



GOVERNMENT OF BELIZE
CONSULTANCY TO PREPARE A
NATIONAL SOLID WASTE MANAGEMENT
POLICY AND STRATEGY AND UPDATE
THE NATIONAL SOLID WASTE
MANAGEMENT PLAN

NATIONAL SOLID WASTE
MANAGEMENT POLICY

presented by





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Glossary of Acronyms

BAHA	Belize Agricultural Health Authority
BATNEEC	Best Available Techniques Not Entailing Excessive Costs
BSWaMA	Belize Solid Waste Management Authority
BPEO	Best Practicable Environmental Option
BZD	Belize Dollars
DOE	Department of Environment
ELV	End-of-Life Vehicle
EPR	Extended Producer Responsibility
EU	European Union
GoB	Government of Belize
IDB	Inter-American Development Bank
IFI	International Financing Institution
ISL	Integrated Skills Limited (the Consultant)
kWh	Kilowatt Hours
lb	Pound
Ltd.	Limited
MoH	Ministry of Health
MNRA	Ministry of Natural Resources and Agriculture
MSW	Municipal Solid Waste
OECD	Organisation for Economic Co-operation and Development
PCB	Pesticides Control Board
PSP	Private Service Provider
SMEs	Small and Medium-sized Enterprises
SWM	Solid Waste Management
ToR	Terms of Reference
TS	Transfer Station
UNDP	United Nations Development Programme
USD	United States Dollars
WEEE	Waste Electrical and Electronic Equipment (E-Waste)
WM	Waste Management
WMP	Waste Management Policy

Explanation of Some Expressions Used in this Policy

Capture Rate: The amount of recyclable material(s) collected divided by the total amount of recyclable material(s) generated. Statistically, it is the percentage of the total amount of recyclable material(s) generated that has been segregated and recovered from the waste stream. People are never 100% efficient in segregating their waste for recycling.

Collection: The gathering of waste, including the preliminary sorting and preliminary storage of waste, for the purposes of transport to a waste treatment or disposal facility.

Environmentally Sound: In the context of Waste Management (see below), means managing waste in a manner that prevents any significant adverse effects on human health and the environment.

Governance: The exercise of economic, political, and administrative authority to manage a country's affairs at all levels.

Re-use: Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

Recovery: Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

Recycling: Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

Separate Collection: Collection where a waste stream is segregated and kept separately by type and nature so as to facilitate a specific treatment process.

Treatment: A controlled physical, thermal, chemical or biological process that changes the characteristics of the waste in a beneficial way prior to recovery or disposal.

Waste: Any substance or object which the holder discards or intends or is required to discard.

Waste Management: The collection, transport, recovery and disposal of waste, including the supervision of such operations and the after-care of disposal sites, and including actions taken as a dealer or broker.

Waste Management Policy: A concise "vision" and set of overarching principles, strategic goal / objectives and policy guidelines for the future management of wastes in a country, region or locality.

Waste Management Option: One discrete process or measure for managing waste, such as waste segregation and separate collection, incineration or the use of a Build-Own-Operate-Transfer (BOOT) contract for procurement of a facility / service.

Waste Management Scenario: A set of waste management options which, taken together, would enable the cost-effective management of specified wastes in accordance with stated policies, strategic objectives and legislation. For example, a scenario might consist *inter alia* of various waste reduction measures, processing of recyclable materials at a centralised sorting plant, a composting plant and a landfill facility, financed and delivered through a Public-Private Partnership (PPP).

Waste Management Strategy: An overall framework or 'blueprint' which stipulates what actions and measures will be taken to achieve the Waste Management Policy, and by when. The final strategy is typically formulated and prepared based upon a *preferred waste management scenario* identified following an analysis of the existing situation, and an assessment of different options and alternative scenarios for managing various waste streams in a more sustainable manner.

Waste Management Plan: A document containing the details of how the various actions and measures foreseen in the Waste Management Strategy will be undertaken and by whom. This is normally prepared / finalised after the Waste Management Policy and Strategy have been approved and adopted.

Waste Prevention: Actions taken before something becomes waste that reduce:

- The quantity of waste produced, including the extension of product life through design, repair or reuse;
- The adverse impacts of waste produced on the environment and human health; or
- The content of harmful substances in materials and products.

Waste Producer: Any person (legal or natural) whose activities produce waste or who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of waste.

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POLICY SYNOPSIS

Scope

This **National Solid Waste Management Policy** (“the Policy”) has been developed by the Government of Belize (GoB) as a shared national vision of how solid wastes will be managed more sustainably in future. It has been developed in close consultation with stakeholders from all sectors of Belizean society and applies to:

- All people living or residing in Belize;
- All community, governmental, institutional, industrial and commercial activities undertaken on or in all land or waters falling under the jurisdiction of Belize.

The various policies presented herein are concerned primarily with the management of the following waste types:

- Municipal Solid Waste (including household, institutional and commercial wastes)
- Industrial waste (including waste from agro-industrial processing and manufacturing)
- Hazardous wastes (including healthcare risk wastes)
- Construction and Demolition (C&D) waste
- Waste from Electrical and Electronic Equipment (WEEE)
- Used batteries and accumulators (both dry cell and lead-acid)
- Packaging waste (including plastic shopping bags)
- End-of-Life Vehicles (ELVs) and tyres
- Pesticides and herbicides
- Sludge from waste water treatment

They do not apply to wastes generated by activities related to agriculture, mining, quarrying and mineral extraction which are covered by other sectoral policies.

Existing Situation

In order to inform the development of this Policy, a detailed analysis of the problems and deficiencies associated with the existing arrangements for controlling and managing solid wastes has been undertaken. The results of this analysis are presented in **Annex A** and summarised in section 1.3.

The core finding of this analysis is that:

The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.

Purpose

The various policies set out in this document together constitute the Government’s vision and strategic objectives for the prevention and management of wastes, and the policies we intend to apply for achieving them. Its purpose is to provide a framework within which individuals and organisations can make a contribution through *more efficient use of resources* and by making *better informed choices and decisions about how to manage and dispose of waste* once products have reached the end of their useful life.

Vision

The vision which this Policy seeks to pursue is:



A healthy, prosperous and resource-efficient society in which wastes are prevented, re-used, recycled or recovered wherever feasible and beneficial, and disposed of safely only as a last resort.

Goal and Objectives

The overall goal of this Policy and related Strategy is therefore to ensure that:

The system for managing solid wastes in Belize is financially and environmentally sustainable, and contributes to improved quality of life.

The primary objectives of this Policy are to achieve and maintain a situation where:

- The National Policy and Strategy for managing solid wastes are sufficiently developed to facilitate preparation, implementation and operation of an integrated and cost-effective national solid waste management system.
- National legislation relating to solid waste management is comprehensive, coherent, accessible and effective.
- Enforcement of legislation relating to solid waste management is effective.
- Institutional and organisational arrangements are optimal for the development and operation of an integrated and cost-effective national solid waste management system.
- Numbers and capacities of human resources engaged in solid waste management (in both the public and private sectors) are adequate.
- Available data and information on the sources, nature, quantities and fate of wastes, and SWM facilities, is sufficiently comprehensive and reliable to be able to regulate and manage wastes effectively.
- Stakeholders have a sufficient awareness and understanding of their roles, duties and responsibilities in achieving an integrated and cost-effective national SWM system.
- Revenue flows from existing SWM fees and other sources are sufficient to be able to meet the full costs of providing an integrated and environmentally-sustainable national SWM system.
- The potential for waste prevention at source is realised.
- The potential for greater waste recovery and recycling is realised.
- Methods / systems for the temporary storage, collection and transport of wastes are efficient, cost-effective and hygienic / safe.
- Wastes generated are treated / processed efficiently and in accordance with best practices.
- Wastes requiring final disposal are disposed of in accordance with best practices.
- Existing and old (non-operational) waste dump-sites and “hotspots” are closed, progressively remediated and restored.



Overarching Principles

A number of important concepts and principles have been taken into account in preparing this Policy. These are:

- Sustainable development
- Integrated sustainable solid waste management
- Proximity principle and self-sufficiency
- Precautionary principle
- Polluter Pays Principle (PPP)
- Waste management hierarchy
- Best Practicable Environmental Option (BPEO)
- Best Available Techniques Not Entailing Excessive Costs (BATNEEC)
- Extended Producer Responsibility (EPR)

These are explained briefly in Chapter 3.

National Policy Guidance

Our national policies for achieving the overall goal and primary objectives for managing solid waste are presented in Chapter 4. These are broadly divided into policies relating to *waste governance* and policies concerned with the *management of solid wastes* after they have been generated.

Policies relating to *waste governance* are sub-divided into:

- Policy and legislative framework (4.1)
- Institutional and organisational arrangements (4.2)
- Human resources (4.3)
- Data availability, monitoring and reporting (4.4)
- Stakeholder awareness and communication (4.5)
- Financing and cost recovery (4.6)
- Waste prevention (4.7).

The framework and resources for waste governance *create the pre-conditions* which influence the types and quantities of wastes generated, and determine / regulate the way in which these are subsequently managed.

Policies relating to *waste management* are further sub-divided into:

- Waste recovery and recycling (4.8)
- Waste segregation, containment, collection and transport (4.9)
- Waste treatment / processing (4.10)
- Final disposal (4.11).

The above-listed activities are all concerned with the *physical handling of solid wastes*.

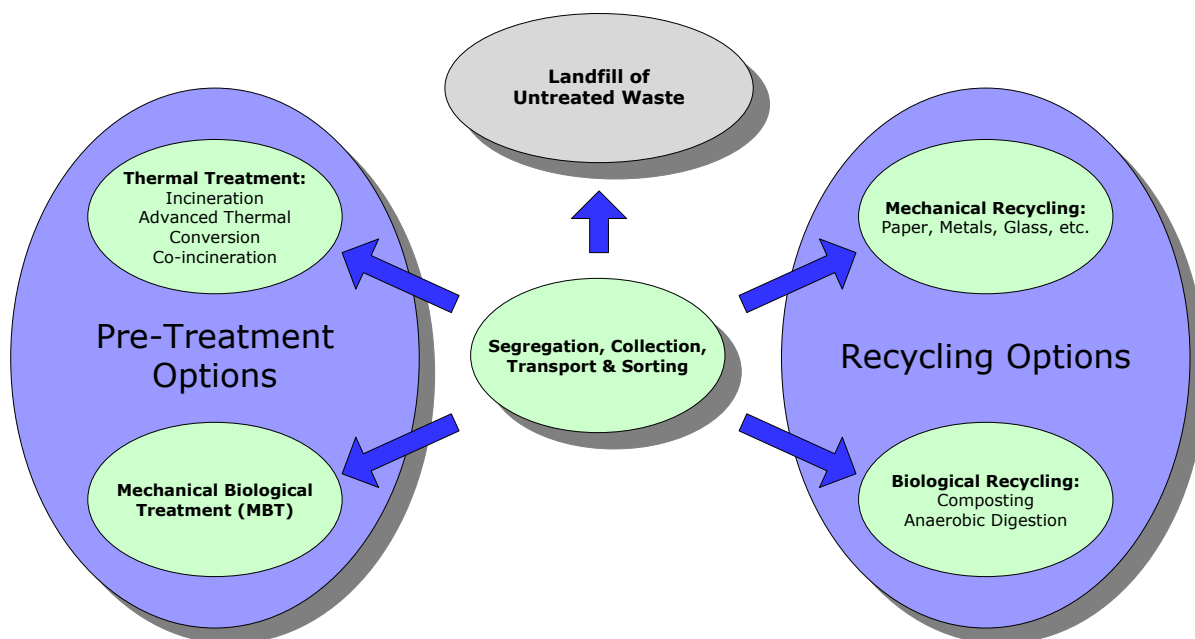
Each section comprises:

- Specific policy objectives, and related targets and indicators (covering the short, medium and long-term)
- Policies for achieving the objectives

An overview of the technical options for physically managing municipal and similar solid wastes is presented below.



Technical Options for Managing Municipal Solid Wastes



The arrangements for *waste governance* and *physical waste management* together provide the “enabling environment” for *integrated sustainable solid waste management* (see section 3.2).

Explanatory notes and other supporting information for the various policy measures presented in Chapter 4 are provided in **Annexes B through E**.

Implementation

The measures presented in this Policy will be further developed and elaborated in the form of a *National Solid Waste Management Strategy*, and subsequently implemented in accordance with an *Implementation Plan*. The anticipated scope and contents of the Strategy and Implementation Plan are presented in Chapter 5.

Progress Monitoring and Review

Summary reports on the progress achieved in implementing this Policy will be prepared and published by the MNRA at annual intervals. The Policy itself and related Strategy will be reviewed and updated annually until 2021, and thereafter at 4-year intervals.



1. INTRODUCTION, BACKGROUND AND EXISTING SITUATION

1.1 Introduction

This **National Solid Waste Management Policy** (“the Policy”) has been developed by the Government of Belize (GoB) as a shared national vision of how solid wastes will be managed more sustainably in future. It has been developed in close consultation with stakeholders from all sectors of Belizean society and applies to:

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- Used batteries and accumulators (both dry cell and lead-acid)
- Packaging waste (including plastic shopping bags)
- End-of-Life Vehicles (ELVs) and tyres
- Pesticides and herbicides
- Sludge from waste water treatment

They do not apply to wastes generated by activities related to agriculture, mining, quarrying and mineral extraction¹ which are covered by other sectoral policies (although the policy principles presented in Chapter 3 below are also relevant to these waste streams).

1.2 Background

1.2.1 Belize Solid Waste Management Project

This Policy has been developed within the framework of the Belize Solid Waste Management Project and against a background of considerable on-going changes in the way wastes are managed in Belize. The Project is aimed at improving solid waste management practices, reducing environmental pollution and enhancing the image of Belize in the eco-tourism market through better management of its Municipal Solid Wastes.

The current Project phase commenced in 2008 and is scheduled to be completed in 2014. It addresses solid waste management needs along the so-called Western Corridor (Belize City, San Ignacio and Santa Elena), and the islands of Ambergris Caye and Caye Caulker. With financing from the IDB and the OPEC Fund for International Development, the Project is financing infrastructure investments *to improve solid waste disposal* in the aforementioned cities and localities, and services to strengthen BSWaMA as the entity responsible for improving solid waste management across the country.

¹ As defined by the Standard International Trade Classification 2008. Downloadable from:
http://unstats.un.org/unsd/publication/seriesM/seriesm_4rev4e.pdf



Major tangible achievements to date include:

- Closure of a large open dump site close to Belize City (Mile 3);
- Closure of an open dump site close to San Ignacio;
- Design, construction and bringing into operation of a new regional sanitary landfill facility, including access road, to serve the Western Corridor (Mile 24);
- Design, construction and bringing into operation of two new transfer-loading stations to serve Belize City and San Ignacio / Santa Elena.

Further Project components yet to be completed are:

- Closure of open dump sites in San Pedro and Caye Caulker;
- Construction and bringing into operation of two new transfer-loading stations to serve San Pedro and Caye Caulker;
- Closure of a dumpsite and construction of transfer station to serve Belmopan.

These facilities are already having a profound positive impact on the way in which wastes from Belize City and San Ignacio / Santa Elena / Bienque Viejo are managed, with commensurate benefits in terms of reduced pollution and risks to public health.

The Project scope does not currently include any of the townships and communities located outside the Western Corridor. However, the GoB plans to address the waste disposal needs of remaining areas of the country in due course.

Nor does the Project scope currently address the *containment and collection of MSW*, or the *temporary storage, collection and safe treatment of hazardous and difficult wastes*. These are aspects of the existing arrangements for managing solid wastes which are in need of substantial improvement (see section 1.3 below).

Other *consulting assignments* carried out in recent years under the auspices of the Project include:

- Strategic Plan for the Solid Waste Management Authority (August 2011);
- Design of Cost Recovery Mechanism for the SWM Project for the Western Corridor (May 2011);
- Waste Generation and Composition Study for the Western Corridor (May 2011);
- Review of the Existing Legal/Regulatory and Institutional Framework (Feb 2011).

1.2.2 Policy Context

The policy context is the environment or setting in which a policy is formulated and subsequently applied, and includes many external influences (political, economic, sociological / demographic, technological, legislative, environmental, etc.). In relation to this Policy, some of the more important *adverse* contextual influences are:

- A relatively *small domestic population* of ca. 340,000 residing within a land area of ca. 8,900 square miles, of which roughly 45% live on or near the coast, and along an East-West belt running across the middle of the country (known as the Western Corridor).
- Consequently, there is *limited scope for exploiting economies of scale* in the provision of infrastructure and services for managing waste;
- In areas where tourism plays a significant role, *large seasonal fluctuations in population levels* and therefore the *quantities of waste generated*;



- For islands located some distance from the mainland, the *constraints on extra-island movement of wastes and recyclable materials* imposed by the weather and tides;
- A complex and somewhat *inefficient legal / institutional framework* for managing wastes and for protecting the environment generally;
- High *dependence on imported technology* and the equipment required to manage wastes in a cost-effective and environmentally-sound manner;
- *Lack of local markets for recyclable materials*, and high transport costs to reach export markets;
- *Long and porous land borders* making it difficult to prevent or control the import / export of illegal and / or dangerous goods and substances (including wastes);
- Limited market size and *constraints to creating effective competition* in the provision of infrastructure and services for managing wastes by the private sector;
- *Limited national pool of human resources* trained and experienced in the development and operation of modern waste management facilities and systems;
- An historical *resistance by waste generators to paying for essential services* such as solid waste management;
- A spectacular but *fragile natural environment*, with sensitive terrestrial, aquatic and marine ecosystems located in many areas of the country.

On the other hand, some significant *positive* influences are:

- With an economy based primarily on agriculture, tourism and services, the *quantities of hazardous and difficult wastes generated are relatively small*;
- In most cases, the conditions prevailing in urban areas are amenable to the introduction of standardised and *more efficient methods of MSW containment and collection*, and the *segregation at source and separate collection of recyclable materials*;
- A *paved / all-weather highway network* which is, for the most part, of good quality and lightly trafficked, thereby enabling wastes to be transported economically in large-capacity waste collection vehicles over longer distances than would be the case in countries with generally poor road conditions and high traffic densities;
- A *high proportion of the population lives in close proximity to a highway* which will help to facilitate future expansion of waste management service coverage;
- A generally *well-educated and literate populace* which, on the available evidence, would appear to be broadly receptive to the notions of managing waste in a more sustainable manner and paying a reasonable fee for better quality waste management services.

1.3 Existing Situation

A summary of the main problems and deficiencies associated with the existing arrangements for managing solid wastes in Belize is presented in the following table. This is based on a baseline review and analysis of the existing situation undertaken by consultants on behalf of the Government in late 2013 / early 2014. A more detailed analysis of the problems and deficiencies associated with the existing arrangements for managing solid wastes is provided in **Annex A**.

The analysis presented in **Annex A** has been used extensively to inform the development of this Policy.



Existing SWM System – Summary of the Main Problems & Deficiencies	
Policy & Legislative Framework	<ul style="list-style-type: none"> • The existing legislative framework is fragmented, inefficient and in need of substantial reform. • A comprehensive policy and strategy, addressing all key areas of performance for SWM, does not yet exist. • Enforcement of legislation relating to SWM is not effective.
Institutional / Organisational Arrangements	<ul style="list-style-type: none"> • Existing institutional and organisational arrangements for SWM at the national level are rather fragmented, with responsibilities not always clearly defined and in some cases overlapping. • Existing national institutions are also, for the most part, severely under-resourced. • Existing institutional arrangements for municipal SWM collection and street cleaning services at local level are also fragmented, under-resourced and unreliable. • With the exception of Belize City, all local authorities are too small to be able to exploit economies of scale in service provision or deliver these services reliably and cost-effectively.
Human Resources / Capacity	<ul style="list-style-type: none"> • The numbers and capacities of human resources currently engaged in SWM activities (in both the public and private sectors) are generally inadequate.
Data Availability, Monitoring & Reporting	<ul style="list-style-type: none"> • A national system for classifying, regularly collecting, processing, analysing and disseminating data and information on the sources, nature, quantities and fate of wastes, and SWM facilities, does not exist. • The lack of reliable data and information is a significant constraint on the long-term planning, development and operation of a more sustainable SWM system.
Stakeholder Awareness & Communication	<ul style="list-style-type: none"> • Stakeholders do not have a sufficient awareness and understanding of their roles and responsibilities in achieving an integrated and cost-effective national SWM system. • A targeted national strategy and programme for on-going communications and consultations with, and participation of, all key stakeholders are not yet in place.
Financing / Cost Recovery	<ul style="list-style-type: none"> • The costs of constructing and operating SWM infrastructure are met almost entirely by GoB. • Capital expenditure is heavily reliant on financing from multilateral agencies, in particular from the IDB, and has been focused hitherto on the development of SWM infrastructure in the Western Corridor. • Waste collection and similar environmental services represent a significant expense and financial burden for local authorities. • Revenues from existing fees / taxes are not equitably and appropriately distributed amongst local authorities. • Apart from Belize City, none of the authorities has invested in new vehicles and equipment in recent years. • The present arrangements for financing and recovering the costs of SWM infrastructure and services are neither desirable from a policy perspective, nor financially sustainable in the long term, and are therefore in urgent need of reform.
Waste Prevention	<ul style="list-style-type: none"> • Most waste producers in Belize neither perceive nor bear the true costs of managing their wastes in an environmentally-sound manner, and so they have little reason or incentive to try and prevent or reduce the amount of waste they generate. • Product importers and suppliers, consumers and other waste generators are often not aware of the potential opportunities for, and benefits of,



Existing SWM System – Summary of the Main Problems & Deficiencies	
	<p>preventing and / or reducing wastes.</p> <ul style="list-style-type: none"> As a result, the potential for waste prevention at source is not being realised.
Waste Recovery & Recycling	<ul style="list-style-type: none"> As with waste prevention, because most waste producers in Belize pay little or nothing towards the costs of managing their wastes in an environmentally-sound manner, they and other economic actors have little incentive to recover / recycle materials from waste themselves, or to facilitate recovery and recycling of their wastes by others. Consequently, <i>recovery and recycling of MSW</i> currently occurs only on a very limited scale, and is focused on materials which are easy to sort manually and for which there is a ready market – mainly paper and board from commercial sources, plastics and metals, and glass bottles. Substantial increases in the recovery and recycling rate for MSW are likely to be achievable only through the widespread introduction of source segregation and separate collection of recyclable materials. Expansion of recovery and recycling activities appears to be constrained by a number of factors. These are described in Annex A.
Waste Segregation, Storage, Collection & Transport	<ul style="list-style-type: none"> Waste collection and street cleaning services are the aspects of SWM which are of greatest visibility and importance to the general public and, at the moment, these create a rather poor impression in many areas of Belize, especially in suburban and rural areas. Existing MSW collection services suffer from numerous problems and deficiencies, in particular: <ul style="list-style-type: none"> Inadequate service coverage and quality; A lack of standardised waste storage containers of an appropriate size, type and quality which are capable of being mechanically emptied; Inappropriate and insufficient vehicles and equipment; Poor organisation and inefficient working methods; Inadequate maintenance of vehicles, equipment and containers; Poor condition of vehicles, equipment and containers; Except in a few areas, no systems for source-segregation, separate storage and collection of recyclable materials and hazardous wastes (including healthcare risk wastes).
Waste Treatment / Processing	<ul style="list-style-type: none"> With certain notable exceptions, most solid wastes generated in Belize are currently disposed of without any form of processing or pre-treatment. Medical waste incinerators are installed at eight hospitals but only one is currently functioning. The provisions of the Environmental Protection Act and the Hazardous Waste Regulations relating to waste treatment and disposal are not being enforced effectively. Although the quantities of hazardous and difficult wastes generated in Belize are relatively small, the current situation is unsustainable, especially for a country which aspires to be a major destination for eco-tourism. Many of the technologies / systems available for treating hazardous and difficult wastes are expensive to procure and operate, especially at small scale.
Final Disposal	<ul style="list-style-type: none"> Despite the existence of legislation prohibiting the dumping of wastes, most of the solid wastes generated outside the Western Corridor are disposed of in an uncontrolled manner, resulting in potentially serious adverse impacts on the environment. Some existing and old (non-operational) waste dump-sites and “hotspots” are not being closed, progressively remediated and restored.



2. POLICY PURPOSE, VISION, GOAL AND PRIMARY OBJECTIVES

2.1 Purpose

The Government is committed to promoting sustainable development, and preventing and managing waste in an environmentally-sound manner is a key facet of sustainable development (for an explanation of what is meant by 'sustainable development', see section 3.1 below). Unless valued as a potential resource and managed properly, wastes can often result in unnecessary depletion of natural resources, unnecessary costs, and environmental damage that could have been avoided. Sustainable waste management is ultimately about *using resources more efficiently* (see also section 3.2 below). As a society, we currently produce at least 200,000 tons of municipal and similar solid wastes annually (approximately 3.6 lbs or 1.6 kg per capita per day), and the quantities are continuing to grow². At the moment, most of this waste is either landfilled without pre-treatment or simply dumped or burned. This situation is clearly unsustainable, especially for a small country like ours.

Our economic system still encourages the inefficient use of resources by pricing some below true costs. Also, few people realise the true cost of managing waste in an environmentally sound way. At the moment, those who generate wastes are seldom required to pay the full costs for their proper management, nor do the prices for products paid by consumers reflect the cost of disposing of those discarded products at the end of their useful lives. But these costs are nevertheless substantial and growing. Preventing waste and making better use of waste as a resource will eventually bring significant economic as well as environmental benefits for Belize.

Moving towards sustainable waste management will require major changes over the next twenty years. These will aim *inter alia* to encourage the production of less waste, and promote a fundamental shift in the way in which we regard and deal with waste once we have produced it.

This *National Solid Waste Management Policy* sets out the Government's vision and strategic objectives for the prevention and management of wastes, and the policies we intend to apply for achieving them. Its purpose is to provide a framework within which individuals and organisations can make a contribution through more efficient use of resources and by making better informed choices and decisions about how to manage and dispose of waste once products have reached the end of their useful life.

For the goal and objectives of this Policy to become reality, we must work in partnership – with businesses, local government, civil society and the public at large. Beyond that, we must all recognise the impact that waste has on our health and environment, how our waste can be put to better use and how we, as individuals, can play a vital role in managing waste more sustainably.

2.2 Vision

The vision which this Policy seeks to pursue is:

A healthy, prosperous and resource-efficient society in which wastes are prevented, re-used, recycled or recovered wherever feasible and beneficial, and disposed of safely only as a last resort.

² Source – The Department of Environment



2.3 Goal

The overall goal of this Policy and related Strategy is therefore to ensure that:

The system for managing solid wastes in Belize is financially and environmentally sustainable, and contributes to improved quality of life.

2.4 Primary Objectives

The primary objectives of this Policy are to achieve and maintain a situation where:

- The National Policy and Strategy for managing solid wastes are sufficiently developed to facilitate preparation, implementation and operation of an integrated and cost-effective national solid waste management system.
- National legislation relating to solid waste management is comprehensive, coherent, accessible and effective.
- Enforcement of legislation relating to solid waste management is effective.
- Institutional and organisational arrangements are optimal for the development and operation of an integrated and cost-effective national solid waste management system.
- Numbers and capacities of human resources engaged in solid waste management (in both the public and private sectors) are adequate.
- Available data and information on the sources, nature, quantities and fate of wastes, and SWM facilities, is sufficiently comprehensive and reliable to be able to regulate and manage wastes effectively.
- Stakeholders have a sufficient awareness and understanding of their roles, duties and responsibilities in achieving an integrated and cost-effective national SWM system.
- Revenue flows from existing SWM fees and other sources are sufficient to be able to meet the full costs of providing an integrated and environmentally-sustainable national SWM system.
- The potential for waste prevention at source is realised.
- The potential for greater waste recovery and recycling is realised.
- Methods / systems for the temporary storage, collection and transport of wastes are efficient, cost-effective and hygienic / safe.
- Wastes generated are treated / processed efficiently and in accordance with best practices.
- Wastes requiring final disposal are disposed of in accordance with best practices.
- Existing and old (non-operational) waste dump-sites and "hotspots" are closed, progressively remediated and restored.

2.5 Linkages to other National Policies and International Agreements

A list of other relevant national policies and international agreements is presented in **Annex B**. Of specific relevance to this Policy are the following national policies and plans:



- *Belize National Hazard Mitigation Policy* Final Draft, April 2004, in particular:
 - Objective #7: To improve and expand the volume of information available to the public with regard to the proper handling, disposal and management of hazardous materials;
 - Objective #8: To improve the national capacity to manage waste.
- *National Policy on Local Governance*, August 2009, in particular:
 - The Central Goal which is to “... give better guidance and direction to the systems and practices of local governance in Belize towards greater equity, efficiency, effectiveness, and transparency in the delivery of local government services to people in rural and urban communities”.
- *National Development Framework for Belize 2010 – 2030*, in particular:
 - Sustainable Development Goal #1: Incorporate environmental sustainability into development planning and strengthen Protected Areas Management by (*inter alia*) ... developing and implementing a long-term strategy for solid waste management.
- *Belize’s National Policy on Responsible Tourism*, February 2010, in particular:
 - Global Sustainable Tourism Criterion D.2.3: A solid waste management plan is implemented, with quantitative goals to minimize waste that is not reused or recycled.
- *National Sustainable Tourism Master Plan for Belize 2030*, June 2011, in particular:
 - Vision 2030: Infrastructure for Tourism Destination Development which ... provides its residents and the tourism industry with basic services such as electricity and energy, water and sanitation, refuse and waste removal, and strengthens the management and upgrading of existing waste management systems at tourism destinations and tourism sites and assets throughout the country.
- *Draft National Land Use Policy and Integrated Planning Framework*, August 2011, in particular:
 - Land use strategy #20: Villages not near the promoted solid waste treatment facility in central Belize must have land allocated for the disposal of solid waste.
- *National Energy Policy Framework*, November 2011, in particular:
 - The Policy Recommendation to “... place a high priority on exploitation of opportunities for waste heat recovery and waste reuse as feedstock”.
- *National Gender Policy* (Revised), March 2013, in particular:
 - The Government Commitment to “... Integrate the expressive arts, sports, technology and environmental protection into the curricula at all levels of the education system to ensure that children benefit from holistic education that will allow them to build their multiple intelligences, value the natural environment and develop a healthy self-esteem and love of learning”.

3. OVERARCHING PRINCIPLES FOR MANAGING SOLID WASTES

There are a number of important principles that underpin the policy guidance presented in Chapter 4 below, and which will be taken into account when establishing and implementing an integrated national strategy for managing solid wastes. These are:

- Sustainable development
- Integrated sustainable waste management
- Proximity principle and self-sufficiency
- Precautionary principle
- Polluter Pays Principle (PPP)
- Waste management hierarchy
- Best Practicable Environmental Option (BPEO)
- Best Available Techniques Not Entailing Excessive Costs (BATNEEC)
- Extended Producer Responsibility (EPR)

These are explained briefly below.

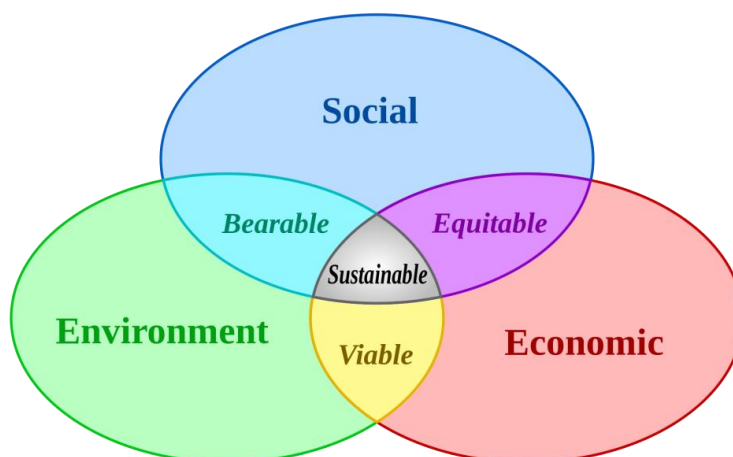
3.1 Sustainable Development

The term '*sustainable development*' is generally understood to mean development pursued in a manner that, in meeting present needs, does not compromise the ability of future generations to meet their own needs. This includes *inter alia*:

- Minimising demands on the use of non-renewable resources and prudent use of renewable resources, raw materials and energy and minimal use of land area;
- Minimising negative impacts on the environment, emissions to air and water, soil contamination, waste production and noise levels, and potential hazards and risks;
- Protecting or augmenting and improving basic natural and social capital; and
- Capturing the economic benefits of environmentally-sound approaches to development.

The concept of *sustainable development* is illustrated in **Figure 1**.

Figure 1: Sustainable Development





3.2 Integrated Sustainable Solid Waste Management

Integrated sustainable solid waste management aims to utilise resources more efficiently, reducing the amount of waste produced and, where waste is generated, dealing with it in a way that will help to achieve the goal of sustainable development.

“Integrated” describes a system of managing wastes that:

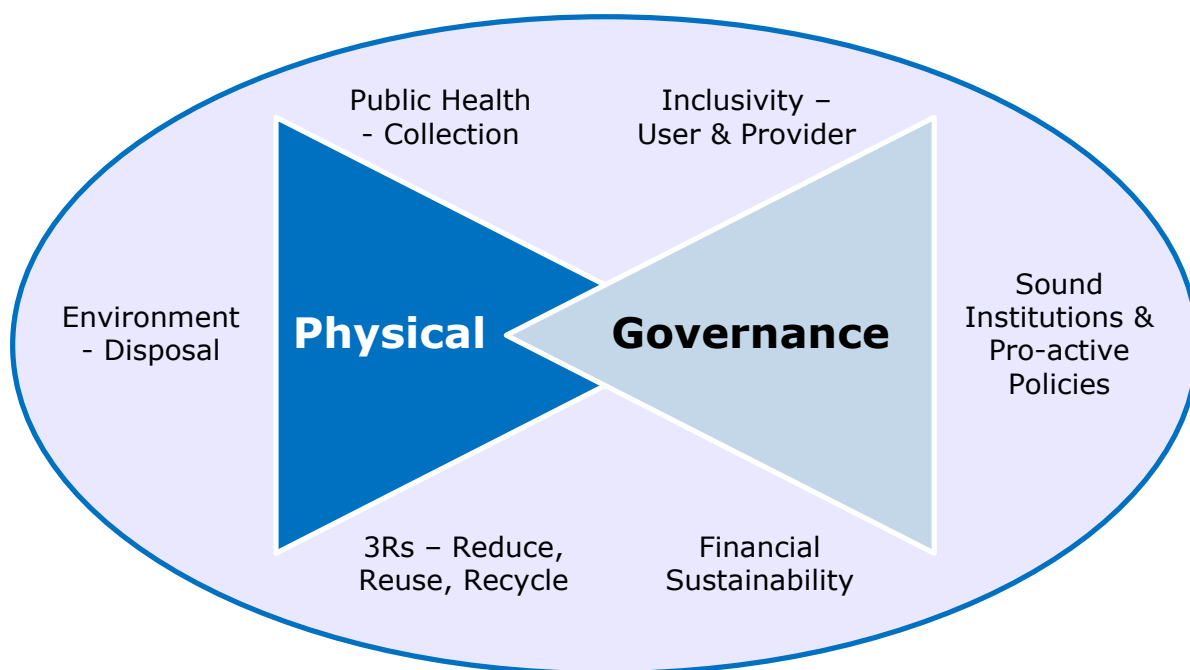
- Uses a range of inter-related technical and non-technical options and measures at different habitat scales (household, neighbourhood, city);
- Involves all stakeholders, be they governmental or non-governmental, formal or informal, profit- or non-profit oriented;
- Takes into account interactions between the waste management system and other systems.

“Sustainable” describes a system of managing wastes that is:

- *Appropriate to the local conditions in which it operates*, from a technical, social, economic, financial, institutional and environmental perspective; and
- *Capable of maintaining and financing itself over time.*

The concept of *integrated sustainable waste management* is illustrated in **Figure 2**.

Figure 2: Integrated Sustainable Waste Management



3.3 Proximity Principle and Self-Sufficiency

The proximity principle means that *waste should be treated or disposed of as near as possible to the point where it arises*. The principle aims to avoid the adverse environmental impacts of unnecessary waste transport. However, the environmental impacts of transporting wastes very much depend on local conditions and circumstances.



The application of the principle will therefore vary according to the waste concerned, the volume and the potential environmental impact of the method of waste disposal and mode of transport. There also has to be a balance between the proximity principle and economies of scale. In certain cases, economies of scale may mean that some specialist treatment, recovery or disposal operations may be located far from the point where the waste arises.

The overall aim of the proximity principle is to move as far as possible towards self-sufficiency in sustainable waste management (both nationally and regionally).

3.4 Precautionary Principle

The UN Conference on Environment and Development, in the Rio Declaration, defined the precautionary principle as “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. The principle involves *taking precautions now to avoid possible environmental damage or harm to human health in the future*, even though the scientific basis for taking the precautions may be inconclusive.

3.5 Polluter Pays Principle

The polluter pays principle (PPP) means that *polluters should bear the full costs of any measures required to protect the environment as a consequence of their actions*. The potential environmental and human health costs of producing, treating and disposing of waste should therefore be reflected in the price of products and in the fees / charges for managing solid wastes in a legal and environmentally-sound manner.

Charging for the provision / use of SWM facilities and services is important not only in order to generate revenues to cover their costs, but also because this helps to instil a sense of value amongst service users and consumers, and to create an incentive to reduce the amount and / or the polluting characteristics of the wastes generated. Experience elsewhere suggests that progressively raising fees / tariffs for the use of waste management facilities and services to levels which reflect their true long-term cost to society is one of the most effective ways of encouraging environmentally-desirable behaviour, and ensuring that the necessary infrastructure and services can be financed. This is the philosophy underlying the “polluter pays principle”.

3.6 Waste Management Hierarchy

The waste management hierarchy as a concept has been developed over the last two decades, and provides a preferred order of priorities for selecting and deciding upon waste management practices. These are:

1. *Waste prevention* – Minimising the use of resources, and reducing the quantities and / or harmful qualities of the wastes generated.
2. *Reuse* – Using products or items again for the same purpose for which they were originally conceived.
3. *Recycling* – Reprocessing of waste materials for use as a feedstock in the manufacture of the same or a different product.³
4. *Other Recovery* – Obtaining value from wastes by (for example) composting, energy recovery or other technologies.

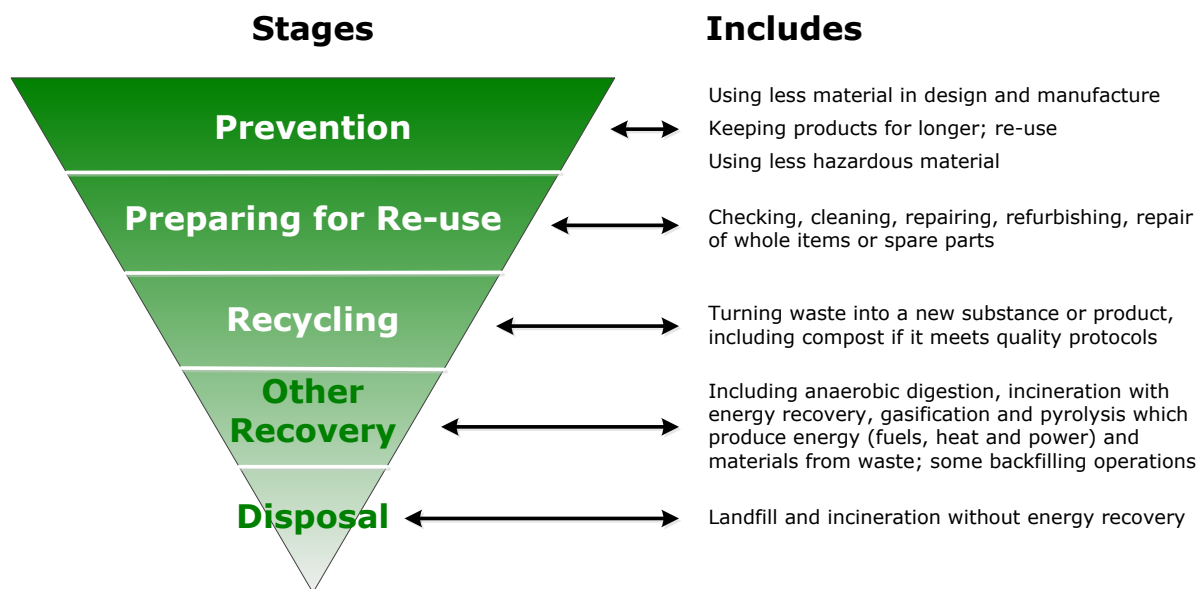
³ Recycling includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.



5. *Disposal* – If there is no other appropriate solution, the disposal of waste by landfilling or incineration without energy recovery.

The concept of the waste hierarchy is illustrated in **Figure 3**. This principle needs to be considered in conjunction with other principles, in particular the 'Best Practicable Environmental Option (BPEO)'.

Figure 3: The Waste Hierarchy



3.7 Best Practicable Environmental Option (BPEO)

The Best Practicable Environmental Option (BPEO) is the outcome of a systematic and consultative decision-making process that emphasises the protection and conservation of the environment across land, air and water. The BPEO process establishes for a given set of objectives and circumstances *the combination of options (or scenario) that provides the greatest benefits or least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term.*

3.8 Best Available Techniques Not Entailing Excessive Costs (BATNEEC)

BATNEEC is a principle used to evaluate and select a process which is considered to be the most appropriate for preventing or minimising pollution, whilst at the same time being reasonable in financial terms:

Best: means the most effective in preventing, minimising or rendering harmless polluting emissions.

Available: means procurable in that it is generally accessible, but does not necessarily imply that the technique is widely used or only available locally.

Techniques: covers both the process and how it is operated. It includes the concept and design of the process, number and qualifications of the operators, their training and supervision, the design, construction, layout and maintenance of the plant and its buildings.

'Not Entailing Excessive Costs': is very subjective and each case must be judged on its own merits. There are no fixed rules for determining whether or not the costs of available techniques are excessive, but it is expected that every effort be made to minimise the more serious pollutants.



BATNEEC is typically applied once the BPEO has been determined; for example, in choosing which of a range of possible pollution control technologies should be installed at a waste management facility.

3.9 Extended Producer Responsibility

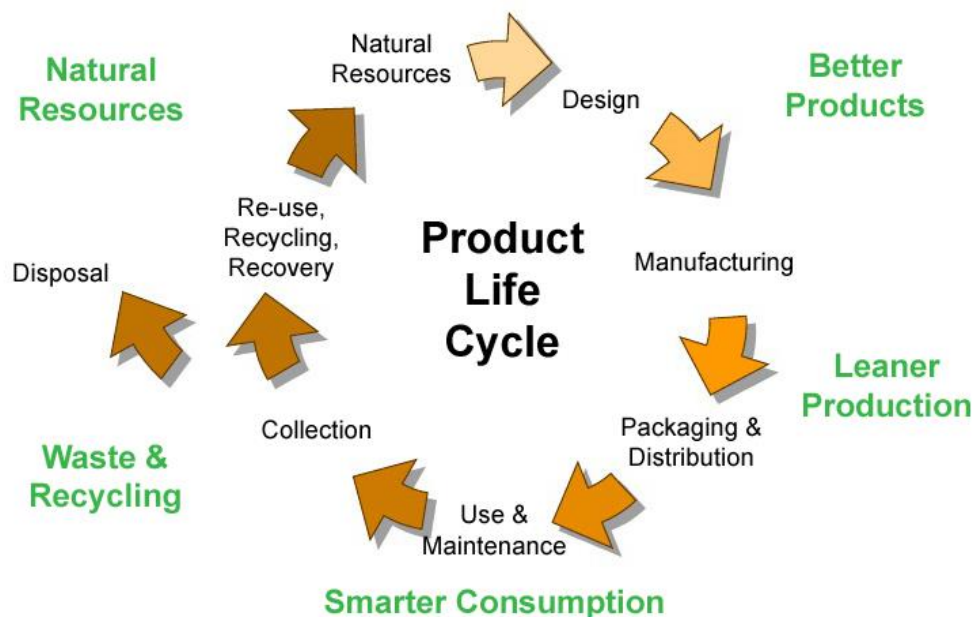
The principle of Extended Producer Responsibility (EPR) is an extension of the Polluter Pays Principle and is about ensuring that the *manufacturers, importers, distributors and retailers of products that result in the generation of wastes, take collective responsibility for those wastes*, rather than expecting the community to bear the burden of arranging and paying for waste collection, treatment and disposal.

The meaning of 'producer' in this context is much broader than the normal sense. Considering the life cycle of a product from its manufacture until the end of its useful life, it is not only the manufacturer who influences the waste generating and management characteristics of a product - others also play a significant role. However, it is the manufacturer who has the dominant role, since it is the manufacturer who takes the key decisions concerning the design and composition of the product that largely determine its waste generating potential and management characteristics. This principle therefore implies that producers (in the broad sense) should take responsibility for:

- Minimising their waste arisings.
- Designing and developing goods which are inherently recyclable and do not contain materials that pose an unnecessary risk or burden for the environment.
- Accepting end-of-life products for reprocessing and subsequent re-use / recycling.
- Developing markets for the re-use and recycling of the goods they produce.

EPR can add value at all stages of the product life cycle, as illustrated in **Figure 4**.

Figure 4: Extended Producer Responsibility





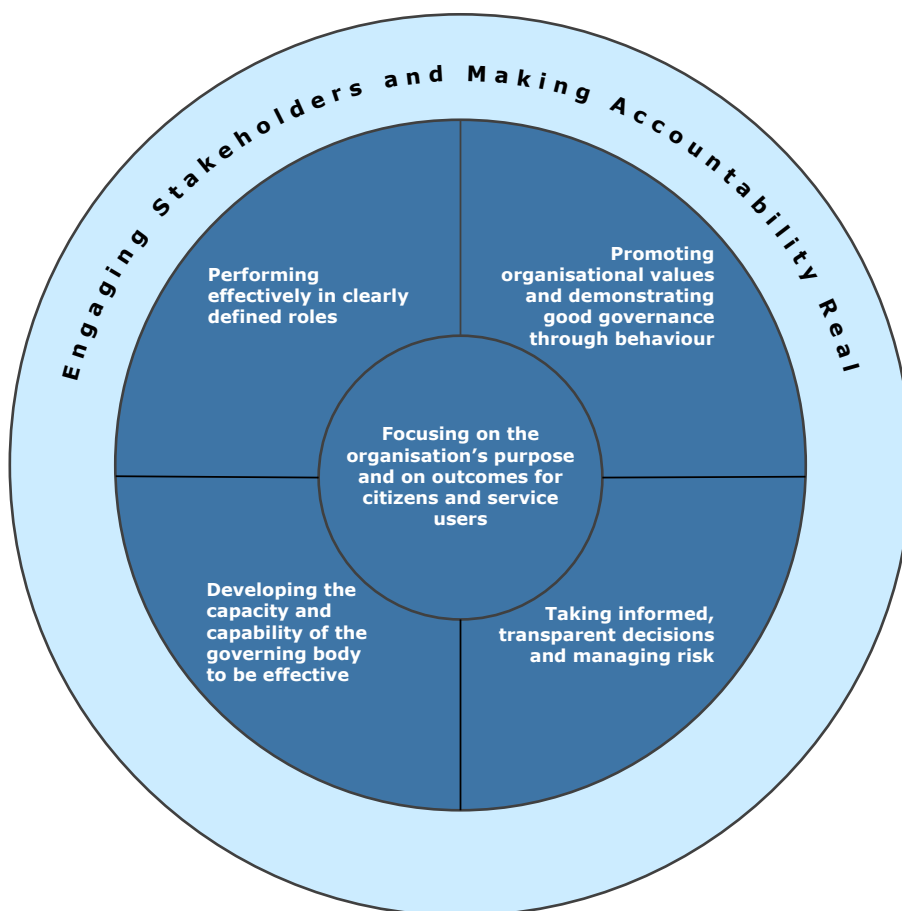
3.10 Other Relevant Principles

As well as applying the above principles to the development and implementation of a strategy for the sustainable management of solid wastes, we will ensure that State institutions with responsibilities concerning solid wastes management endeavour to:

- Achieve and maintain an *effective balance between economic development and protection of the environment*;
- Encourage *open and competitive markets* for the provision of solid waste management infrastructure and services;
- *Intervene in these markets only where necessary* to ensure the achievement of the Government's policy and strategic objectives for solid waste management;
- Wherever possible, *use economic instruments in preference to legal measures* in order to induce or encourage changes in pursuit of the Government's policy and strategic objectives for solid waste management;
- Ensure that the *principles of good governance* are adopted and applied by all public sector agencies responsible for regulating and providing solid waste management services – see **Figure 5**.

The principles of good governance in relation to public sector agencies are explained further in **Annex C**.

Figure 5: Principles of Good Governance





4. NATIONAL POLICY GUIDANCE

Our national policies for achieving the overall goal and primary objectives for managing solid waste described in Chapter 2 are presented below under the following thematic sections:

- Policy and legislative framework
- Institutional / organisational arrangements
- Human resources
- Data availability, monitoring and reporting
- Stakeholder awareness and communication
- Financing and cost recovery
- Waste prevention
- Waste recovery and recycling
- Waste segregation, storage, collection and transport
- Waste treatment / processing
- Final disposal

Each section is subdivided into:

- Specific policy objectives, and related targets and indicators
- Policies for achieving the objectives

Brief explanatory notes and supporting information for the stated policies are provided in **Annex D**.

In order to provide some degree of flexibility in the planning and implementation of measures aimed at delivering this Policy, target dates for the achievement of specific policy objectives have been categorized as follows:

- Short-term (ST) – 2016 to 2018
- Medium-term (MT) – 2019 to 2021
- Long-term (LT) – 2022 to 2025

4.1 Policy and Legislative Framework

4.1.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ A comprehensive policy and strategy, addressing all key areas of performance for SWM, exist.	ST	Yes / No
➤ National programmes / targets for achieving an integrated SWM system are developed and elaborated.	ST	Yes / No
➤ National policies for the management of product-related and hazardous/difficult and international waste streams exist.	ST	Yes / No
➤ Processes and procedures for formulating, implementing and monitoring the impact of legislation are efficient and transparent.	ST	Yes / No
➤ Procedures for stakeholder consultations and participation in the process of drafting policies and legislation are effective.	ST	Yes / No



Policy Objectives	Targets	Indicators / Criteria
➤ National legislation and standards are sufficiently developed to facilitate a comprehensive and integrated approach to SWM.	ST	Yes / No
➤ Key words and terms used in SWM legislation are adequately defined and consistently applied.	ST	Yes / No
➤ The interface between national SWM legislation and local regulations is clear and fully articulated.	ST	Yes / No
➤ A strategy for compliance monitoring and enforcement exists.	ST	Yes / No
➤ Penalties for non-compliance are appropriate and applied as a deterrent.	ST	Yes / No
➤ Resources and procedures for monitoring and enforcement are sufficient and effective.	ST	Yes / No
➤ The relevant regulatory agencies collaborate.	ST	Independent review

4.1.2 Policies

Policy No.	Policy
	We will:
WMP 1	➔ Prepare, consult on and publish a comprehensive National Solid Waste Management Policy which addresses all key areas of performance for SWM.
WMP 2	➔ Prepare, consult on and publish specific policies for managing certain product-related, hazardous and difficult waste streams which pose significant risks to health and / or the environment, or which can cause a nuisance or have properties that require extra care in handling and disposal.
WMP 3	➔ Review, consult on and reform existing national legislation and regulations relating to SWM in order to create a legislative framework which gives legal effect to this Policy, and facilitates a comprehensive, integrated and sustainable approach to SWM.
WMP 4	➔ Incorporate in law a general duty of care (with certain exemptions) on the part of any person who imports, produces, carries, keeps, treats or disposes of waste or, as a broker, has control of waste, and publish a detailed statutory code of practice on the responsibilities and actions required to comply with such duty of care.
WMP 5	➔ Prepare, consult on and revise / enact secondary legislation for regulating specific waste-generating products, waste management activities and waste streams, and for prohibiting or otherwise controlling the import of products or materials which are potentially hazardous and / or difficult to recover and / or dispose of when discarded.
WMP 6	➔ Repeal all existing legislative acts or instruments which are conflicting, irrelevant or obsolete.
WMP 7	➔ Require that all local policies, regulations and by-laws relating to SWM are aligned and harmonised with national policies, legislation and regulations.
WMP 8	➔ Prepare, consult on and publish a strategy for compliance monitoring and enforcement.



Policy No.	Policy
WMP 9	We will: → Review and, where necessary, increase penalties for non-compliance to reflect the nature of the offences and potential harm caused, and to create an appropriate deterrent.
WMP 10	→ Actively promote collaboration between regulatory agencies, and provide sufficient resources and powers to tackle waste dumping, littering and other illegal activities effectively.
WMP 11	→ Establish criteria and guidelines, and implement a programme, for annual inspections of all licensed waste management facilities.
WMP 12	→ Examine a range of issues around prevention, detection and enforcement including sentencing guidelines, collaborative working and guidance to organisations engaged in waste management activities.

4.2 Institutional / Organisational Arrangements

4.2.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ Institutional structures and related information systems and management procedures are efficient and effective.	ST	Independent review
➤ Institutional responsibilities are clearly and comprehensively defined / legally assigned.	ST	Yes / No
➤ Legal competences of Ministries are clearly defined and do not overlap.	ST	Yes / No
➤ The human and other resources available to public institutions involved in SWM are sufficient to fulfil their responsibilities and tasks effectively.	MT	Independent review
➤ The system for waste monitoring and enforcement is able to control waste flows and waste transport / processing / disposal activities effectively.	MT	Yes / No
➤ Institutional functions and responsibilities for SWM at the national / local levels are well coordinated.	MT	Yes / No
➤ Resources available at local level are sufficient for effective delivery of good quality SWM services.	MT	Yes / No
➤ Institutional arrangements for inter-municipal cooperation with respect to SWM exist.	ST	Yes / No
➤ Legal and organisational arrangements facilitate private sector participation in Municipal Solid Waste management.	MT	Independent review



4.2.2 Policies

Policy No.	Policy
	We will:
WMP 13	→ Establish an Inter-ministerial Steering Group, Chaired by the MNRA, to supervise, co-ordinate and monitor implementation of this National Solid Waste Management Policy and related Strategy.
WMP 14	→ Review, consult on and reform existing institutional and organisational arrangements in order to establish a more streamlined governance structure for SWM which clearly delineates and assigns roles and responsibilities at national, local and organisational levels.
WMP 15	→ Reconfigure the DOE and strengthen the institutional arrangements and systems for environmental permitting, monitoring and enforcement throughout Belize (including all solid waste management operations and facilities).
WMP 16	→ Reconstitute BSWaMA as an autonomous, wholly Government-owned corporation responsible for organising, procuring and supervising the provision of SWM infrastructure and services throughout Belize (including hazardous WM facilities and services).
WMP 17	→ Ensure that the human and other resources available to public institutions involved in SWM are sufficient to fulfil their legal responsibilities and assigned tasks effectively.
WMP 18	→ Facilitate and incentivise cooperation between contiguous local authorities in order to realise economies of scale and other potential efficiencies in SWM service provision.
WMP 19	→ Introduce measures to encourage private sector participation in the development, delivery and operation of public WM infrastructure and services wherever increased value in terms of service quality and / or cost-effectiveness can be achieved through the exploitation of private sector skills and resources.
WMP 20	→ Strengthen the system and procedures (including model forms of tender / contract adapted for use in Belize) used for procuring infrastructure and services for MSW collection / transport, treatment, disposal and street cleaning services throughout Belize.

4.3 Human Resources

4.3.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ A formal system for the education and on-going professional development of staff engaged in SWM-related activities exists.	MT	Yes / No
➤ The number of staff employed by Government and local authorities in relation to SWM is sufficient.	MT	Independent review
➤ The capabilities of staff engaged in SWM-related activities employed by Government and local authorities are sufficiently developed.	MT	Independent review
➤ Health and safety of human resources engaged in SWM activities is a priority.	ST	Yes / No



Policy Objectives	Targets	Indicators / Criteria
➤ Private sector producers and managers of wastes are sufficiently trained and experienced.	MT	Independent survey
➤ The contributions of staff and workers, as demonstrated by the quality of SWM services, are viewed positively by Belizean society.	MT	Independent survey
➤ Compensation paid to staff and workers engaged in SWM activities adequately reflects their contributions / value to Belizean society.	MT	Independent survey

4.3.2 Policies

Policy No.	Policy
	We will:
WMP 21	➔ Carry out a human resource and training needs assessment for public sector SWM institutions and functions, including monitoring, inspection and enforcement.
WMP 22	➔ Establish national vocational qualifications and professional standards, and promote the establishment of an independent professional body for people engaged in SWM activities in both the public and private sectors.
WMP 23	➔ In accordance with the provisions of the forthcoming Occupational Safety and Health Act 2014, develop, consult on and enact a sector regulation, supporting guidance and a detailed statutory code of practice on the Occupational Health and Safety of people engaged in SWM activities.
WMP 24	➔ Commission an independent review into the compensation, benefits and conditions of employment of public sector staff and workers engaged in SWM activities with the aim of ensuring that they reflect adequately the contributions / value of the workforce to Belizean society.

4.4 Data Availability, Monitoring and Reporting

4.4.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ Data on waste quantities and flows, covering all areas / municipalities and all waste streams, are available.	MT	Yes / No
➤ A national system for classifying, regularly collecting, processing, analysing and disseminating data and information on the sources, nature, quantities and fate of wastes and SWM facilities, exists.	MT	Yes / No
➤ Waste producers and SWM service providers, are obliged by law to collect, record and report data and information about the wastes they generate / manage.	ST	Yes / No



4.4.2 Policies

Policy No.	Policy
	We will:
WMP 25	→ Establish a national system for classifying, regularly collecting, processing, analysing and disseminating data and information on the sources, nature, quantities and fate of wastes, and SWM processes / facilities.
WMP 26	→ In conjunction with the measure envisaged in Waste Management Policy WMP 3 above, introduce a legally-binding obligation on waste producers (with the exception of householders and certain SMEs) and SWM service providers to collect, record and report data and information about the wastes they generate / manage.
WMP 27	→ Require that all public SWM facilities of a significant size (e.g. a design capacity of 20,000 tons per annum or greater) are equipped with electronic weighbridges and databases that can be accessed and interrogated remotely.

4.5 Stakeholder Awareness and Communication

4.5.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ Stakeholder awareness and communications are regarded as a priority / need by Government decision-makers.	On-going	Independent survey
➤ A targeted national strategy and programme for on-going communications and consultations with, and participation of, all key stakeholders are in place.	ST	Yes / No
➤ The resources required for effective stakeholder communications are allocated and sufficient.	ST	Yes / No
➤ SWM issues are sufficiently addressed within educational curricula and programmes.	MT	Yes / No
➤ A focal point for implementation and coordination of a national stakeholder communications programme has been established and resourced.	ST	Yes / No

4.5.2 Policies

Policy No.	Policy
	We will:
WMP 28	→ Ensure that relevant stakeholders are involved and consulted at all stages in the development, implementation and subsequent review of the National Solid Waste Management Policy, Strategy and Plan.
WMP 29	→ Prepare, consult on, adopt and implement a targeted strategy / programme for on-going communications and consultations with, and participation of, all key stakeholders.
WMP 30	→ Develop and implement a targeted education and awareness programme for the wider public (with special emphasis on schools / children).



Policy No.	Policy
WMP 31	<p>We will:</p> <p>→ Make available sufficient financial and other appropriate resources to enable Waste Management Policies WMP 28, WMP 29, and WMP 30 to be implemented effectively.</p>
WMP 32	<p>→ Under the leadership of the Ministry of Education, Youth and Sports, take steps to ensure that SWM issues are sufficiently and appropriately addressed within educational curricula and programmes.</p>
WMP 33	<p>→ Establish and resource a national focal point for implementation and coordination of the strategy / programmes foreseen by Waste Management Policies WMP 29 and WMP 30.</p>

4.6 Financing and Cost Recovery

4.6.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ User fees for SWM services and facilities are sufficient to recover the full costs (including investment costs) of managing wastes in an environmentally-sound manner.	MT	Yes / No
➤ The full costs of managing wastes in an environmentally sound manner are known and recognised by local authorities and waste producers.	ST	Yes / No
➤ Regulations / mechanisms for collecting fees / taxes for the provision of SWM services and facilities are enforced and effective.	ST	Yes / No
➤ Revenues from fees / taxes are equitably and appropriately distributed to local authorities.	ST	Yes / No
➤ Elected local government representatives are willing to introduce cost-covering charges for SWM services.	ST	Yes / No
➤ The costs of developing and operating an environmentally sustainable SWM system are affordable for all members of Belizean society.	On-going	Independent Review

4.6.2 Policies

Policy No.	Policy
WMP 34	<p>We will:</p> <p>→ Until 2020, continue to finance major investments in strategically essential SWM facilities and infrastructure through a combination of IFI / bilateral loans and resources from the State budget.</p>
WMP 35	<p>→ Over the medium-to-long term, allow the reconstituted BSWaMA envisaged by Waste Management Policy WMP 16 and other public authorities / entities with legally mandated responsibilities for SWM to set their facility user fees / service charges at levels that enable them to accumulate sufficient capital reserves to be able to finance investments in new and replacement SWM facilities and infrastructure from their own budgetary resources and / or through long-term credits from IFIs.</p>



Policy No.	Policy
	We will:
WMP 36	→ Finance (fully or partly) the investments required for expanding and upgrading MSW collection and street cleaning services through private sector participation in the delivery of these services.
WMP 37	→ In line with the Polluter Pays Principle, progressively introduce / increase charges for the use of publicly owned / operated waste management facilities and services to levels which reflect the Long Run Marginal Cost (LRMC) of their provision and operation.
	Consult on, adopt and implement for a transitional period a system for cost recovery comprising:
WMP 38	→ <ol style="list-style-type: none"> 1. A <i>surcharge on power or water utility bills</i> sufficient to recover the <i>full operating costs</i> of managing household solid wastes; and 2. A <i>reformed environmental tax regime</i>, a part of the revenues from which is earmarked to finance the <i>capital costs</i> of the infrastructure, vehicles and equipment required to manage wastes in a sustainable manner.
WMP 39	→ In conjunction with the measure envisaged in Waste Management Policy WMP 3 above, introduce a legally-binding obligation on all producers of commercial, institutional and other non-residential wastes to have a contract ("service agreement") for the collection, transport and disposal of their wastes with a licensed service provider.
WMP 40	→ Assess and publish estimates of the full costs of managing the wastes covered by this Policy in an environmentally sound manner, and ensure that these are explained to / understood by local authorities and waste producers.
WMP 41	→ Ensure that revenues from the user fees and taxes envisaged by Solid Waste Management Policies WMP 37 and WMP 38 are equitably and appropriately distributed to those public authorities / entities with legally-mandated responsibilities for SWM.
WMP 42	→ Develop and implement a subsidy / rebate scheme targeted at low-income groups that meet certain criteria and can provide reliable evidence that they cannot afford to pay full cost recovery charges for household waste management and public cleansing services.

4.7 Waste Prevention

4.7.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ Fees / charges for SWM services and facilities provide an incentive to prevent / reduce waste generation.	MT	Yes / No
➤ Other economic incentives to prevent and reduce waste, and to invest in technologies that reduce waste, are available.	ST	Yes / No
➤ Product suppliers, consumers and other waste generators are aware of the potential opportunities for, and benefits of, preventing and reducing wastes.	ST	Independent Survey
➤ Information on the opportunities and techniques for wastes prevention and reduction is readily available to waste generators.	On-going	Yes / No



4.7.2 Policies

Policy No.	Policy
WMP 43	<p>We will:</p> <p>Prepare, consult on, publish and then implement a <i>Waste Prevention Programme</i> containing a range of measures for waste prevention and reduction including:</p> <ul style="list-style-type: none"> ▪ <i>Informational measures</i> aimed at changing behaviour and making better informed decisions; ➔ ▪ <i>Promotional measures</i>, which incentivise behavioural change and provide financial and logistical support for beneficial initiatives; and ▪ <i>Regulatory measures</i>, which enforce qualitative and quantitative limits on waste generation, expand environmental obligations for both producers and consumers, and impose environmental criteria and requirements on public procurement contracts.
WMP 44	<p>➔ Consider and consult on the possibility of introducing a levy on wastes disposed of at landfill facilities, the revenues from which would be earmarked and allocated for implementing the measures set out in the Waste Prevention Programme envisaged in Waste Management Policy WMP 43 above, and in Waste Management Policies WMP 50, WMP 65 and WMP 66 below.</p>
WMP 45	<p>➔ In conjunction with the measure envisaged in Waste Management Policy WMP 3 above, introduce statutory powers to enable local authorities to take specific action to reduce waste produced in their local area where such action would:</p> <ul style="list-style-type: none"> ▪ Protect the environment from harm; and / or ▪ Provide environmental, social, economic or cultural benefits.

4.8 Waste Recovery and Recycling

4.8.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ Government policy and support for secondary raw material and product markets exist.	MT	Yes / No
➤ Fees / charges for managing and disposing of wastes provide an incentive to recover / recycle materials from waste.	MT	Yes / No
➤ Legislation requiring the return of a wider range of empty beverage containers and other types of product packaging for re-use / recycling exists.	ST	Yes / No
➤ Manufacturers, importers and distributors of products giving rise to specific / difficult wastes / waste streams are obliged to take-back the wastes resulting from their products for subsequent re-use / recycling.	MT	Yes / No
➤ Long-term markets for recyclable materials exist.	On-going	Yes / No
➤ Local / regional market outlets for a wider range of recyclable materials exist.	On-going	Yes / No
➤ Costs incurred for segregation, collection and shipment do not inhibit the export of some recyclable materials.	On-going	Yes / No
➤ Economic incentives to recover and recycle waste are available.	MT	Yes / No



Policy Objectives	Targets	Indicators / Criteria
<ul style="list-style-type: none"> ➤ Users of raw materials consider waste to be part of the material cycle. ➤ Product suppliers, consumers and other waste generators are aware of the potential opportunities for, and benefits of, recovering and recycling of wastes. 	<p>MT</p> <p>On-going</p>	<p>Independent Survey</p> <p>Independent Survey</p>

4.8.2 Policies

Policy No.	Policy
	We will:
WMP 46	<ul style="list-style-type: none"> ➔ Introduce preferential tax treatment for specific 'low waste' products / processes and / or specific recyclable products / recycling processes (e.g. returnable / refillable packaging systems).
WMP 47	<p>In conjunction with the measures envisaged in Waste Management Policies WMP 3 and WMP 43 above, introduce eco-contributions on specific products / materials (e.g. disposable dishware / drinkware and other 'single-use' products, PVC, virgin construction materials and non-recyclable or difficult to recycle products) the revenues from which will be earmarked and allocated for implementing the measures envisaged in Waste Management Policies WMP 50, WMP 51 and WMP 53 below.</p>
WMP 48	<ul style="list-style-type: none"> ➔ In conjunction with the measure envisaged in Waste Management Policy WMP 43 above, establish (by agreement with industry and/or through legislation) industry-led and managed Extended Producer Responsibility schemes for the recovery ('take-back') and recycling / treatment of certain types of product-related wastes (packaging waste, ELVs, end-of-life tyres, WEEE, used mineral and synthetic oils, waste batteries and accumulators).
WMP 49	<ul style="list-style-type: none"> ➔ In conjunction with the measures envisaged in Waste Management Policies WMP 3 and WMP 48 above, introduce / extend deposit refund schemes for re-usable and / or potentially recyclable products (e.g. beverage containers and certain other packaging products, copier and printer cartridges, batteries and accumulators, tyres, ELVs, WEEE).
WMP 50	<ul style="list-style-type: none"> ➔ Provide economic incentives for locally manufactured recycled products / recycling processes.
WMP 51	<ul style="list-style-type: none"> ➔ Reduce / remove any unnecessary economic or other barriers to the export of recycled products / recyclable materials.
WMP 52	<ul style="list-style-type: none"> ➔ Give preference to recycled / recyclable products and materials in public sector procurement rules and procedures.
WMP 53	<ul style="list-style-type: none"> ➔ Provide advice and guidance on methods / techniques for waste recovery / recycling (and the potential benefits thereof) to product importers / suppliers, consumers and other waste generators.



4.9 Waste Segregation, Storage, Collection and Transport

4.9.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ Equipment and other resources for temporary containment, collection and transport of MSW and other wastes are adequate.	MT	% population with access to container within 150 yds. % population receiving a regular collection service. % containers emptied on schedule.
➤ Tariffs and charging mechanisms for waste collection services encourage waste segregation by waste producers.	MT	Yes / No
➤ Arrangements for segregating and separately storing potentially hazardous and difficult wastes prior to collection are adequate.	ST	Yes / No
➤ Systems for segregating and separately storing recyclable materials prior to collection are sufficiently developed.	MT	% total collected waste which is available for recycling
➤ Systems for segregating and separately collecting biodegradable wastes are sufficiently developed.	MT	% total collected waste which is available for composting
➤ Systems for the transfer / bulk transportation of hazardous and difficult wastes to centralised treatment / disposal facilities are sufficiently developed.	MT	Yes / No
➤ An integrated national system and supporting regulations for the segregation, separate storage and collection of hazardous wastes (including healthcare risk waste) exists.	MT	Yes / No
➤ Methods / practices for the collection of MSW do not inhibit / prevent the efficient use of resources.	ST	Yes / No
➤ A competitive market for the provision of various waste collection and transport services is fully developed.	On-going	Yes / No

**4.9.2 Policies**

Policy No.	Policy
	We will:
WMP 54	→ In conjunction with Waste Management Policies WMP 3, WMP 16 and WMP 19 above, ensure that a regular and reliable MSW collection service is provided to all communities located within 300 yards of an all-weather road which is accessible by a purpose-designed waste collection vehicle.
WMP 55	→ Prepare, consult on and publish a "Waste Management Design Guide" which provides specific advice on the design and installation of waste management infrastructure as an integral part of municipal, residential and commercial developments.
WMP 56	→ In conjunction with Waste Management Policies WMP 7, WMP 16, WMP 19 and WMP 55 above, require the use of standardised waste storage containers of an appropriate size, type and quality which are capable of being emptied mechanically.
WMP 57	→ Introduce source segregation and separate collection of recyclable materials from municipal and similar solid wastes in representative pilot areas in order to test public response and optimise the methods and equipment to be used for segregation and separate collection in Belize.
WMP 58	→ Following completion of the measure envisaged in Waste Management Policy WMP 57, and in conjunction with Waste Management Policies WMP 16, WMP 19 and WMP 20 above, expand source segregation and separate collection of recyclable materials [including bio-waste] for which there are viable long-term markets across all urban areas of Belize.
WMP 59	→ In conjunction with Waste Management Policy WMP 48 above, encourage the development of a network of drop-off / take-back centres at convenient locations in the more densely-populated urban areas of Belize.
WMP 60	→ In conjunction with Waste Management Policies WMP 16, WMP 19 and WMP 20 above, install and operate transfer-loading systems where necessary and economically justifiable.
WMP 61	→ In conjunction with Waste Management Policies WMP 16, WMP 19 and WMP 20 above, establish a national system for collecting (and treating – see WMP 64 below) healthcare risk waste and other hazardous wastes.

4.10 Waste Treatment / Processing**4.10.1 Objectives, Targets and Indicators**

Policy Objectives	Targets	Indicators / Criteria
➤ Legislation and standards governing the treatment / processing of wastes are sufficiently developed and enforced effectively.	ST	Yes / No
➤ Facilities for the treatment / processing of wastes outside the Western Corridor comply with modern standards of design and operation.	MT	Yes / No
➤ Staff and operatives engaged in waste treatment and processing activities are adequately trained and qualified.	ST	Yes / No



Policy Objectives	Targets	Indicators / Criteria
➤ The financial cost of landfilling untreated waste, relative to the costs of waste treatment / processing, does not inhibit investment in new or upgraded treatment / processing facilities.	ST	Yes / No
➤ Facilities for storing, treating, processing and / or exporting hazardous wastes exist and are functioning properly.	MT	Yes / No
➤ Facilities for treating / processing slaughter and other difficult wastes are sufficient.	MT	Yes / No
➤ Facilities for reducing the volume of wastes going to landfill exist.	MT	Yes / No
➤ Systems / facilities for processing of recovered packaging materials are sufficient.	MT	Yes / No
➤ Systems / facilities for processing of other product-related wastes streams (e.g. waste oils, ELVs, WEEE, etc) are sufficient.	MT	Yes / No

4.10.2 Policies

Policy No.	Policy
	We will:
WMP 62	➔ In conjunction with Waste Management Policies WMP 2, WMP 5 and WMP 11 above, develop, consult on, enact and enforce a sector regulation, supporting guidance and a detailed statutory code of practice governing the treatment / processing of wastes.
WMP 63	➔ In conjunction with Waste Management Policies WMP 3, WMP 4 , WMP 21 and WMP 22 above, introduce a mandatory requirement that staff and operatives engaged in waste treatment and processing activities are appropriately qualified and adequately trained.
WMP 64	➔ In conjunction with Waste Management Policies WMP 16, WMP 19 and WMP 20 above, establish and maintain a national system for treating hazardous and difficult wastes in accordance with regulations and best practices.
WMP 65	➔ In conjunction with Waste Management Policies WMP 44 and WMP 58 above, promote and incentivise the use of small-scale and home composting of bio-wastes in rural communities.
WMP 66	➔ In conjunction with Waste Management Policies WMP 44 and WMP 58 above, develop and operate a network of facilities for reducing the volume of non-hazardous wastes going to landfill.
WMP 67	➔ In conjunction with Waste Management Policies WMP 46, WMP 48 and WMP 50 above, promote and incentivise the development and operation of systems and facilities for processing of recovered recyclable materials and product-related wastes streams.



4.11 Final Disposal

4.11.1 Objectives, Targets and Indicators

Policy Objectives	Targets	Indicators / Criteria
➤ Legislation and standards governing the final disposal of wastes are adequate and properly enforced.	MT	Yes / No
➤ Facilities / practices for the final disposal of wastes outside the Western Corridor comply with modern standards / best practices.	MT	Yes / No
➤ Sufficient facilities for the environmentally-sound disposal of wastes exist.	MT	Yes / No
➤ Tariffs / charges for the final disposal of wastes reflect the full costs of landfilling wastes in accordance with modern standards / best practices.	MT	Yes / No
➤ Financial resources available for the identification, assessment, closure, remediation and restoration of all old waste dump sites and "hotspots" are sufficient.	On-going	Yes / No

4.11.2 Policies

Policy No.	Policy
WMP 68	<p>We will:</p> <p>➔ In conjunction with Waste Management Policies WMP 2, WMP 5 and WMP 11 above, develop, consult on, enact and enforce a sector regulation, supporting guidance and a detailed statutory code of practice governing the final disposal (landfilling) of wastes.</p>
WMP 69	<p>➔ In conjunction with Waste Management Policies WMP 16, WMP 19, WMP 20 and WMP 34 above, develop and operate facilities for the final disposal of non-hazardous wastes generated outside the Western Corridor in accordance with regulations and best practices.</p>
WMP 70	<p>➔ In close consultation with the responsible authorities, prepare and implement plans, and allocate sufficient resources, for the closure, remediation, restoration and return to beneficial use of waste dump sites and "hotspots".</p>

5. POLICY IMPLEMENTATION, MONITORING & REVIEW

5.1 Implementation

The various Policy measures presented in this National Solid Waste Management Policy will be further developed and elaborated in the form of a *National Solid Waste Management Strategy*, and subsequently implemented in accordance with an *Implementation Plan*. The anticipated scope and contents of the Strategy and Implementation Plan are presented in **Table 1** and **Table 2** respectively.

5.2 Monitoring and Review

In the context of Policy implementation, the requirements for monitoring will arise in three main ways:

- **Policy implementation** – the extent to which the various measures set out in the Policy are adopted and implemented in practice and / or incorporated in other national policies;
- **Development of waste handling capacities** – the extent to which the capacities of infrastructure and systems for the physical management of wastes needed to meet the objectives of the Policy develop as required;
- **Results** – the results achieved in terms of the qualitative and quantitative indicators contained in the Policy (such as the indicators for waste storage and collection – see section 4.9.1 above).

Special attention will be given to monitoring progress in:

- Limiting growth in wastes generation;
- Reducing environmental hazards and risks associated with waste management activities;
- Increasing the levels of waste recovery and recycling;
- Developing and operating new waste management systems and facilities.

Various quantitative indicators will be used to measure and monitor progress with implementation of this Policy and the related Strategy. These will include:

- *Waste production*, overall and by waste type;
- *Recovery and recycling rates*, overall and by waste type;
- *Recycling rates*, by material;
- Quantities of specific *hazardous wastes produced*;
- Quantities and types of *waste landfilled*.

With regard to Policy review and updating, summary reports on the progress achieved in implementing the various measures set forth in this Policy will be prepared and published by the MNRA at annual intervals. The Policy itself and related Strategy will be reviewed and updated annually until 2021, and thereafter at 4-year intervals.



Table 1: Anticipated Scope & Contents of the National SWM Strategy

- Policy statement incorporating the overall goal and strategic policy objectives
- Statement of the key principles and criteria upon which the strategy is founded
- Summary of the key data and assumptions on which the strategy is based
- Description of the main elements / features of the strategy:
 - Nature of wastes and waste flows, and related forecasts
 - Key existing problems / deficiencies
 - Applicable legislation, standards and regulations
 - Future institutional and organisational arrangements for managing wastes
 - Measures for reducing, recovering, recycling or reusing wastes
 - Standards, methods and technologies for storage, collection and transportation
 - Technologies / techniques to be applied for treatment and final disposal
 - Measures and procedures for clean-up and restoration of waste sites
 - Methods and procedures for detailed planning, assessment, development and operation of wastes management facilities
 - Methods to be adopted for financing, procuring and recovering the costs of waste management facilities and services
 - Approach and methods for educating, informing, and communicating with the public / key interest groups
- A programme for implementing the required institutional and organisational changes
- Description of the main systems and procedures to be developed and applied for implementing the strategy, including the development of a National Waste Management Information System
- A programme for developing the required physical facilities for waste management
- Estimates of the human resources required to implement the strategy
- Estimates of the magnitude and timing of the capital and operating expenditures required in order to provide and operate the physical facilities for waste management
- A programme for funding facilities, infrastructure or other types of project related to waste management, and for introducing or improving systems for cost recovery
- A programme for communicating the strategy to the public and other key interest groups
- An overall timetable for the achievement of the strategy goal and objectives
- Arrangements for monitoring, reviewing and updating the strategy at appropriate intervals

Table 2: Anticipated Scope & Contents of the Implementation Plan

- Identification of the authorities / agencies responsible for strategy implementation
- Identification and definition of all key tasks and activities required in order to implement the adopted strategy
- The sequence, timing and linkages of key tasks and activities
- Key implementation decision points and milestones
- Detailed timetables for implementation
- Detailed estimates of the resources required and related costs
- Cash flow projections for the overall plan and for all plan sub-components
- A financing plan
- Supporting data and explanatory text, as required e.g. identifying and detailing the allocation of responsibilities for key implementation tasks; the methods of monitoring and indicators of achievement to be used



ANNEX A
EXISTING SOLID WASTE MANAGEMENT ARRANGEMENTS
- PROBLEM ANALYSIS -

Belize - Existing Solid Waste Management Arrangements - Problem Analysis

Core Problem = The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.

A. Area/Activity	B. Key Problems	C. Principal Causes	D. Principal Effects
1. Policy & Legislative Framework	<p>1.1 Existing national policy / strategy on SWM is not yet sufficiently developed to facilitate preparation and implementation of an integrated and cost-effective national SWM system.</p> <p>1.2 Existing national legislation relating to SWM is not effective.</p> <p>1.3 Enforcement of legislation relating to SWM is not effective.</p>	<p>1.1.1 A comprehensive policy and strategy, addressing all key areas of performance for SWM, does not exist.</p> <p>1.1.2 Programmes / targets for achieving an integrated SWM system are not yet sufficiently developed / elaborated.</p> <p>1.1.3 Policies for the management of specific / difficult waste streams do not exist.</p> <p>1.2.1 Processes and procedures for formulating, implementing and monitoring the impact of legislation are not efficient or transparent.</p> <p>1.2.2 Current arrangements and procedures for stakeholder consultations and participation in the process of drafting policies & legislation are not effective.</p> <p>1.2.3 Legislation & standards relating to SWM are not sufficiently developed to facilitate a comprehensive & integrated approach to SWM.</p> <p>1.2.4 Key words & terms used in SWM legislation are not adequately defined & / or applied consistently.</p> <p>1.2.5 The interface between national SWM legislation and local regulations is not clear / fully articulated.</p> <p>1.3.1 Enforcement is not considered to be a priority.</p> <p>1.3.2 Penalties for non-compliance are not appropriate and / or not applied as a deterrent.</p> <p>1.3.3 Resources and procedures for monitoring and enforcement are insufficient and ineffective.</p> <p>1.3.4 The various regulatory agencies do not collaborate.</p>	<ul style="list-style-type: none"> ➤ No comprehensive sectoral basis is available for determining SWM priorities, performance requirements or targets. ➤ Regional / local strategies & plans for SWM have not been prepared. ➤ Local authorities do not have the resources and capacities to implement SWM legislation and standards. ➤ Stakeholder resistance to the introduction of new SWM legislation. ➤ Confusion regarding the meaning and intention of SWM legislation. ➤ Standards relating to SWM are difficult to implement and enforce effectively. ➤ Wastes are not always managed in accordance with best practices / techniques. ➤ Littering & illegal dumping in areas not receiving waste collection service. ➤ Uncontrolled dumping of wastes, including potentially hazardous wastes. ➤ The Department of Environment is not able to monitor and control SWM facilities / processes / activities adequately.

Belize - Existing Solid Waste Management Arrangements - Problem Analysis

Core Problem = The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.

A. Area/Activity	B. Key Problems	C. Principal Causes	D. Principal Effects
2. Institutional / Organisational Arrangements	2.1 Existing institutional / organisational arrangements are not optimal for an integrated and cost-effective national SWM system.	<p>2.1.1 Existing institutional structures and related information systems & management procedures are fragmented and inefficient / ineffective.</p> <p>2.1.2 Institutional responsibilities are not clearly & comprehensively defined / legally assigned.</p> <p>2.1.3 In some cases, legal competences of Ministries are not clearly defined and / or overlap.</p> <p>2.1.4 The human and financial resources available to existing institutions are not sufficient to deliver an integrated & efficient SWM system.</p> <p>2.1.5 The existing enforcement system is not able to control waste generation and transport / processing / disposal activities effectively.</p> <p>2.1.6 Institutional functions & responsibilities for SWM at the national / local levels are not well coordinated.</p> <p>2.1.7 Resources available at local level are insufficient for effective delivery of SWM services.</p> <p>2.1.8 Institutional arrangements for inter-municipal cooperation with respect to SWM do not exist.</p> <p>2.1.9 Existing legal and organisational arrangements for private sector participation in Municipal Solid Waste management are not effective.</p>	<p>➤ Confusion / overlap of functions & responsibilities. Insufficient co-ordination and cooperation between Government institutions. Lack of continuity in approach.</p> <p>➤ Failures / deficiencies in decision-making & task implementation. Human resources are insufficient and not prepared for such tasks, and are not motivated.</p> <p>➤ SWM activities are not regulated effectively.</p> <p>➤ Private sector involvement in decision making and performance in SWM is limited.</p> <p>➤ The scope for economies of scale & other potential efficiencies in service provision are not exploited.</p> <p>➤ The potential benefits of competition in service provision are not realised in all branches / areas of waste management.</p>
3. Human Resources / Capacity	3.1 Existing numbers & capacities of human resources engaged in SWM (in both the public and private sectors) are inadequate.	<p>3.1.1 The number of staff employed by Government and local authorities in relation to SWM is insufficient.</p> <p>3.1.2 The capabilities of staff engaged in SWM-related activities employed by Government and local authorities are not sufficiently developed.</p> <p>3.1.3 Health & safety of human resources engaged in SWM activities is not a priority.</p> <p>3.1.4 Private sector waste producers and some</p>	<p>➤ SWM activities are not planned, managed or regulated effectively.</p> <p>➤ Inadequate specification and supervision of the provision of SWM infrastructure & services.</p> <p>➤ Private sector waste producers do not apply best SWM practices and techniques.</p> <p>➤ SWM service providers do not apply best practices and techniques.</p> <p>➤ Staff & workers are not motivated to</p>

Belize - Existing Solid Waste Management Arrangements - Problem Analysis

Core Problem = The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.

A. Area/Activity	B. Key Problems	C. Principal Causes	D. Principal Effects
		<p>managers of wastes are not sufficiently trained and / or experienced.</p> <p>3.1.5 The contributions of staff and workers engaged in SWM activities are not recognised / viewed positively by Belizean society (low status).</p> <p>3.1.6 Compensation paid to staff and workers engaged in SWM activities does not reflect adequately their contributions / value to Belizean society.</p>	<p>perform efficiently.</p> <p>➤ Health and safety risks are greater than need be.</p>
4. Data Availability, Monitoring & Reporting	4.1 Available data & information on the sources, nature, quantities and fate of wastes, and SWM facilities, is not sufficiently comprehensive and reliable to be able to regulate & manage wastes effectively.	<p>4.1.1 Historical data on wastes & SWM do not exist.</p> <p>4.1.2 Existing data do not cover all areas / municipalities or all waste streams (focus on western corridor).</p> <p>4.1.3 A national system for classifying, regularly collecting, processing, analysing & disseminating data & information on the sources, nature, quantities and fate of wastes, and SWM facilities, does not exist.</p> <p>4.1.4 Waste producers and SWM service providers, are not obliged (by law) to collect, record and report data and information about the wastes they generate / manage.</p>	<p>➤ A comprehensive and reliable statistical basis for planning, management and control of SWM facilities and services does not yet exist.</p> <p>➤ A comprehensive and consistently reliable basis for monitoring & reporting of all SWM activities and performance does not exist.</p> <p>➤ Data & information relating to specific / problematic waste streams is inadequate and / or unavailable (e.g. packaging wastes; WEEE; ELVs).</p> <p>➤ Information available to stakeholders is insufficient.</p>
5. Stakeholder Awareness & Communication	5.1 Stakeholders do not have a sufficient awareness and understanding of their roles & responsibilities in achieving an integrated and cost-effective national SWM system.	<p>5.1.1 Stakeholder awareness and communications are not regarded as a priority / need by Government.</p> <p>5.1.2 A targeted national strategy / programme for on-going communications & consultations with, and participation of, all key stakeholders are not yet in place.</p> <p>5.1.3 Resources required for effective stakeholder communications are not allocated / sufficient.</p> <p>5.1.4 SWM issues are not sufficiently addressed within existing educational curricula and programmes.</p> <p>5.1.5 A focal point for implementation and</p>	<p>➤ Stakeholders are not identified / engaged.</p> <p>➤ National policy & strategy for SWM are not communicated effectively to all stakeholders.</p> <p>➤ Government intentions and policy objectives with respect to SWM are not recognised &/or widely understood by all stakeholders.</p> <p>➤ Responsibilities & duties with respect to SWM are not recognised and / or accepted by all stakeholders.</p> <p>➤ Communication between different stakeholder groups is not developed.</p> <p>➤ Waste management is not perceived as an</p>

Belize - Existing Solid Waste Management Arrangements - Problem Analysis			
Core Problem = The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.			
A. Area/Activity	B. Key Problems	C. Principal Causes	D. Principal Effects
		coordination of a national stakeholder communication programme has not been established / equipped.	<p>economic as well as an environmental activity.</p> <ul style="list-style-type: none"> ➤ General awareness and understanding of SWM issues throughout society do not yet exist. ➤ Realisation of necessary SWM facilities and other changes in existing SWM systems / practices may be prevented / delayed due to a lack of stakeholder awareness and understanding.
6. Financing / Cost Recovery	6.1 The revenue flows from existing SWM fees and other sources are insufficient to be able to meet the full costs of providing an integrated and environmentally sustainable national SWM system.	<p>6.1.1 Existing fees / taxes for SWM services & facilities are not sufficient to recover the full costs of managing wastes in an environmentally-sound manner.</p> <p>6.1.2 The full costs of managing wastes in an environmentally sound manner are not known and / or understood by local authorities and waste producers.</p> <p>6.1.3 Existing regulations / mechanisms for collecting fees / taxes for the provision of SWM services & facilities are not enforced / effective.</p> <p>6.1.4 Revenues from existing fees / taxes are not equitably and appropriately distributed [to local authorities].</p> <p>6.1.5 Elected local government representatives are reluctant to introduce cost-covering charges for SWM services (for political reasons).</p> <p>6.1.6 The full costs of developing and operating an environmentally sustainable SWM system are not affordable for some members of Belizean society.</p>	<ul style="list-style-type: none"> ➤ A sustainable basis for financing the development and operation of an integrated and cost-effective national SWM system does not yet exist. ➤ Waste producers do not perceive or bear the full costs of managing their wastes in an environmentally-sound manner [polluter pays principle]. ➤ Manufacturers, importers and distributors of products giving rise to specific / problematic wastes / waste streams do not perceive or bear the costs of managing such wastes / waste streams in an environmentally-sound manner [polluter pays principle]. ➤ There is no incentive for the private sector to invest in new SWM infrastructure / systems or services.

Belize - Existing Solid Waste Management Arrangements - Problem Analysis

Core Problem = The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.

A. Area/Activity	B. Key Problems	C. Principal Causes	D. Principal Effects
7. Waste Prevention	7.1 The potential for waste prevention at source is not being realised.	<p>7.1.1 Existing fees / taxes for SWM services & facilities provide little or no incentive to avoid / reduce waste generation.</p> <p>7.1.2 Economic incentives to avoid and reduce waste are not available.</p> <p>7.1.3 Product suppliers, consumers and other waste generators are not aware of the potential opportunities for, and benefits of, avoiding and / or reducing wastes.</p> <p>7.1.4 Information on the opportunities & techniques for wastes prevention and reduction is not readily available to waste generators.</p>	<ul style="list-style-type: none"> ➤ Clean technologies are not considered or widely applied. ➤ Measures aimed at waste prevention have no basis for effective implementation due to lack of economic incentives and communication between stakeholders. ➤ Resources, including the resources for SWM, are not used efficiently with both actual & potential economic & environmental consequences. ➤ The current / future volumes of waste requiring handling, processing and disposal are / will be greater than need be. ➤ The resource requirements for handling, processing and disposing of wastes are / will be higher than need be.
8. Waste Recovery & Recycling	8.1 The potential for greater waste recovery and recycling is not being realised.	<p>8.1.1 Government policy and support for secondary raw material markets do not exist.</p> <p>8.1.2 Existing fees / taxes for managing and disposing of wastes provide little or no incentive to recover / recycle materials from waste.</p> <p>8.1.3 Existing legislation to encourage the return of empty beverage containers is not wide enough in scope.</p> <p>8.1.4 Manufacturers, importers and distributors of products giving rise to specific / problematic wastes / waste streams are not obliged to take-back the wastes resulting from their products for subsequent re-use / recycling.</p> <p>8.1.5 Stable, long-term markets for some types / grades of recyclable materials do not exist.</p> <p>8.1.6 Domestic market outlets for most types / grades of recyclable materials do not exist or are very weak.</p> <p>8.1.7 Costs incurred for collection, segregation and shipment discourage the export of some</p>	<ul style="list-style-type: none"> ➤ The recovery of some types / grades of potentially recyclable materials is not financially viable under prevailing conditions. ➤ Technologies and techniques for waste recovery and recycling are not widely applied. ➤ Facilities for recovery, re-processing and recycling of some types of recyclable material are limited. ➤ Resources, including the resources for SWM, are not used efficiently with both actual & potential economic & environmental consequences. ➤ The current / future volumes of waste requiring handling, processing and disposal are / will be greater than need be. ➤ The resource requirements for handling, processing and disposing of wastes are / will be higher than need be.

Belize - Existing Solid Waste Management Arrangements - Problem Analysis			
Core Problem = The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.			
A. Area/Activity	B. Key Problems	C. Principal Causes	D. Principal Effects
		<p>recyclable materials.</p> <p>8.1.8 Economic incentives to recover and recycle waste are not available.</p> <p>8.1.9 Users of raw materials do not consider waste to be part of the material cycle.</p> <p>8.1.10 Product suppliers, consumers and other waste generators are not aware of the potential opportunities for, and benefits of, recovery and recycling of wastes.</p>	
9. Waste Segregation, Storage, Collection & Transport	9.1 Existing methods / systems for the temporary storage, collection and transport of wastes are not efficient / cost-effective.	<p>9.1.1 Existing equipment and other resources for temporary storage, collection and transport of MSW are inadequate.</p> <p>9.1.2 Existing mechanisms for recovering the costs of providing waste collection services do not encourage waste segregation by waste producers.</p> <p>9.1.3 Existing arrangements for segregating and separately storing potentially hazardous wastes prior to collection are inadequate.</p> <p>9.1.4 Systems for segregating & separately storing recyclable materials prior to collection are not sufficiently developed.</p> <p>9.1.5 Systems for the segregation & separate collection of biodegradable wastes are not sufficiently developed.</p> <p>9.1.6 Systems for the transfer / bulk transportation of some types of waste to centralised treatment / disposal facilities are not sufficiently developed.</p> <p>9.1.7 An integrated national system for the segregation, separate storage and collection of hazardous wastes (including healthcare risk waste) does not exist.</p> <p>9.1.8 Current methods / practices for the collection of MSW inhibit / prevent the efficient use of resources.</p> <p>9.1.9 A competitive market of service providers for various waste collection services is not fully developed.</p>	<ul style="list-style-type: none"> ➤ Increased health / environmental risks from improper segregation / storage. ➤ Opportunities for economically viable recovery / recycling of some recyclable materials cannot be realised. ➤ The scope for economies of scale in the operation of centralised waste treatment / processing facilities cannot be exploited. ➤ The costs of MSW collection service provision are / will be higher than need be. ➤ Existing arrangements for the provision of MSW collection services are financially unsustainable in the long run. ➤ Existing providers of waste collection services have little incentive to become more efficient.

Belize - Existing Solid Waste Management Arrangements - Problem Analysis

Core Problem = The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.

A. Area/Activity	B. Key Problems	C. Principal Causes	D. Principal Effects
10. Waste Treatment / Processing	10.1 Wastes generated are not treated / processed efficiently and in accordance with best practices.	<p>10.1.1 Legislation and standards governing the treatment / combustion of wastes are not sufficiently developed / enforced effectively.</p> <p>10.1.2 Existing facilities for the treatment / processing of wastes outside the Western Corridor do not comply with modern standards of design and operation.</p> <p>10.1.3 Staff and operatives engaged in waste treatment and processing activities are not adequately trained.</p> <p>10.1.4 The low financial cost of landfilling untreated waste, relative to the costs of waste treatment / processing, inhibits investment in new or upgraded treatment / processing facilities.</p> <p>10.1.5 Facilities for treating / processing hazardous wastes do not exist / are not functioning.</p> <p>10.1.6 Facilities for treating / processing slaughter and other difficult wastes are insufficient.</p> <p>10.1.7 Facilities for reducing the volume of wastes going to landfill do not exist.</p> <p>10.1.8 Existing systems / facilities for processing of recovered packaging materials are not sufficient.</p> <p>10.1.9 Existing systems / facilities for processing of other product-related wastes streams (e.g. waste oils, ELVs, WEEE, etc) are not sufficient.</p>	<ul style="list-style-type: none"> ➤ Enhanced pollution & hazard potential from such facilities. ➤ Some wastes are treated / burnt in inadequate / inappropriate facilities. ➤ Significant risks to the health / safety of operatives handling wastes, and to other people entering waste disposal sites. ➤ Methods higher up the waste management hierarchy are not utilised sufficiently. ➤ Significant pollution / potential health risks from the disposal of some types of untreated waste to landfill.



Belize - Existing Solid Waste Management Arrangements - Problem Analysis

Core Problem = The existing system for managing solid wastes in Belize is financially and environmentally unsustainable.

A. Area/Activity	B. Key Problems	C. Principal Causes	D. Principal Effects
11. Final Disposal	<p>11.1 Wastes requiring final disposal are not always disposed of in accordance with best practices.</p> <p>11.2 Some existing and old (historical & non-operational) waste dump-sites and "hotspots" are not being closed, progressively remediated and restored.</p>	<p>11.1.1 Legislation and standards governing the final disposal of wastes are inadequate / not properly enforced.</p> <p>11.1.2 Existing facilities / practices for the final disposal of wastes outside the Western Corridor do not comply with modern standards / best practices.</p> <p>11.1.3 The number of existing facilities for the environmentally-sound disposal of wastes is not sufficient.</p> <p>11.1.4 Existing tariffs / charges for the final disposal of wastes do not reflect the full costs of landfilling wastes in accordance with modern standards / best practices.</p> <p>11.2.1 Financial resources available for the identification, assessment, closure, remediation and restoration of all old waste dump sites & "hotspots" are not sufficient.</p>	<ul style="list-style-type: none"> ➤ Continuing environmental burdens and risks to health from existing and old waste dump sites and "hotspots". ➤ Continued illegal dumping in some areas. ➤ Significant adverse impacts on the landscape and amenity values. ➤ Adverse impacts on tourism. ➤ The siting, design, operation & after-care of final disposal facilities are not always in accordance with international standards.



ANNEX B

**LIST OF OTHER RELEVANT NATIONAL POLICIES &
INTERNATIONAL AGREEMENTS**



National Policies

- Belize National Food and Agriculture Policy (2002-2020), April 2003 (currently being updated)
- Belize National Hazard Mitigation Policy Final Draft, April 2004
- Belize National Integrated Water Resources Management Policy, September 2008
- National Policy on Local Governance, August 2009
- National Development Framework for Belize 2010 – 2030
- Belize's National Policy on Responsible Tourism, February 2010
- National Sustainable Tourism Master Plan for Belize 2030, June 2011
- Draft National Land Use Policy and Integrated Planning Framework, August 2011
- National Energy Policy Framework, November 2011
- National Gender Policy (Revised), March 2013

International Agreements

- Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal
 - Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter
 - Cotonou Agreement
 - Kyoto Protocol to the United Nations Framework on Climate Change
 - Montreal Protocol on Substances that Deplete the Ozone Layer
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ANNEX C
PRINCIPLES OF GOOD GOVERNANCE
FOR PUBLIC SECTOR AGENCIES



There have been numerous attempts at defining what is meant by “good governance” and the qualities and characteristics that this expression embodies. For example, the UNDP notes that:

"Good governance is, among other things, participatory, transparent and accountable. It is also effective and equitable. And it promotes the rule of law. Good governance ensures that political, social and economic priorities are based on broad consensus in society and that the voices of the poorest and the most vulnerable are heard in decision-making over the allocation of development resources."

A more comprehensive definition is provided by Article 9.3 of the most recent version of the Cotonou Agreement⁴ which states as follows:

"In the context of a political and institutional environment that upholds human rights, democratic principles and the rule of law, good governance is the transparent and accountable management of human, natural, economic and financial resources for the purposes of equitable and sustainable development. It entails clear decision-making procedures at the level of public authorities, transparent and accountable institutions, the primacy of law in the management and distribution of resources and capacity building for elaborating and implementing measures aiming in particular at preventing and combating corruption".

Belize is a signatory to the Cotonou Agreement.

In the context of public sector bodies / agencies, good governance generally involves the application of the following key principles:

1. *Government and public sector agency relationship* – the agency's relationship with the government is clear.
2. *Management and oversight* – the agency's management and oversight are accountable and have clearly defined responsibilities.
3. *Organisational structure* – the agency's structure serves its operations.
4. *Operations* – the agency plans its operations to achieve its goals.
5. *Ethics and integrity* – ethics and integrity are embedded in the agency's values and operations.
6. *People* – the agency's leadership in people management contributes to individual and organisational achievements.
7. *Finance* – the agency safeguards financial integrity and accountability.
8. *Communication* – the agency communicates with all parties in a way that is accessible, open and responsive.
9. *Risk management* – the agency identifies and manages its risks.

Attention to these principles helps to ensure that an agency has appropriate systems and structures to fulfil its mandate and accountability obligations, and achieve a high level of organisational performance. Under each principle, the matrix presented overleaf details the requirements for organisational performance and accountability, the means for achieving them and proposed methods for monitoring their achievement.

⁴ Downloadable from http://ec.europa.eu/europeaid/where/acp/overview/documents/devco-cotonou-consol-europe-aid-2012_en.pdf



GOVERNANCE PRINCIPLES	REQUIREMENTS	OPERATIONS	MONITORING
	What is required to achieve organisational performance and accountability?	How do you achieve it?	How do you monitor your progress towards good governance?
1. Government and public sector agency relationship	1.1 An approved document defines the respective responsibilities and accountabilities between the Chief Executive Officer (CEO), the Agency Supervisory Board & the responsible Minister	1.2 Processes and procedures exist to manage communications and other interactions between the CEO, the Board, the Minister and other parliamentary representatives	1.3 Communications and other interactions are recorded and monitored
2. Management and oversight	2.1 A document defines roles, responsibilities and accountability for all relevant levels of management (e.g. those involved in setting the organisation's key strategic goals and outcomes and monitoring organisational performance) 2.2 Where standing committees exist, the relationships between the parties are clearly defined	2.3 A strategic plan outlines the organisation's key strategic goals and outcomes and outputs 2.4 Operational plans and programmes of work exist that define critical success factors and outline how key strategic goals and outcomes will be accomplished at all levels of the organisation 2.5 A delegations framework defines levels of authority	2.6 Performance measures and indicators are defined and monitored for the organisation's strategic goals
3. Organisational structure	3.1 Policies ensure that the organisation's structure serves its key strategic goals and outcomes	3.2 Processes exist to manage structural change and the relationships between business units	3.3 Performance measures and indicators identify how well the structure delivers against strategic plans
4. Operations	4.1 Policies enable operations to deliver against the organisation's key strategic goals and outcomes	4.2 The organisation's operational plans and programmes of work support the organisation's key strategic goals and outcomes and are regularly adjusted to changes in strategic and environmental imperatives 4.3 Infrastructure is in place to enable the organisation to implement its operational plans 4.4 A proper and adequate record is maintained of the performance of the organisation's operations as aligned with its key strategic goals and outcomes	4.5 Business process and outcome-specific key performance indicators (KPIs) track the organisation's performance against its strategic and operational plans 4.6 Regular and <i>ad hoc</i> performance evaluations and audits are conducted



GOVERNANCE PRINCIPLES	REQUIREMENTS	OPERATIONS	MONITORING
	What is required to achieve organisational performance and accountability?	How do you achieve it?	How do you monitor your progress towards good governance?
5. Ethics and integrity	5.1 The organisation's values and behaviour reflect the ethics prescribed in Article 121.(1) of the Belize Constitution, and define the standards of official conduct and professional behaviour expected of all employees	5.2 The organisation's ethics and integrity risks are identified and policies and operational processes address them (e.g. procurement, conflict of interest) 5.3 People management frameworks define the response to unethical behaviour 5.4 Processes are in place to provide supervision and assistance and enable follow up of non-compliance (e.g. through public interest disclosure)	5.5 A structured process is in place to monitor official conduct and professional behaviour (e.g. compliance audit, performance management)
6. People	6.1 Policies enable the attraction, retention and effective management of people	6.2 Plans ensure that processes, decisions and actions are based on the principles of fairness, equity and diversity, as well as consistent, transparent, impartial and open for review 6.3 People management frameworks cover the whole employment continuum	6.4 Structured procedures are in place to monitor adherence to human resource policies and processes 6.5 Feedback processes identify issues in people management practices
7. Finance	7.1 Finance policies define the key strategic goals and outcomes for which the organisation's finances must be employed 7.2 A formal audit charter specifies roles and responsibilities, composition and structure of all audit functions	7.3 Processes ensure the proper recording of financial transactions consistent with applicable accounting standards 7.4 Financial operations contribute towards the organisation's key strategic goals and outcomes and uphold the highest level of integrity	7.5 Structured processes are in place to monitor and audit financial performance against budget and key strategic goals, both at executive level as well as by an independent audit committee.



GOVERNANCE PRINCIPLES	REQUIREMENTS	OPERATIONS	MONITORING
	What is required to achieve organisational performance and accountability?	How do you achieve it?	How do you monitor your progress towards good governance?
8. Communications	<p>8.1 Communication policies ensure the organisation's communications are open, accessible and responsive</p> <p>8.2 Policies ensure information is disseminated through correct channels, in a timely manner and to the right target group</p>	<p>8.3 Processes ensure proactive, transparent and responsive internal and external communications</p> <p>8.4 Processes assist in complying with legislation on record keeping, public interest disclosure and freedom of information, in safeguarding the confidentiality and integrity of information, and in preventing unauthorised, false or premature disclosure</p>	8.5 An audit strategy exists to monitor compliance with communication policies and strategies
9. Risk management	9.1 Policies exist for the governance and management of material risks (e.g. reputational, financial or physical, including occupational safety and health)	<p>9.2 The organisation's risk exposure is evaluated and remediation plans are implemented</p> <p>9.3 Preventive measures for key risk categories are in place</p>	9.4 Procedures are in place to monitor incidents from the identified risk categories (data analysis)



**ANNEX D
NATIONAL POLICY GUIDANCE
– EXPLANATORY NOTES –**



Policy and Legislative Framework

It is clear from the baseline review and analysis of the existing situation that the current legislative framework for solid waste management, and for environmental protection generally, is rather fragmented, ineffective and in need of substantial reform. We will undertake consultations on how best to reform the current legislative framework, so as to give legal effect to this Policy and facilitate a much more comprehensive, integrated and sustainable approach to solid waste management.

The Government's preliminary view is that this might best be achieved through the development of a *new framework law* which *inter alia*:

- Provides comprehensive legal definitions for key words and terms relating to SWM which are harmonised with internationally-used definitions;
- Embeds in law the long-term national goal and strategic objectives for SWM;
- Embodies and gives legal force to the Government's policies and principles relating to waste management set forth in this Policy;
- Establishes a statutory duty of care (with certain exemptions) on the part of any person who imports, produces, carries, keeps, treats or disposes of waste or, as a broker, has control of waste;
- Provides for the eventual introduction of Extended Producer Responsibility for specified types or categories of products;
- Provides for the eventual introduction of hypothecated eco-contributions / levies on waste-generating products that have a demonstrable and specific negative impact on the environment and / or the systems required to manage the ensuing wastes in an environmentally-sound manner;
- Sets up a mechanism for monitoring implementation of the National Strategy, and determining further actions which may be necessary for achieving National Policy objectives and targets;
- Incorporates provisions for progressively introducing secondary legislation (regulations / by-laws, including legally-binding technical standards and codes of practice) for regulating specific waste-generating products, waste management activities and waste streams;
- Defines and assigns institutional competence and responsibilities for policy formulation and strategic planning, implementation and permitting / enforcement at national, regional and local levels;
- Establishes an independent and unified system for controlling / permitting all waste management facilities and activities (including waste collection and transport), and for monitoring and enforcement (including minimum requirements and criteria for inspections);
- Provides for much higher penalties (including fixed penalties) for offences;
- Repeals all existing legislative acts or instruments which are conflicting, irrelevant or obsolete.

Such a framework law could be a law focused solely on solid waste management (e.g. a Sustainable Solid Waste Management Act), or a law that is much broader in scope and which addresses all aspects of environmental protection in a comprehensive manner (e.g. an Environmental Protection Act incorporating several chapters or parts with related schedules). The major advantage of the latter approach is that such a broad spectrum



framework law would provide the basis for a more integrated and streamlined approach to environmental management and protection in Belize which avoids conflicts and overlap, and which would be easier to monitor and enforce. But a comprehensive Environmental Protection Act of this kind would require considerably more time and effort to prepare and enact. In any event, we aim to complete the reform of the current legislative framework for solid waste management by the end of 2018.

The existence of appropriate national policy measures and a supporting legislative framework is not in itself sufficient to ensure that wastes will be managed in an environmentally-sound and sustainable manner. To be effective, such measures must be administered and enforced which in turn requires that adequate systems, procedures and resources be deployed to fulfil these tasks. In order to specify and quantify these requirements more precisely, we shall be:

- Carrying out a systematic assessment of the resources required for establishing and maintaining a monitoring and enforcement regime sufficient to ensure a continuing high level of compliance;
- Preparing, consulting on and publishing a strategy containing a set of clear priorities and actions for compliance monitoring, inspection and enforcement;
- Reviewing and, where necessary, increasing penalties for non-compliance to reflect the nature of the offences and potential harm caused, and to create an appropriate deterrent.
- Ensuring that regulatory agencies collaborate, and have sufficient resources and powers to tackle waste dumping, littering and other illegal activities effectively.
- Establishing criteria and guidelines, and implementing a programme, for annual inspections of all licensed waste management facilities.
- Examining a range of issues around prevention, detection and enforcement including sentencing guidelines, collaborative working and guidance to public sector organisations engaged in waste management activities.

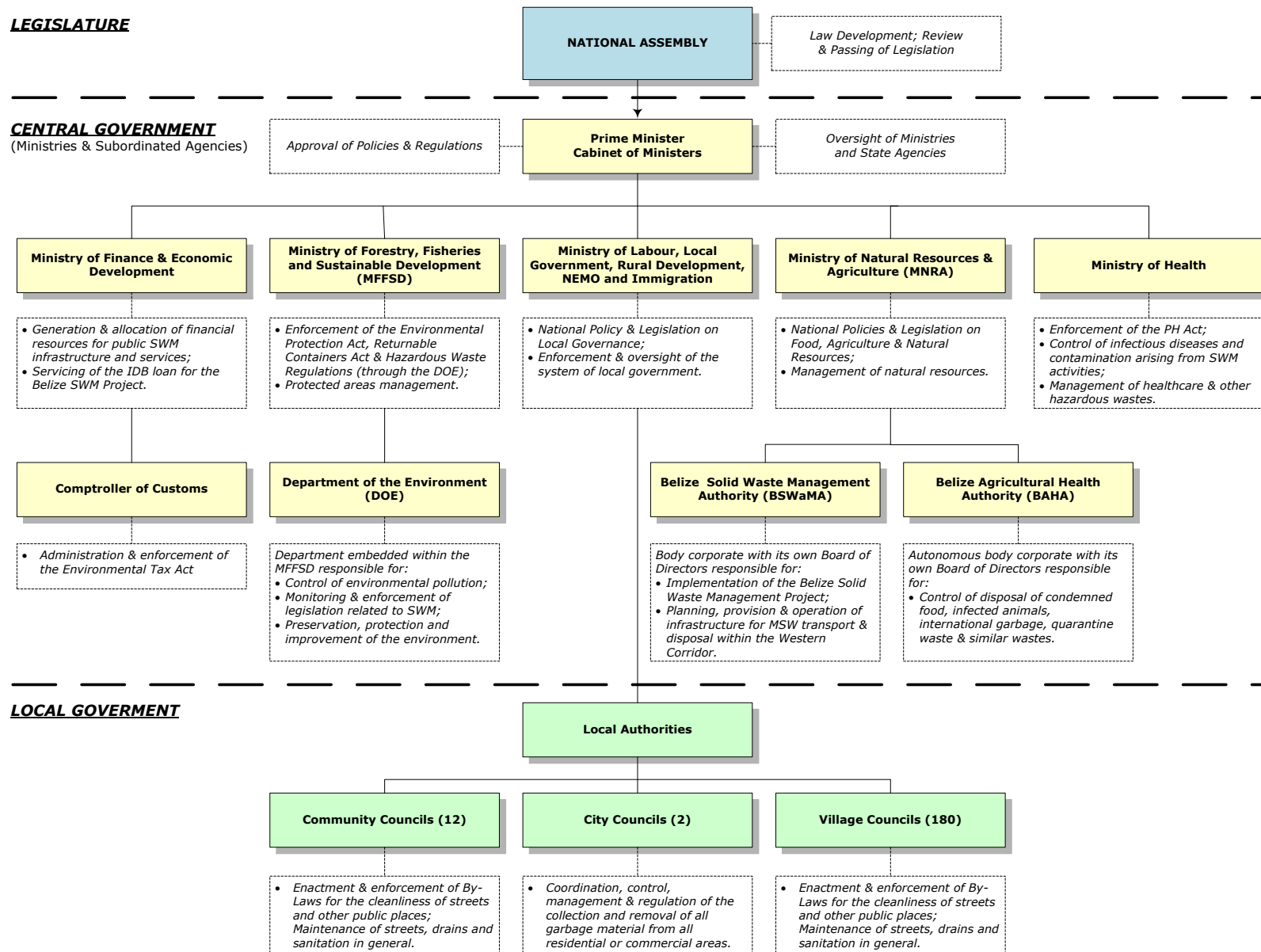
The arrangements envisaged for reforming the existing legislative framework and strengthening its enforcement are described in more detail in **Annex E**.

Institutional / Organisational Arrangements

An overview of the existing governance and institutional structure for solid waste management is presented in **Figure 6**.

As is evident from Figure 6, and also from the problem analysis presented in **Annex A**, the existing institutional and organisational arrangements for SWM are rather confused and fragmented, with responsibilities not always clearly defined and in some cases overlapping. Existing institutions are also, for the most part, under-resourced.

At the *national level*, the Government believes that legal competence and institutional responsibilities for a) policy formulation / strategic planning and legislation, b) strategy implementation and c) permitting / enforcement should be **clearly defined and assigned to separate public entities**. Experience in other countries also suggests that implementation and enforcement are unlikely to function effectively if the responsible entities are embedded within a Ministry. Therefore, if SWM infrastructure and services are to be further improved and legislation is to be enforced effectively, it is vital that legal responsibility / competence for implementation on the one hand, and permitting, compliance monitoring and enforcement on the other, are assigned to institutionally-separate and operationally-autonomous agencies with clear legal mandates, delegated powers and adequate resources.

Figure 6: Existing Governance and Institutional Structure for Solid Waste Management




With this in mind, we intend to reform the existing institutional and organisational arrangements *at the national level* so that:

- One Ministry (the MNRA) has overall responsibility for policy formulation, strategic planning and legislation in relation to SWM;
- A standing Inter-Ministerial Steering Group is established, Chaired by the MNRA, with the overall responsibility for supervising, co-ordinating and monitoring implementation of this Policy and the related National SWM Strategy;
- BSWaMA is re-constituted as an autonomous implementing body responsible for organising, procuring and supervising the provision of SWM facilities and services throughout Belize (including hazardous waste management facilities and services);
- The DOE is reconfigured (with regional branches), strengthened and made responsible for all environmental permitting, compliance monitoring and enforcement throughout Belize (i.e. not just solid waste management).

The potential benefits of such an approach include:

- Clearer separation of the legislative, executive and regulatory powers and functions of government;
- More effective use of scarce human and technical resources;
- More consistent decision-making;
- Long-term decisions rather than short-term;
- Better data and information;
- Greater transparency and accountability;
- Greater respect and trust between the regulated and the regulator;
- Lower compliance costs for the regulated.

At *the local level*, the existing institutional arrangements for municipal SWM collection and street cleaning services are also fragmented, under-resourced and unreliable, and this is clearly having a negative impact on service coverage and quality, resulting in significant environmental problems and public dissatisfaction throughout much of Belize. In particular, it is evident that, with the exception of Belize City, all local authorities are *too small to be able to exploit economies of scale in service provision or deliver these services reliably and cost-effectively*. In the Government's view, there is no realistic prospect that this situation will improve significantly unless the existing institutional and organisational arrangements for planning, managing and delivering these services are clarified and rationalised.

There are a number of ways in which this could be achieved:

- Transfer the responsibility for planning and managing all MSW collection and related services (including street cleaning) to the newly re-constituted successor organisation to BSWaMA (see above), and out-source service delivery on a regional scale to the private sector through competitive tendering;
 - Require / encourage (either by law and / or by means of financial incentives) contiguous local authorities to form regional associations with legal personality, and with delegated responsibilities and powers to plan and manage MSW collection and similar services on behalf of member authorities. Service delivery could be undertaken either directly by the associations using their own equipment and workforces, and / or by out-sourcing to the private sector;
-



- Establish by statute regional “Joint Services Councils” (JSC) as public entities to take-over legal responsibility for the provision of MSW collection and similar services organised at a regional level. As with municipal associations, service delivery could be undertaken either directly by the JSCs using their own equipment and workforces, and / or by out-sourcing to the private sector.

The above options each have potential advantages and disadvantages, and their suitability / practicability will be considered during consultations on reforming the existing institutional and organisational arrangements for SWM. However, whichever option is eventually selected, it will be essential in the Government’s view to preserve local involvement and ensure that local stakeholders’ interests are formally recognised and represented within any new institutional structure for delivering municipal solid waste management services.

The measures envisaged for reforming the existing institutional framework for SWM and improving its efficacy are described in more detail in **Annex E**.

Human Resources

The initial baseline review of the existing situation carried out by consultants on behalf of the Government indicated that the numbers and capacities of human resources currently engaged in SWM activities in both the public and private sectors are generally inadequate, a conclusion which was also confirmed by feedback received from various stakeholders. However, a systematic and in-depth assessment of the numbers and capacities of human resources required to perform various public SWM functions satisfactorily has not yet been carried out.

To some extent, the numbers and types of human resources required by the public sector to procure, operate and regulate SWM facilities and services will depend on the future institutional and organisational arrangements for SWM (see section 4.2 above). Accordingly, once agreement in principle has been reached on the future institutional structure and organisational arrangements for SWM, we will commission a detailed human resource and training needs assessment for public sector SWM institutions and functions, including compliance monitoring, inspection and enforcement.

Likewise, the Government is aware that an approach and system for specialised training in waste management should be established and made available on a national basis, so as to ensure greater technical and managerial competence in waste management at all levels. Many other countries have established national qualifications and professional standards in the field of waste management, in order to ensure that persons employed or working in this sector possess the professional or vocational skills appropriate to their tasks and responsibilities. We therefore intend to organise the design and establishment of a national scheme of professional qualifications and formal training programmes for waste managers, technologists and operatives, along lines similar to those found in some other countries. An independent national body / institution will be given overall responsibility for developing appropriate programmes and courses, for awarding vocational qualifications, and for promoting high professional standards, possibly in partnership with similar organisations in other English-speaking countries.

The health risks and hazards confronted by people engaged in SWM activities, especially manual workers and plant operatives, are much greater than those typically found in other sectors. It is therefore imperative that greater attention is paid to occupational health and safety than has hitherto been the case. Therefore, once the forthcoming Occupational Safety and Health Act 2014 comes into force, we will develop, consult on and enact a sector regulation, supporting guidance and a detailed statutory code of practice on the Occupational Health and Safety with the aim of achieving a high level of protection for people engaged in SWM activities.



The Government is also aware of the crucial importance of attracting, retaining and motivating appropriately qualified and experienced staff and workers. This task has become increasingly difficult in recent years, due partly to the significantly lower salary and wage levels in the local government sector compared with those offered in the private sector, and partly to poor working conditions and a lack of job satisfaction amongst front-line service staff and operatives. As a first step towards addressing this problem, we will Commission an independent review into the compensation, benefits and conditions of employment of public sector staff and workers engaged in SWM activities. Once the results and recommendations of this review are available, the Government will give further consideration to introducing measures designed to improve the pay, skills and working conditions of public sector staff and workers involved in managing wastes, especially those employed by local authorities.

Data Availability, Monitoring and Reporting

An oft-quoted adage is "If you can't measure something, you can't manage it."⁵, and this is certainly true of solid waste management.

Currently, there is a dearth of reliable data and information on waste types and flows, and their fate and impact on public health and the environment. Although various consulting assignments carried out under the auspices of the Belize Solid Waste Management Project have generated valuable data and information on different aspects of SWM (most recently, in relation to waste generation and cost recovery in the Western Corridor), there is no national system for classifying and regularly collecting, processing, analysing and disseminating data and information on wastes and waste flows.

This is a significant shortcoming and constraint on the long-term planning and development of a more integrated and sustainable SWM system. Accordingly, this issue is addressed by Policy WMP 25 and will be elaborated in the forthcoming National SWM Strategy. Implementation of this Policy is likely to require the establishment of a national computerised database for data storage, processing and retrieval, supported by integrated systems and procedures for data gathering, verification and reporting.

To some extent, the dearth of reliable data has also been exacerbated by the fact that:

- Commercial and industrial waste producers and SWM service providers are not obliged by law to collect, record and report data and information about the wastes they generate / manage; and
- Until recently, equipment for weighing and recording the types and quantities of solid wastes delivered to SWM facilities (weighbridges) has not been available.

A weighbridge is now available at the recently-opened regional landfill facility at Mile 24. Modern electronic weighbridges and the related computer control systems are relatively inexpensive to purchase and install, and they provide invaluable information not only about day-to-day WM activities but also about long-term trends. We will therefore ensure that in future all public WM facilities are equipped with electronic weighbridges and databases that can be accessed and interrogated remotely.

Stakeholder Awareness and Communication

Implementing a SWM policy, strategy and plan obviously involves various changes and the achievement of stated policy objectives. In any society or community, the interests and aims of different organisations and individuals do not always coincide. As a consequence, it is usually necessary to overcome a variety of institutional and social barriers if the policy

⁵ Attributed to Peter Drucker, management consultant, educator and author, who invented the concept known as *management by objectives*.



objectives are to be reached. The main purpose of stakeholder communications is to inform stakeholders and respond to their concerns, try and reconcile any conflicting or competing interests, and build consensus for implementing the policy measures and actions foreseen in the policy, strategy and plan.

In the context of SWM strategy development and implementation, effective stakeholder communications will be required in a variety of ways, for example in order to:

- Facilitate the process of consulting on, reviewing and periodically updating the Policy, Strategy and Plan;
- Obtain information and feedback on key issues from stakeholders during Policy and Strategy development;
- Address concerns and objections, and hopefully win local acceptance and co-operation, with regard to the development of new landfill sites and other necessary SWM facilities;
- Facilitate the process of formulating, approving, communicating and implementing the measures relating to cost recovery for waste management services;
- Develop an appreciation and understanding of some of the economic realities and practical constraints of waste management amongst key target groups.

The programmes envisaged in Policies WMP 29 and WMP 30 distinguish between the needs for *environmental education / awareness-raising* on the one hand, and the needs for *stakeholder relations and communications* on the other. The former mainly involves a constant *one-way process* (i.e. selected concepts, ideas and information are continually presented and transferred to particular target groups such as schoolchildren) aimed at bringing about fundamental long-term changes in social attitudes and behaviour, whereas the latter usually entails a *two-way process* of limited duration intended to generate a specific reaction or response on the part of a target audience or group within a comparatively short time frame, e.g. to identify and address the concerns of the local community in connection with the development of a new waste management facility. Although to some extent inter-dependent, each element requires a different approach and different skills / resources.

The enforcement of environmental regulations and standards has been rather lax in the past, and the importance of effective enforcement has not yet been fully recognised by all sections of our society. While there is evidence to suggest that we have become generally more concerned about environmental issues in recent years, the fundamental shifts in social attitudes and behaviour required to bring about a major and sustainable improvement in waste management have yet to occur. Legislation and standards, and their effective enforcement, provide the cornerstone for environmentally sound and cost-effective waste management. Without this, the other actions and measures aimed at improving waste management facilities and practices are likely to fail. The need for effective monitoring and enforcement will therefore form a central theme of the planned communications and education programmes.

Priority and greater prominence will also be given to waste management issues in educational curricula. Although the subject of environment and environmental protection in general is covered to some extent within existing educational curricula and programmes, no particular emphasis or attention is currently given to waste management issues, or to promoting changes in social attitudes and behaviour concerning waste management among young people. Today's schoolchildren and students are tomorrow's opinion formers and decision-makers. Experience in other countries shows that schoolchildren and students can exert considerable influence over the attitudes and behaviour of their parents and other older members of society.



A fully staffed and resourced national focal point will be established within the successor organisation to BSWaMA, with a dedicated budget and the overall responsibility for planning, coordinating and implementing the stakeholder communications and education and awareness programmes in close cooperation with other GoB departments and agencies.

Financing and Cost Recovery

Currently, the *costs of developing and operating SWM infrastructure* are met almost entirely by Government through the MNRA budget. The actual expenditures over the period 2009-14 are summarised in the table below.

GoB Expenditures on SWM Infrastructure & Services

Capital Funding & Expenditure, 2009 to 2014	USD
Sources of funding:	
Inter-American Development Bank (IDB)	11,150,000
OPEC Fund for International Development (OFID)	3,260,000
Government of Belize (GoB)	379,000
TOTAL	14,789,000
Investments:	
Landfill Phase I & Phase II	5,104,279
Access Road - 2 miles paved	980,343
Belize City Mile 3 Transfer Station	2,276,451
San Pedro/Caye Caulker/San Ignacio-Santa Elena Transfer Stations	2,500,471
Belmopan Transfer Station	845,654
<i>Sub-Total</i>	<i>11,707,198</i>
Works Supervision	913,196
Institutional Strengthening	2,011,835
Auditing	116,821
Contingency	39,950
<i>Sub-Total</i>	<i>3,081,802</i>
TOTAL PROJECT COST	14,789,000
Operating Costs & Solid Waste Received at Mile 24 Landfill	
Operating Costs, August 2013 – March 2014, in BZD	1,068,435
Waste received at Mile 24 in tonnes, August 2013 – March 2014	15,947

Source: BSWaMA

As can be seen, capital expenditure is heavily reliant on donor financing, in particular from the IDB, and has been focused hitherto on the development of SWM infrastructure in the Western Corridor.

The costs of providing *waste collection and similar environmental services* represent a significant expense for local authorities, and most local authorities are struggling to find and allocate sufficient funds just to cover the day-to-day costs of operating these services. The main funding sources for local SWM services are municipal revenues generated primarily



from local fees and property taxes, and subventions from central government. In towns and cities, residential waste collection and disposal services are provided mainly free of charge to household users. Commercial waste collection services are normally paid for directly by waste producers based on the quantities of waste produced. Apart from Belize City, none of the authorities visited has invested in vehicles and equipment in recent years and, in most cases, the existing vehicles / equipment are old and in very poor condition.

The new or upgraded facilities and systems needed to manage our wastes more sustainably will inevitably be more expensive to develop and operate and, as with any other high quality product or service, will need to be financed and paid for. Accordingly, if Belize is to achieve an integrated and environmentally sustainable national SWM system, it is vital that the revenues generated and allocated for this purpose are sufficient to be able to meet the full costs (including capital depreciation / debt servicing) of developing and operating such a system. Clearly, the present arrangements for financing and recovering the costs of SWM infrastructure and services are neither desirable from a policy perspective, nor financially sustainable in the long term, and are therefore in urgent need of reform.

Charging for the provision / use of SWM facilities and services is important not only in order to generate revenues to cover their costs, but also because this helps to instil a sense of value amongst service users and consumers, and to create an incentive to reduce the amount and / or the polluting characteristics of the wastes generated. Experience elsewhere suggests that progressively raising fees / tariffs for the use of waste management facilities / services to levels which reflect their true long-term cost to society is one of the most effective ways of encouraging environmentally-desirable behaviour, and ensuring that the necessary infrastructure and services can be financed. This is the philosophy underlying the “polluter pays principle” explained in section 3.5 above.

The ultimate objective should therefore be to *set user fees at levels which recover the full costs of providing and maintaining public SWM facilities and services that meet the required environmental and other performance standards*. However, given the history and current situation regarding cost recovery, it is the Government’s view that such an objective will take considerable time to achieve, and that a “hybrid solution” will need to be adopted for a transitional period of at least 5 years.

Ideally, a charging policy and revenue collection mechanism for SWM services should be:

- *Proportionate* in relation to the amount of waste requiring public management;
- *Equitable* in terms of the ability-to-pay;
- *Efficient* in terms of the net revenues raised (i.e. after deduction of administrative costs); and
- *Difficult to evade* in the sense that an effective sanction is readily available in the event of non-payment.

Unfortunately, such an ideal mechanism does not exist and all methods of charging for SWM services represent a compromise.

In a recent study conducted for BSWaMA⁶, the following options for recovering the costs of SWM services were evaluated and compared:

1. A dedicated portion of the property tax for private persons and of the trade license fees for businesses;
2. Direct solid waste service fees;

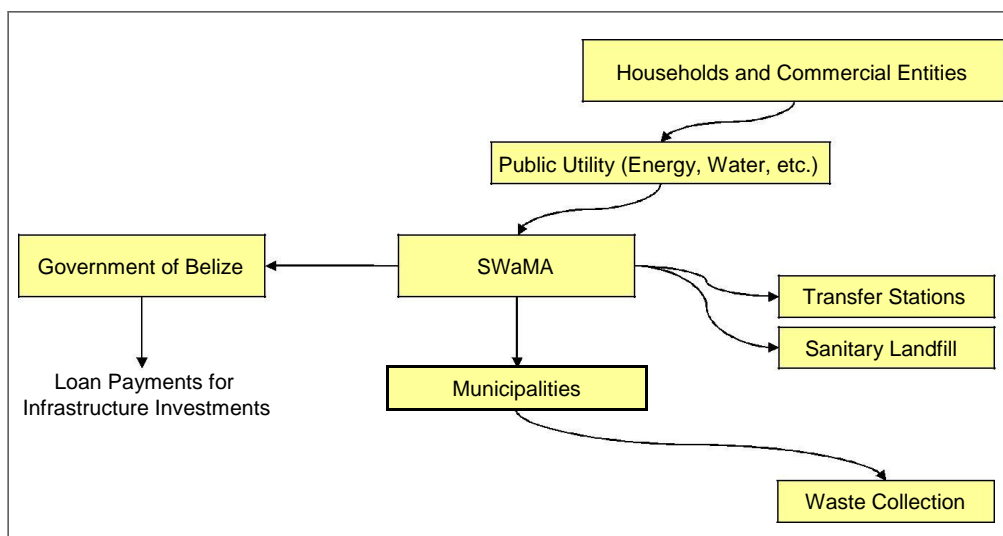
⁶ *Design of Cost Recovery Mechanism for the Solid Waste Management Project for the Western Corridor, Belize, C.A. 2056/OC-BL, Final Report prepared by Hydroplan GmbH, May 2011.*



3. Tipping fees;
4. A surcharge on power or water utility bills;
5. Direct billing of users by a private sector operator;
6. Prepaid bags;
7. Direct quantity-based billing at the point of collection.

The study recommended adopting options 1 and 4 above, and also using option 3 as the payment procedure for commercial entities arriving at the landfill gate. The payment scheme envisaged for option 4 is illustrated in **Figure 7** below.

Figure 7: Payment Scheme Envisaged for the Utility Bills Option



While we generally concur with the above recommendation, as mentioned earlier, our view is that a “hybrid solution” should be adopted for a transitional period comprising:

- A *surcharge on power or water utility bills* sufficient to recover the *full operating costs* of managing household and commercial wastes (collection, transport, treatment and final disposal);
- A *reformed environmental tax regime*, a part of the revenues from which is earmarked to finance the *capital costs of the infrastructure, vehicles and equipment* required to manage wastes in a sustainable manner.

Changes to the existing environmental tax regime will include:

- *Differential tax rates* applied to certain goods (both imported and domestically-produced) which, when discarded, create a substantial burden on the environment and / or result in significant public expenditure for their environmentally-sound collection, treatment and disposal;
- *Hypothecating (earmarking) the resulting revenues* to be used exclusively for the purpose of financing investments in SWM infrastructure, vehicles and equipment.

Consideration will also be given to broadening the environmental tax base and channelling the resulting revenues to an extra-budgetary *Waste Management Investment and Contingency Fund*. Such funds have been applied very successfully in some countries as a transitional means of financing capital investments (but not operating expenditures) for



environmental protection in both the public and private sectors, whilst charges and user fees for environmental services are gradually extended and increased to a level where their costs (including capital investment costs) are fully covered and they become financially sustainable without Government subvention.

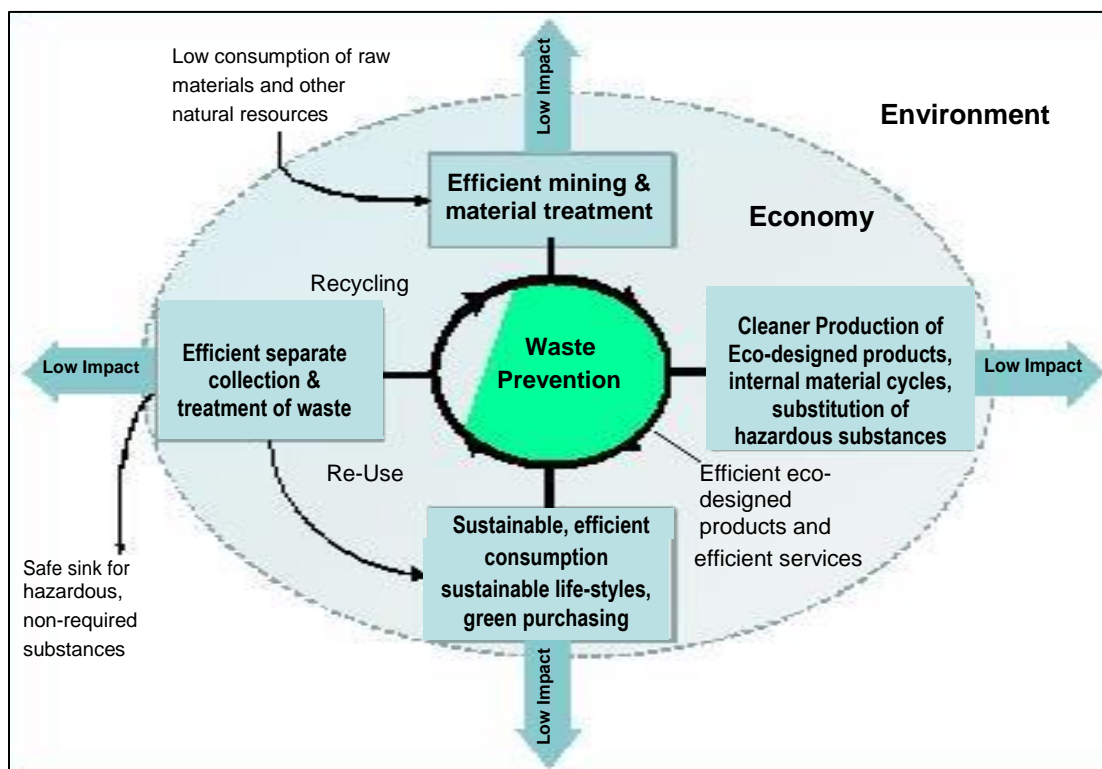
Waste Prevention

Waste prevention encompasses a range of policy options and measures, and has a broad range of benefits. Targeting waste production at source reduces the amount and / or toxicity of waste before recycling, composting, energy recovery and landfilling become options. Waste prevention also includes measures to reduce the adverse characteristics and impacts of the waste generated on the environment and human health.

Waste prevention can be achieved by reducing the quantity of material used in the creation of products and increasing the efficiency with which products, once created, are used. Preventing waste by limiting unnecessary consumption and by designing and consuming products that generate less waste are strict forms of waste avoidance. Waste prevention also encompasses actions that can be undertaken once a product reaches its end-of-life: rather than discarding the product, the final user should consider re-use, repair or refurbishment as options. Extending a product's lifetime or considering options like re-use are also forms of prevention through diversion of waste flows.

A comprehensive waste prevention policy and programme not only concerns the waste management sector but also the extractive industries, manufacturers, importers, designers and service providers, and public and private consumers (see **Figure 8** presented below). Consequently, all economic sectors and actors may be considered as stakeholders in the preparation and implementation of a waste prevention programme.

Figure 8: Scope of Waste Prevention





Waste prevention is positioned at the top of the Waste Management Hierarchy (see section 3.6 above), and is therefore considered as preferable to all other methods of managing waste. Currently, because most waste producers in Belize neither perceive nor directly bear the true costs of managing their wastes in an environmentally-sound manner, they have little reason or incentive to try and avoid or reduce the amount of waste they generate. Moreover, product importers and suppliers, consumers and other waste generators are often not aware of the potential opportunities for, and benefits of, avoiding and / or reducing wastes.

However, one area where GoB intervention has already resulted in a worthwhile reduction in the amount of waste produced is in relation to beverage packaging. The Returnable Containers Act 2009 states that a deposit on beverage containers (a separate, sealed glass, metal or steel bottle or can used for containing one US gallon or 3.8 litres or less at the time of sale of a beverage intended for use or consumption in Belize) shall be collected by all distributors and dealers at the time of sale or distribution. "Beverage" is defined in the Act as carbonated soft drinks, beer and other malt products.

Importantly, the scope of the Returnable Containers Act does not include non-beverage or other types of container. There therefore appears *prima facie* to be considerable scope for further reducing the amount of packaging material arising as waste, as well as increasing the amount captured for subsequent recycling.

Policies and measures for waste prevention and reduction fall into three broad categories:

Informational policies and measures aimed at changing behaviour and making informed decisions, including:

- **Awareness campaigns**
- **Information on waste auditing and prevention techniques**
- **Training programmes for key stakeholders**
- Eco-labelling

Promotional policies and measures, which incentivise behavioural change and providing financial and logistical support for beneficial initiatives, including:

- **Support for voluntary agreements**
- **Promotion of reuse and repair**
- **Promotion of environmental management systems**
- Clean consumption incentives
- Promotion of research and development

Regulatory policies and measures, which enforce limits on waste generation, expand environmental obligations and impose environmental criteria on public contracts, including:

- Planning measures
- **Taxes and incentives**
- **Extended producer responsibility policies**
- **Green public procurement policies**
- Eco-design requirements

All of the above will be considered for introduction and application in Belize. However, taking into account the context and prevailing conditions in Belize, we have highlighted those policies and measures which Government believes offer practical potential for



application and which should therefore form components of the National SWM Policy and Strategy. Of particular relevance are the three regulatory areas highlighted above.

With respect to Extended Producer Responsibility (see also section 3.9 above), the following product-related waste categories / streams will be considered as potential candidates for inclusion within the scope of a nationwide producer responsibility scheme:

- Packaging materials (including plastic shopping bags)
- Used dry cell batteries
- Used lead-acid batteries
- Used oils
- End-of-life consumer durable and electrical / electronic goods (WEEE or E-Waste)
- Used tyres
- End-of-Life Vehicles
- Pesticides and herbicides

The details of such a scheme will be negotiated and agreed between the Government, and industry / producer groups or trade associations representing the producers, importers and distributors of the products giving rise to the above-listed waste categories / streams.

The key considerations for selecting and applying strategic measures to encourage waste prevention and reduction will be to:

- Focus on those stages in the product life cycle over which the GoB can reasonably expect to be able to exert some practical influence (namely local manufacture, import, local distribution, consumption, discard, collection, treatment and final disposal);
- Concentrate on those sources and types of waste which, by virtue of their volume and/or polluting potential, constitute a significant environmental, social or economic burden on the community;
- Allocate, as far as practicable, the full long run costs of managing particular waste streams directly onto the waste producer;
- Shift, as far as practicable, the primary responsibility for managing certain problematic waste streams onto those who, directly or indirectly, contribute to the production of those wastes;
- Retain market flexibility and consumer choice;
- Avoid measures with the potential to disrupt or distort severely the existing patterns of distribution and consumption, or to erode significantly the competitive standing of the Belizean economy;
- Minimise the overall administrative burden and financial costs to the GoB;
- Exploit the position of the GoB as a major purchaser of goods and services, owner and operator of waste management facilities and services, and promoter of standards and values;
- Only consider introducing measures which have been applied with some demonstrable degree of success under comparable circumstances elsewhere;
- In the case of economic measures, maintain fiscal neutrality⁷ by offsetting any new or increased levies / eco-contributions on specific products / materials through the

⁷ Fiscal neutrality describes the notion that a tax should not distort economic behaviour, and is generally achieved when a combined set of government spending and taxing measures produces no net impact on aggregate demand.



removal or reduction of existing ones, and / or by ear-marking the resulting revenues for financing or co-financing investments in SWM infrastructure;

- Intervene only where there is clear evidence to indicate that wastes are being produced and disposed of excessively due to a failure or distortion in the relevant market(s);
- Utilise direct regulation only as a last resort.

Waste Recovery and Recycling

As in the case of waste prevention, because most waste generators in Belize neither perceive nor directly bear the true costs of managing their wastes in an environmentally-sound manner, they and other economic actors have little incentive to recover / recycle materials from waste themselves, or to facilitate recovery and recycling of their wastes by others.

Recovery and recycling of MSW currently occurs only on a limited scale, and is focused on materials which are easy to sort manually and for which there is a ready market – mainly paper and board from commercial sources, plastics and metals, and glass bottles for re-use. These activities are undertaken by informal recyclers, a small number of private scrap dealers, and by operatives using manual picking and sorting methods undertaken in designated areas at the two new transfer-loading stations serving Belize City and San Ignacio / Santa Elena. Collectively, these activities account for no more than a few per cent of the total quantity of MSW generated in Belize.

Other solid waste categories / streams which are currently recovered / recycled on a notable scale include:

- Most of the waste remaining from sugar cane processing (bagasse) of which just over 400,000 tonnes was produced in 2010. Of this, approximately 75% was used to power steam turbines to generate 97,961 MWh of electricity and 456,270 tonnes of low pressure steam (used in boilers);⁸
- Part of the waste remaining from citrus fruit processing which is used to produce animal feed;
- End-of-life vehicles (ELVs);
- E-Waste;
- Dry cell batteries;
- Lead acid batteries.

Based on feedback received from stakeholders during the preparation of this Policy, the expansion of recovery and recycling activities appears to be constrained by a number of factors including:

- Market outlets for most types / grades of recyclable material either do not exist or are very weak;
- A lack of long-term export markets for some types / grades of recyclable materials;
- A lack of economies of scale;⁹
- High costs for collection, segregation and shipment of some recyclable materials to export markets;

⁸ Source: National Energy Policy Framework 2011.

⁹ The cost advantage that arises with increased output of a product.



- Apart from the Returnable Containers Act (which is primarily a waste prevention measure), legislative support and economic incentives to encourage greater recovery and recycling do not exist;
- Manufacturers, importers and distributors of products giving rise to specific product-related waste streams are not obliged to take-back the wastes resulting from their products for subsequent re-use / recycling;
- Apart from one or two areas such as San Pedro, Ambergris Caye, convenient and easily-accessible facilities for dropping off recyclable materials separated from household waste do not exist.

In the Government's view, further substantial increases in the recovery and recycling rate for MSW will require the widespread introduction of source segregation and separate collection of recyclable materials in our towns and cities (see section 4.9 above). Likewise, further substantial increases in the recovery and recycling of other types of solid waste will require a combination of regulatory and non-regulatory measures and incentives in order to promote investment in new recycling facilities and technologies, including:

- Preferential tax treatment for specific 'low waste' products / processes and / or specific recyclable products / recycling processes;
- The introduction of take-back schemes for certain types of product-related wastes (packaging waste, ELVs, end-of-life tyres, WEEE, used mineral and synthetic oils, waste batteries and accumulators);
- The provision of economic incentives for locally manufactured recycled products / recycling processes, and removal of any unnecessary economic or other barriers to the export of recycled products / recyclable materials;
- Giving preference to recycled / recyclable products and materials in public sector procurement rules and procedures;
- Providing detailed advice and guidance on methods / techniques for waste recovery / recycling (and the potential benefits thereof) to product importers / suppliers, consumers and other waste generators.

These measures will need to be underpinned by a sustained stakeholder awareness and communication campaign (see section 4.5 above).

Waste Segregation, Storage, Collection and Transport

Waste collection and street cleaning services are the aspects of SWM which are of greatest visibility and importance to the general public and, at the moment, these create a rather poor impression in many areas of Belize, especially in suburban and rural areas.

Common problems and deficiencies with the existing *MSW collection services* include:

- Inadequate service coverage and quality;
 - A lack of standardised waste storage containers of an appropriate size, type and quality which are capable of being mechanically emptied;
 - Inappropriate and insufficient vehicles and equipment;
 - Poor organisation and inefficient working methods;
 - Inadequate maintenance of vehicles, equipment and containers;
 - Poor condition of vehicles, equipment and containers
-



- Except in a few areas, no systems for source-segregation, separate storage and collection of recyclable materials and hazardous wastes (including healthcare risk wastes).

The recovery of recyclable materials from wastes once they have become mixed is complex, expensive and not very efficient in terms of actual vs. potential capture rates / yields of materials. Consequently, if materials can be segregated before they are placed into a mixed waste stream, the task (and costs) of subsequently managing and processing the segregated waste is much reduced and simplified. In addition, the degree of cross-contamination between waste components will be reduced, thus leading to cleaner materials which reduces the need for further processing and may also result in higher quality recycled products. The practice of segregating waste at source can also help to focus the attention of waste generators on the amount and value of their wastes and stimulate waste reduction.

Segregation for its own sake is of no economic or environmental value unless it enhances the economic or environmental performance of a subsequent process. However, experience in other countries demonstrates clearly that source segregation and separate collection of recyclable (including biodegradable) materials from municipal and similar solid wastes is essential if high rates of materials recovery for recycling are to be achieved and sustained.

We therefore plan to upgrade and improve the coverage, performance and cost-effectiveness of *waste collection and transport services* by:

- Changing the basic method used to store and collect MSW from kerbside collection of small, individual waste containers to a communal waste storage and collection system (thereby substantially increasing the operational performance and cost-effectiveness of the collection vehicles)¹⁰;
- Introducing standardised, large-volume, colour-coded communal waste storage containers for segregated dry recyclable materials, bio-waste and other residual wastes;
- Installing proper container stances located within a convenient walking distance from householders and other waste producers, and which can be accessed quickly and easily for mechanical emptying by collection vehicles;
- Wherever access conditions allow (which means throughout most of Belize except for the Cayes), introducing large-capacity, 2 or 3-axle waste collection vehicles equipped with container lifting / emptying mechanisms;
- Using narrow / compact chassis compaction collection vehicles where access conditions are restricted;
- Extending regular MSW collection service coverage to include all villages / communities located on or close to an all-weather road or highway;
- Installing transfer-loading systems where necessary and economically justifiable;
- Establishing a waste national system for collecting (and treating – see section 4.10 above) healthcare risk waste and other hazardous wastes.

All of the above measures will require substantial new investment (see section 4.6 above). As with the other measures concerning the management of MSW presented elsewhere in this Policy, we intend to consult closely with local authorities and other stakeholders on the manner in which the above policy measures will be implemented. In any event, the introduction of new systems and equipment will need to be undertaken in phases, supported by an intensive public communications campaign.

¹⁰ With the option of individual storage and kerbside collection for an additional service user fee.



We also intend to:

- Encourage the development of a network of drop-off / take-back centres at convenient locations in more densely-populated urban areas;
- Publish a "Waste Management Design Guide" which provides specific advice on the design and installation of waste management infrastructure as an integral part of municipal, residential and commercial developments.

A 'drop-off / take-back centre' refers to a designated area or drop-off point where the public can deliver clean, source-segregated recyclable materials. Such centres are usually located in convenient places such as car parks, supermarkets, recreation areas, etc, and are equipped with labelled and colour-coded containers for receiving and temporarily storing different recyclable materials. The impact of such centres is dependent on their density, number and accessibility, and on public participation and collection rates.

The scope of the *Waste Management Design Guide* will include *inter alia*:

- Internal / external storage capacities - the amount of internal space required within homes and externally for the storage of bins / containers to serve residential and commercial developments;
- Location of waste storage - issues to be considered in relation to the location of bins and containers;
- Waste storage infrastructure - a minimum specification for the storage of waste in residential and commercial developments;
- Highway access design - ensuring that waste collection vehicles can access new developments easily and effectively;
- Additional waste management measures - complementary measures which can be introduced to support the effective management of waste;
- Developer contributions - how developers will contribute to the provision of waste infrastructure including (potentially) the provision of waste storage containers, on-site drop-off centres and bring-banks in residential and commercial developments.

Waste Treatment / Processing

Currently, most solid wastes are disposed of without any form of processing or pre-treatment. Notable exceptions are:

- Small-scale / home composting of organic household wastes in some rural communities;
- Aerobic treatment (composting) of solid residues resulting from the processing of citrus fruit (peels, pulp and seeds) to produce soil conditioner;
- Processing (sorting, cleaning, baling, etc.) of recyclable materials (paper and board, plastics, metals) recovered from household and commercial wastes prior to shipment;
- Processing of ELVs prior to shipment;
- Incineration (as necessary) of infected animals, condemned food, confiscated products and similar wastes in a facility owned by the Belize Agricultural Health Authority (BAHA).

There are also waste incinerators installed at a number of hospitals but, at the moment, only one of them is currently functioning.



In some countries, notably in all EU countries, all wastes must be pre-treated before final disposal to landfill. Under EU legislation, any process used to pre-treat waste must:

- (a) Reduce the wastes volume; or
- (b) Reduce its hazardous nature; or
- (c) Facilitate its handling; or
- (d) Enhance its recovery.

Treatment processes range between the simple and inexpensive (for example, baling of waste paper to reduce its volume / increase its density prior to shipment to an end user), through to the complicated and expensive (for example, Mechanical Biological Treatment, Thermal Treatment, Anaerobic Digestion or Physico-Chemical Treatment).

There are some types / categories of waste which, in order to protect public health and / or the natural environment, should be pre-treated prior to final disposal. These include:

- All hazardous wastes;
- Difficult wastes.

Definitions and classifications of waste vary from country-to-country. In Belize, under the Hazardous Waste Regulations 2009, "hazardous wastes" are defined as meaning any material or substance characterized as being toxic, corrosive, flammable, reactive, explosive, infectious or pathogenic that may pose a threat to the environment and human health, and includes wastes that are:

- (a) Listed in Table 1 of the Schedule [to the Regulations]; or
- (b) Defined by the criteria specified in Table 2 of the Schedule [to the Regulations]; or
- (c) Listed in Annex 1 of the Basel Convention on the Transboundary Movement of Hazardous Waste.

Part VI of the aforementioned Regulations prohibits the disposal of liquid hazardous waste in a landfill, and also prescribes certain technical requirements for landfills in which any solid hazardous wastes are deposited. The legal responsibility for determining whether or not a hazardous waste is restricted from landfill disposal pursuant to the Regulations rests with the waste generator, not with the landfill operator.

In addition, Part IV of the Environmental Protection Act (as amended) prohibits the dumping, disposal or deposit of any garbage, refuse, toxic substances or hazardous wastes in any place that may directly or indirectly damage or destroy flora or fauna, or pollute water resources or the environment.

In any event, the relevant provisions of the Environmental Protection Act and the Hazardous Waste Regulations have not been enforced very effectively in part because, until very recently, there were no facilities located within Belize capable of receiving and disposing of hazardous wastes in a legal and environmentally-secure manner.

The term "difficult waste" has no statutory definition but is generally understood to mean a non-hazardous waste that is very unpleasant, can cause a nuisance or has properties which cause it to require extra care in handling and disposal (for example, condemned foodstuff, slaughterhouse wastes, quarantine wastes, dead domestic animals, end-of-life tyres). Although not classified as hazardous, such wastes are usually best treated in an appropriate way in order to reduce or eliminate their objectionable characteristics.

The quantities of hazardous and difficult wastes generated in Belize are relatively small. In one sense, this is a distinct advantage because the risks of serious damage to human health or the environment through illegal or inappropriate handling and disposal are also



correspondingly small. Nevertheless, the current situation is unsustainable, especially for a country which is becoming a major destination for eco-tourism. The Government has therefore concluded that *Belize needs to establish an integrated national system for collecting, transporting, storing, treating and safely disposing of all hazardous and difficult wastes.*

Many of the technologies / systems available for treating such wastes are expensive to procure and operate, especially at small scale, and therefore costs and cost-effectiveness are a prime consideration in planning a national system for their management. During development of the National SWM Strategy, we will identify different technological options for handling, treating and disposing of such wastes, and assess their suitability and affordability taking into account the prevailing conditions and context of Belize.

We also intend to promote and incentivise other forms of non-hazardous waste treatment with the aim of reducing the volume and / or pollution potential of wastes going to landfill, and ensuring that sufficient facilities for processing of recovered recyclable materials and product-related waste streams are developed and operated using modern standards of design and best practices.

Final Disposal

Despite the existence of legislation prohibiting the dumping of wastes, most of the solid wastes generated in Belize have hitherto been disposed of in an uncontrolled manner, resulting in serious adverse impacts on the environment throughout the country. The burning of waste is typically done in open low-temperature fires thereby polluting ground water, soil and air, and is also sometimes responsible for uncontrolled fires.

However, since BSWaMA took over the responsibility for waste transport and disposal, various measures have been taken to improve the situation and this process is still on-going.

The regional sanitary landfill opened recently at Mile 24 constitutes a major step forward in the development of a more sustainable system for managing solid wastes. Once the remaining transfer facilities foreseen for the Western Corridor have been completed, more than 50% of the solid waste generated in Belize will be disposed of safely at the Mile 24 sanitary landfill, enabling numerous uncontrolled dumpsites to be closed and remediated.

The challenge for the future is to develop similar facilities to serve the remaining areas of the country, and then to close and remediate waste dump sites and "hotspots". The total landfill capacity required in future will be very much influenced by the extent to which the quantities of wastes requiring final disposal can be reduced through waste prevention, recovery and recycling. However, even if the quantities of wastes requiring final disposal are reduced substantially through the implementation of such measures, there will be a continuing need to dispose of substantial volumes of non-recyclable residual wastes.

In the Government's opinion, and subject to reforming the system for collecting MSW as described in section 4.9 above, this will require the development of one or possibly two additional sanitary landfills and / or transfer-loading facilities to serve the northern and southern areas. The optimum type, number, location and size of facilities required to serve the rest of the country is an issue which will be considered and assessed during development of the National SWM Strategy.



ANNEX E

PROPOSED LEGISLATIVE AND INSTITUTIONAL REFORMS



"A good regulatory environment is an essential foundation for high performing nations to make their country a great place to work and live and to protect their environment. High performing regulators are a key lever to encourage innovation across the economy and foster productivity growth, through timely approval processes, flexible approaches to new issues and a service focus".¹¹

An overview of the proposed governance and institutional structure for solid waste management is presented in **Figure 9**. The legislative and institutional reforms and other measures illustrated in Figure 9 and set out in sections 4.1 and 4.2 of this Policy are essentially aimed at:

- Achieving a clearer separation and a more "arm's length" relationship between the legislative, executive and regulatory powers and functions of government with respect to environmental protection in general, and solid waste management in particular; and
- Strengthening the arrangements for applying the principles of good governance referred to in section 3.10 and described in Annex C above.

The "separation of powers" is a long-established concept which refers to the notion that the major institutions of state should be functionally independent and that certain government functions and powers should not be exercised by one and the same person / entity. There is ample evidence from around the world that such an approach usually leads to more transparent and effective exercise of powers and fulfilment of functions and responsibilities by those institutions charged with executing government policies and enforcing legislation¹².

The reforms described in sections 4.1 and 4.2 of this Policy envisage the establishment by Parliament of two functionally independent state agencies operating at arm's lengths from Government and from each other, with statutory responsibility respectively for:

- Environmental licensing / permitting, referral, accreditation / certification, inspection and enforcement; and
- Provision and operation of public SWM infrastructure and services throughout Belize (including hazardous waste management facilities and services), either using its own resources and / or in partnership with the private sector.

The former will be created by devolving, reforming and further empowering the existing Department of the Environment, while the latter will be established by reconstituting BSWaMA as an autonomous, wholly Government-owned not-for-profit environmental services utility company, which is managed and operated along commercial lines and subject to external oversight and regulation. Both agencies will be governed by a Board of Directors appointed by Parliament to reflect the different categories and interests of stakeholders to be prescribed in the enabling legislation.

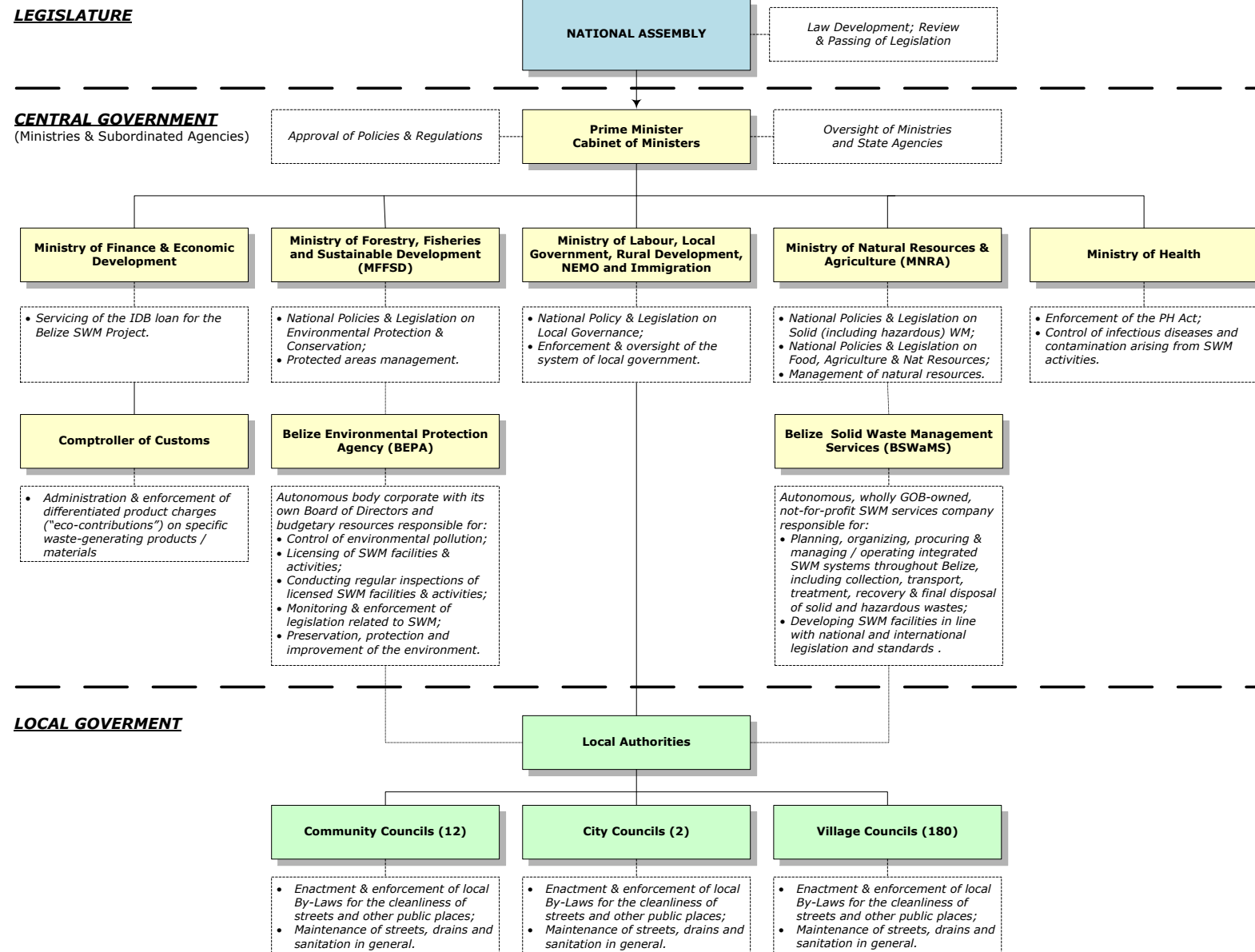
The assignment by the legislature, represented in each case by a designated Minister, of such powers and responsibilities to functionally independent agencies will allow for regulatory and management decisions to be made without political influences, but nevertheless within the accountability framework established by Parliament for each agency. There are already precedents for such functionally independent state agencies in Belize, e.g. the Pesticides Control Board is the statutory body responsible for implementing the provisions of the Pesticides Control Act and related regulations, while Belize Water Services Limited is a Government-owned water and sewerage utility for the country of Belize, serving the larger urban areas of the country.

¹¹ Source: *Principles for the Governance of Regulators*, Public Consultation Draft, OECD, June 2013.

¹² For example, see *Making Reform Happen: Lessons from OECD Countries*, published by OECD, 2010.



Figure 9: Proposed Governance and Institutional Structure for Solid Waste Management





The envisaged *primary responsibilities and functions* of the two agencies are summarised below:

Regulatory Agency:

- Formulate and implement regulatory plans, policies and procedures to protect and enhance the environment as a whole, and to promote the sustainable management of natural resources;
- Grant and revoke authorisations / licences, with or without conditions, for the carrying out of any operation or activity relating to or which may have a significant impact on the environment;
- Formulate and implement a strategy for compliance monitoring and enforcement;
- Establish criteria and guidelines, and implement a programme, for annual inspections of all licensed operations and activities;
- Carry out enforcement actions as necessary, and in collaboration with other regulatory bodies as appropriate, to ensure compliance with legislation, regulations and standards falling within the Agency's jurisdiction;
- Carry out studies, research or investigations on any matter relating to the environment;
- Provide information and issue guidelines to the public and to commercial and other entities on matters relating to the environment;
- Ensure that international obligations entered into by the Government relating to matters regulated by the Agency are complied with;
- Advise the designated Minister on the formulation of policy in relation to matters regulated by the Agency, and in particular in relation to international obligations;
- Make or advise the designated Minister on the making of environmental standards, guidelines and regulations as well as on the formulation and implementation of contingency and emergency plans to safeguard the environment;
- Monitor the quality of the environment and for such purpose establish methodologies, and maintain and disseminate information related to the environment;
- Establish and maintain a national system for classifying, regularly collecting, processing, analysing and disseminating data and information on the sources, nature, quantities and fate of wastes and SWM processes / facilities;
- Publish reports on the state of the environment;
- Ensure that environmental audits and environmental assessments prescribed by law are properly carried out;
- Provide support and advisory services relating to environment protection, to Government and local authorities in relation to the performance of their functions;
- Administer in accordance with policies and regulations on producer responsibility, the registration of businesses, products and exemption schemes, and the monitoring and enforcement of associated obligations.
- Provide, either alone or in collaboration with others, education, training and public awareness programmes relating to environmental protection, and the sustainable management of the environment and natural resources;
- Formulate and publish advice on best practices for protecting and enhancing the environment, and promote their application.



Reconstituted BSWaMA:

- Plan, organize, procure, manage and operate / supervise integrated systems for managing wastes throughout Belize, including systems for the minimisation, storage / containment, collection, transport, sorting, reuse, utilisation, recycling, treatment and final disposal of solid and hazardous wastes;
 - Plan, organize, procure, supervise and control the provision and operation of integrated systems for the pre-storage, packing and export of wastes to appropriately equipped and licenced facilities outside Belize, as may be necessary;
 - Develop appropriate sites and facilities in accordance with national and international legislation and standards in order to ensure sustainable waste management;
 - Remediate old waste dump sites and "hot spots" in accordance with national and international legislation and standards;
 - Develop and adopt procedures and documentation (including model forms of tender / contract) for procuring infrastructure and services for MSW collection / transport, treatment, disposal and street cleaning services throughout Belize;
 - Carry out studies, research or investigations on any matter relating to the management of wastes;
 - Provide information and issue guidelines to the public and to commercial and other entities on matters relating to the management of wastes;
 - Advise the designated Minister on the formulation of policy in relation to the sustainable management of wastes;
 - Advise the designated Minister on the making of technical standards, guidelines and regulations as well as on the formulation and implementation of contingency and emergency plans for managing wastes;
 - Monitor, maintain and disseminate information on the quality and performance of public SWM infrastructure and services throughout Belize;
 - Provide support and advisory services relating to waste management, to Government and local authorities in relation to the performance of their functions;
 - Provide, either alone or in collaboration with others, education, training and public awareness programmes relating to waste prevention and management;
 - Formulate and publish advice on best practices for preventing and managing wastes sustainably.
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