Malo and the minor Islands of Araki, Bokissa, Malokilikili, Tutuba, Mavea and Tangoa. The Sanma Provincial Government is responsible for the maintenance and development of roading, infrastructure, physical planning, youth and sport, enforcement and compliance.

Over 70% of the population within the Sanma Province are considered to be living in a rural environment according to the 2009 census. There are however a number of fast growing peri-urban sub-divisions such as Ban Ban and Million Dollar Point just outside of the Luganville Boundary, which may soon necessitate further services and infrastructure as they become more densely populated.

Currently only those who live within the Luganville Boundary receive a waste collection service. The rest of the Province area (including the outer islands) receive no waste collection service.

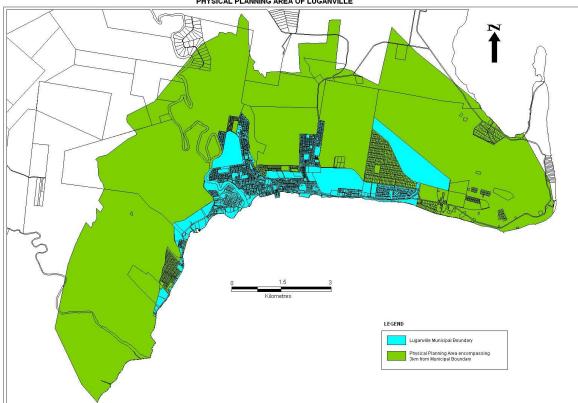


#### Luganville

Luganville is the main urban centre within Sanma Province, covering 2.5Km<sup>2</sup> and with a population of 13,156 and 2,582 households (Census 2009). Like all other towns in the Pacific, Luganville is experiencing rapid growth as people from rural areas migrate to the town. The annual growth rate of Luganville is 4.2% compared with the growth rate of Vanuatu at 2.6%. This area is governed by the Luganville Municipal Council who is responsible for the waste collection within the Luganville Boundary and the ownership and management of the landfill.

Approximately 50,000 tourists come to Luganville each year, including 12 large cruise ships with upwards of 2,000 people on each ship. The tourism industry therefore also contribute significantly to our waste management issues.

The map below outlines in blue the official Luganville Municipal Boundary. The area in green is the proposed extension to the Boundary that is under discussion by both SPG and LMC.



PHYSICAL PLANNING AREA OF LUGANVILLE

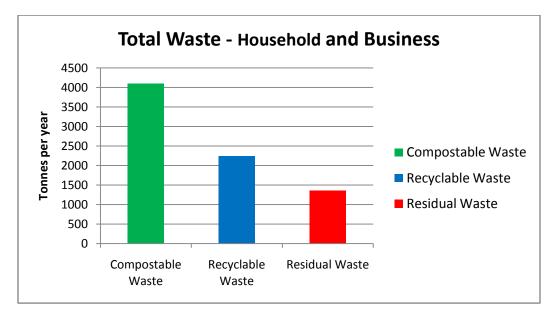
### 6. SUMMARY OF WASTE QUANTITY

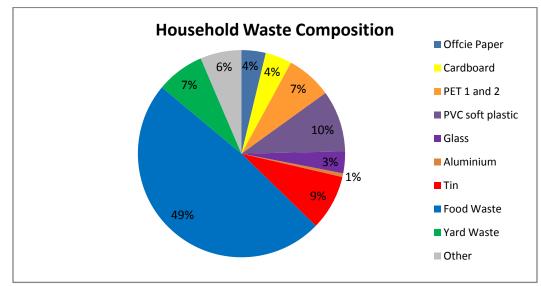
A waste characterisation was undertaken in April 2012 and some key findings from the waste assessment are briefly described below.

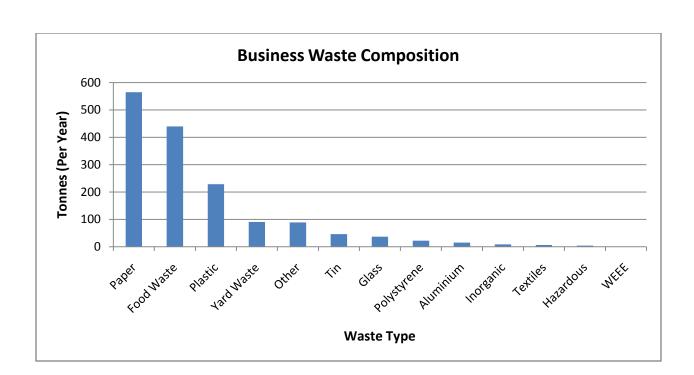
The total tonnage of waste sent to landfill is approximately 7,696 tonnes per year. Households dispose of approximately 6,200 tonnes per year, and businesses 1,500 tonnes per year.

There is currently no infrastructure in place to support composting or recycling therefore no waste is being diverted from landfill.

However approximately 55% of the household waste is kitchen and garden waste that is readily compostable, and a further 28% is potentially recyclable.







### 6.1. Overview of existing infrastructure and services

The following sections present an overview of the current waste situation. This provides a point of reference and identifies the need for developments. In the future this section will measure achievement compared to previously defined goals and objectives.

#### Waste Collection

Waste collection within the boundaries of the Municipality is carried out by the Luganville Municipal Council

Households - all households are expected to pay a Residential Property Tax, a proportion of which goes towards funding the waste collection service. Those living outside of these boundaries receive no waste collection but can drop off their waste at the landfill for a fee.

Business – This includes waste generated from commercial and industrial premises. In Luganville the business owners are charged a Business License and included in this is a waste charge which entitles them to the waste collection service. The waste from business along the main street of Luganville, is generally piled up in cardboard boxes and left on the footpath for collection by LMC.

The waste is collected from the business houses once per week.

There is currently one compactor truck (6 cubic meter) operating in the town with three men and a driver and an additional flat bed truck with a cage. These vehicles have been funded through JICA and are approximately five years old.

The collection service is generally carried out from Monday to Saturday from over 2000 households, businesses, government departments and private institutions. This covers approximately 90% of the

towns area. Those on road frontage and where access roads are good, receive the service three times per week (this equates to over 50% of the population). The rest of the population receives the service once or twice a week.

The collection days and routes are not consistent due to the very poor condition of the roads which contributes to the regular break downs of the vehicles.

Approximately 85% of the waste put out for collection is collected, with the remainder either being burnt, left to rot or illegally disposed off on the road sides and on vacant plots. The majority of households place their rubbish into plastic bags or cardboard boxes and leave out for collection, there are no official receptacles or council rubbish bags in use in Luganville. A number of households utilise high wooden platforms to put their rubbish onto to avoid dogs and vermin attacking it.

#### **Recycling/Reuse**

Recycling is the reprocessing of waste or materials diverted from landfill to produce new materials. Reuse means further use of the waste or diverted material in its existing from for the original or similar purpose.

There is currently no formal recycling collection system in place within the Province.

However the following projects have occurred or are still occurring:

Scrap metal has been recovered from the landfill by a Korean Company, on an ad hoc basis. The scrap metal is shipped to Korea for recycling and LMC receives VT5 per Kg.

Within the Province there are a number of small reuse initiatives occurring:

The Tusker Factory gives cash for the return of their Tusker beer bottles and their own non alcoholic glass bottles for 10 vatu. The glass bottles are then sterilised and reused.

Cages for the collection of aluminium cans are located at several stores in the town and at almost all the resorts. When the cages are full they are then collected and taken to a small depot where they are crushed and stored until a quantity is worth shipping offshore for recycling. To date no shipping has been carried out.

#### **Organic Waste**

Organic waste is anything that comes from plants or animals and is biodegradable, within the municipal waste stream it includes: Garden waste, food scraps, meat and fish waste.

There is little to no traditional composting occurring at the household or community level and there is no formal collection system for organic waste in the Province. Many of the peri-urban residents feed their food scraps to pigs and chickens which is appropriate. For those who do not have animals the food waste is often buried or burnt but this is not a sustainable or environmentally sound activity.

#### Hazardous Waste

Hazardous waste is any unwanted or discarded materials that have the following hazardous properties: Explosiveness, Radio activity, Flammability, Reactivity, Radioactivity, Toxicity, Ecotoxicity.

There is currently no system whereby household hazardous waste such as oil, paint, chemicals or electrical goods etc can be deposited/collected for safe disposal.

#### Waste Disposal

The landfill which is owned and operated by LMC is approximately seven kilometres away from Luganville town and is located in an old quarry and is not lined. The site has capacity at the current rate to last 10-15 more years.

There is no weigh bridge and there are no designated areas for different waste types. There is no machinery operating at the site so each day's waste is left uncovered (once a year LMC hires a bulldozer to clear the entire dumpsite pushing the waste to the sides of the quarry). It is common practice for the piles of rubbish to be burnt, which helps to create additional space for more rubbish. However due to there being no separation of waste types this burning includes plastics which can disburse Persistent Organic Pollutants (POPs) and carcinogens into the air.

The landfill operates from 7.30am – 11.30am and 1.30pm- 4.00pm Monday to Friday and from 7.30am – 11.00am on Saturday, staffed by one man on the gate each day.

LMC charges fees per truckload – VT1000 per trip for trucks over 3 tonne and VT500 per trip for small vehicles.

The landfill is open to the public so those residents who live outside of the Municipality boundary and do not receive a collection can dispose of their household/business waste at the landfill at the rates mentioned above.

### 6.2. Assessment of future demand

It is well known that waste generation increases with economic and population growth, and with a predicted 4.1% population growth per annum for Luganville it is reasonable to expect that waste generation will more than significantly increase over time. However with the right waste management measures in place, it is possible to reduce the waste per capita produced, so long as it is supported by a rising cost of waste disposal to landfill, whereby the upward trend in waste generation may be able to be slowed down.

The Waste Characterisation carried out in April 2012 was the first of its kind in Luganville, therefore with no historic data for comparison it is not possible to graph the expected waste generation over the coming years. However this section will contain more detail in future WMP's as each Waste Characterisation is carried out.

### 6.3. **Province specific issues**

There are a number of issues and challenges in the Province that will influence future waste management services. These include:

- Better data collection is required. There is currently no data regarding the quantity (weight) of the waste taken to landfill to allow meaningful targets for further waste diversion to be set, and to enable measurement of performance against targets.
- The current landfill is not a 'sanitary' landfill by international standards and is in fact an environmental hazard.

- The potential for increased illegal dumping of waste, particularly as landfill prices rise and alternative such as recycling and composting systems are introduced.
- The current waste collection vehicles are not appropriate for the road conditions in the Province.
- The inconsistency of service delivery to residents and business within the Luganville boundary.
- An extension to the collection service to include the peri-urban areas outside of the Luganville Boundary.
- Waste Management in this structured/planned form is new to the residents of the Province, therefore a high level of education and awareness raising at all levels of society will be needed to ensure high levels of participation and understanding.

### To address these issues and challenges there is a need to:

- Improve data collection and reporting to inform future planning.
- Investigate land options for a new landfill site and cap and remediate existing landfill site.
- Investigate options to reduce the illegal dumping of waste.
- Consider other vehicle alternatives for the waste collection service.
- The development of appropriate waste collection services for both inside and outside of the Luganville boundary.
- Ensure a comprehensive education and awareness programme is developed in conjunction with this WMP.

### **7. PROPOSED METHODS FOR ACHIEVING WASTE MANAGEMENT**

The SPG and LMC will implement a number of actions for the future provision of waste management infrastructure and services. These are detailed in the Action Table below.

These actions have been assessed by taking into consideration the following things:

- The benefits and costs of each action in relation to the present and future social, economic, environmental and cultural well-being of the Province
- Availability of funding internally and through International Aid.
- How the action will contribute to the Waste Management Plan goals, objectives and targets;
- LMC and SPG's role in implementing the action
- LMC and SPG's role in promoting effective and efficient waste management through education and awareness program

\* User Pays – this refers to the revenue that will be collected through the Pre-Paid Garbage Bag collection systems. This revenue will essentially fund the majority of actions with additional monetary support from SPG and LMC.

\*\* NWMS – National Waste Management Strategy

Action	Implementation
	Timeframe
Waste Collection: To provide improved and more consistent collection services	
We will introduce a Pre-Paid Garbage Bag collection system so that the waste collection is more equitable and the true cost of waste is understood.	October 2013 - June 2014
We will investigate options to support households to build roadside stands for the rubbish.	October 2013 - June 2014
We will increase the collection routes to cover peri-urban households (due to be included within LMC Boundary).	October 2013 - June 2014
We will develop a waste collection timetable so that each household knows what day their waste will be collected.	October 2013 - June 2014
We will build Roadside Waste Collection Points for the new suburbs to be included in the waste collection routes.	October 2013 - June 2014
We will increase the fleet of rubbish collection vehicles.	2013 / 2014 / 2015 / 2016
We will better enforce Illegal dumping, particularly in close proximity to the landfill through employing 2 enforcement officers at SPG over 2 years. At Minimum one officer will be entirely dedicated to Waste Management.	2013 - 2014
We will carry out an annual waste characterisation study to ensure accurate data and assist in future planning.	COMPLETED August 2013
Rice bags used as receptacles and left out for collection will not be returned to the householder.	COMPLETED November 2012
We will introduce a Business House Waste Collection Fee for all businesses on a graduated scale.	COMPLETED May 2013
We will introduce a Business House kerbside cardboard collection service.	COMPLETED May 2013
We will write a new Waste Management By-Law to cover waste collection services, recycling, waste disposal sites, Enforcement powers and burning of waste.	COMPLETED September 2013
Recycling: To provide new recycling services	
We will expand and make more efficient the aluminum can cage collection system .	2013
We will look to establish a tin can recycling programme.	2013 - 2014
We will research the option of a Beverage Container Deposit Legislation for all bottles .	2013 - 2015
We will continue to look for viable options for recycling cardboard in Santo and Port Vila.	2013 - 2014
We will continue to work with RecycleCorp to increase the number of material that can be collected for recycling.	2013 - 2016
Organic Waste: To reduce the quantity of organic waste buried in landfill	
We will build a large scale compost bin at the Luganville Market House for all the organic waste generated on site.	COMPLETED April 2013
We will use the market compost bin as a demonstration for schools and community groups.	2014
We will run workshops to educate on how to home compost.	2014

We will distribute composting bins to schools and selected households with an education programme. Supported by discounted bins for sale in local stores and support from Wan Smol Bag for education delivery.	2014 - 2016
Hazardous Waste: to reduce the quantity of electronic & other hazardous waste buried in landfill or burnt.	
We will provide for the collection of Waste Electrical and Electronic Equipment (WEEE) to be sent off shore for recycling.	2014
We will further expand the collection of printer toner cartridges.	COMPLETED September 2013
We will research opportunities for Product Stewardship Schemes at a local level e.g. Oil, paint, batteries, plastic bags, end of life vehicles etc.	2014 - 2015
Landfill: To reduce the harmful effects of waste	
We will continue to improve the way the current Waste Disposal Site is managed and operated until a new landfill site is opened.	2013 -2016
We will develop a process for the closure capping and remediation of the current Waste Disposal Site.	2014
We will identify a new landfill site and begin ground investigations for suitability.	2013 - 2014
We will begin negotiations with kastom land owners for the new landfill site.	2014 - 2015
We will begin site development (dependent on funding).	2015 - 2016
Funding: Ensure all WMP Actions can be funded	
We will create a Waste Management Bank Account at LMC that will receive all Waste Disposal Site Gate Fees, Business House Waste Collection Fess and Pre-Paid Bag fees and future fees from other initiatives. This money is to be used only for waste management initiatives.	COMPLETED October 2013
We will research International Aid Funding options.	Ongoing
We will re-visit the discussion paper on Plastic Bag Tax/Plastic Bag Ban.	June 2014
We will utilise National Waste Management Strategy budget allocations where possible.	Ongoing
Education and Awareness: To Increase knowledge of waste management and see a shift in waste management behaviours	
We will Walk the Talk – LMC & SPG will implement recycling/composting/waste reduction initiatives in each building.	2013 - 2016
We will develop communication plans to for all waste management initiatives, to increase knowledge and understanding of each initiative.	Ongoing
We will develop a Waste Management Education Strategy to target – schools, business and residents.	2014 - 2015
We will develop a list of Green Office initiatives that could be promoted to all businesses.	2014
We will develop a partnership with the tourism sector to develop strategies to reduce, recycle & better manage waste.	2014 - 2015

It is considered that the implementation of these actions combined with the current services and infrastructure already provided by LMC will meet future demand for services, as well as support SPG and LMC's goals for solid waste management and minimisation.

The proposed actions will ensure that public health is adequately protected and promote effective and efficient waste management for the Province.

## 8. FUNDING THE WASTE MANAGEMENT PLAN

Funding support for the implementation of the WMP is critical to its success. It is important to ensure the council allocates the resources necessary to implement the actions of the Plan.

### 8.1. How the implementation of the Plan is to be funded

Sanma Province and Luganville Municipality have several funding options to assist in the implementation of the Plan to achieve effective and efficient management and minimisation of waste in the Province. These include the following options:

- General Council funding from revenue received by SPG and LMC
- Property Tax a charge that is paid by all homeowners
- User pays the polluter pays the full cost
- National Waste Management Strategy Action Plan Budget allocation
- Waste Collection Fee This is due to be introduced under the New Waste Management Act and will be applied to all residential and commercial premises. This fee can only be used to fund waste management and minimisation initiatives.
- Worldwide Grant and Aid applications for funding of initiatives.

# 9. MONITORING AND REPORTING PROGRESS

It is essential that a robust monitoring and reporting structure is put in place that aligns with this Waste Management Plan to enable us to measure our success. We have baseline data on the quantity of waste disposed of by residents and businesses in Luganville through the Waste Characterisation carried out in May 2012. This data will be used to compare trends over time and determine which of the programmes are successful and to what extent.

The following methods will be used to monitor progress:

- Annual Waste Characterisation
- Annual Waste Characteristaion survey on household behaviour to waste management
- Bylaw enforcements records
- Garbage Bag weight survey and composition (once pre-paid garbage bag collection system is in operation)

The following methods will be used by SPG and LMC for reporting progress:

- Annual Reports
- Council and Committee reports
- Local newspapers