

**AN INTEGRATED SOLID WASTE/RESOURCE MANAGEMENT
POLICY FOR TRINIDAD AND TOBAGO**

FINAL DOCUMENT



**Submitted to:
Ministry of Local Government**

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TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS

PREFACE

Item	Description	Page
1.0	INTRODUCTION	6
1.1	Background	6
1.2	Rationale	6
1.3	Situation Analysis	7
1.3.1	Policies	7
1.3.2	Waste Characterisation	8
1.3.3	Disposal	8
1.3.4	Collection	10
1.3.5	Institutional Arrangements	10
1.3.6	Legislation	11
1.3.7	Multilateral Agreements and Treaties	16
2.0	A FRAMEWORK FOR CHANGE	20
2.1	Policy Framework	20
2.2	Priorities	21
2.3	Vision	22
2.4	Goal	23
2.4.1	Goal Objectives	23
3.0	THE POLICY INSTRUMENT	24
3.1	Guiding Principles	24
3.2	Waste Categories	27
3.2.1	Household Waste	27
3.2.2	Hazardous Waste	27
3.2.3	Bio-medical Waste	28
3.2.4	Industrial Waste	28
3.2.5	Electronic Waste	28
3.2.6	Special Bulk Waste	29
4.0	IMPLEMENTATION	30
4.1	Short and Medium Term Targets	30
4.1.1	An Advisory Committee	30
4.1.2	An Interim Policy Implementation Unit	30
4.1.3	Trinidad and Tobago Solid Waste Management Authority (TTSWMA)	31
4.2	Supporting Strategies for Implementation	35
4.2.1	Waste Minimization	35
4.2.2	Technologies and System Applications	37
4.2.3	Financing and Cost Recovery	43
4.2.4	Incentives	45
4.2.5	Private Sector Participation	45
4.2.6	Community Participation	46
4.2.7	Public Education and Awareness	46

4.2.8	Legal	47
4.2.9	Capacity Building	49
4.2.10	Monitoring, Evaluation and Review	50
5.0	PARALLEL SUPPORT FOR IMPLEMENTATION	52
5.1	Land Use and Physical Development Planning	52
5.2	Relevant National Policies and Codes of Practice	52
5.3	Financing Mechanisms	53
5.4	Legislation	54
5.5	Communication Strategy	54
6.0	THE WAY FORWARD	56

Table 1.1: Waste Characterisation

Figure 1.0 Institutional Arrangements

Appendix 1: List of Relevant Policies, Treaties and Conventions

Appendix 2: Glossary of Terms

Appendix 3: Communication Strategy

LIST OF ABBREVIATIONS AND ACRONYMS

CARICOM	Caribbean Community Secretariat
CBO	Community Based Organization
C&D	Construction and Demolition Waste
DWMR	Draft Waste Management Rules, 2008
EMA	Environmental Management Authority
GOTT	Government of Trinidad and Tobago
GRS	Generator Responsibility Scheme
IBIS	Integrated Business Incubator System
ISWMP	Integrated Solid Waste Management Plan
LGAs	Local Government Agencies (Cities, Boroughs and Regional Corporations)
MHE	Ministry of Housing and the Environment
MOH	Ministry of Health
MOLG	Ministry of Local Government
MRF	Material Recovery Facility
MTD	Ministry of Tobago Development
NEP	National Environmental Policy
NGO	Non-Governmental Organisation
OSHA	Occupational Safety and Health Act
SWMCOL	Trinidad and Tobago Solid Waste Management Company
THA	Tobago House of Assembly
TTSWMA	Trinidad and Tobago Solid Waste Management Authority
UTT	University of Trinidad and Tobago
UWI	University of the West Indies

EXECUTIVE SUMMARY

The National Solid Waste/Resource Management Policy sets a clear direction for Trinidad and Tobago for a ten-year period. It will integrate a policy and regulatory framework and will build on a valuable existing foundation by providing a nationally agreed direction and focus informed by extensive consultation. The policy encompasses solid wastes, including hazardous wastes and substances, in the municipal, commercial and industrial waste streams. A "solid waste" is defined as any discarded material that is abandoned by being disposed of, burned, incinerated or recycled and characterized physically by being a solid, liquid, semi-solid, or container of gaseous material. A hazardous waste is a "solid waste" that displays the hazardous characteristics of ignitability, reactivity, toxicity and corrosiveness.

The policy sets directions in a number of key areas adopting strategies that are designed to:

- provide a coherent, comprehensive national framework for solid waste management, to include waste diversion - reduction, resource recovery and recycling over the next decade;
- enable Trinidad and Tobago to meet its international obligations regarding the management of hazardous wastes and substances and persistent organic pollutants (POPs) with reduced risk for future generations;
- structure and encourage recycling initiatives;
- address transportation, shipping and market impediments and streamline the regulatory frameworks so that national companies and small and medium businesses can operate effectively and efficiently by managing products and materials responsibly throughout its life cycle;
- provide national leadership on waste and resource recovery where it is needed and facilitate collaboration with other regional states on pertinent issues;
- Combat climate change, contribute to sustainability, innovation and employment opportunities, and
- be high impact and cost effective by setting clear national directions informed by a consultative process and carefully targeted actions that incrementally build on the previous and existing efforts of governments.

The policy proposes a seven-focus strategy that places heavy emphasis on waste prevention with the disposal component required for residual waste. Waste minimization will be achieved through reuse, reduction and recycling efforts that are supported by a sustainable industry driven by a circular economy. In fulfilling the approaches appropriate, applicable and feasible technologies and systems that reduce public health and environmental risks will be applied. Public and private sectors, communities and non-governmental organizations will be encouraged to participate effectively in the solid waste management system through education and awareness, legislation and a series of well designed incentives and disincentives. Capacity will have to be built at all of the institutions responsible for solid waste management so as to meet the requirements of a “best practices” approach. Finally the policy prescribes a legislative and institutional framework that supports an integrated approach to improve the solid waste management system where a national Solid Waste Management Authority will be mandated to guide the industry into the future.

The principles, vision, goals and objectives represent a national initiative, however Tobago having a greater focus on tourism may need to be guided by the policy to inform the development of a plan that is more specific to addressing that sector. The sub-policy or plan needs to be more cognizant of waste management issues that are impacted by the accommodation sector, food and beverage services, landscaping and gardening services and general administrative activities. The waste types that are generated as a result of the activities of a heavy tourism sector requires a modified approach to solid waste management issues as compared to that of a heavy industrial and manufacturing sector such as Trinidad. Of equal concern is the management of the coastal zones where marine life has begun to lose its traditional composition of species that have occupied areas along the shoreline. The Tobago House of Assembly (THA) in collaboration with the Trinidad and Tobago Solid Waste Management Authority (TTSWMA) will take the lead in structuring a sub-agenda that is unique to the operations and management needs of Tobago.

INTEGRATED SOLID WASTE/RESOURCE MANAGEMENT POLICY

1.0 INTRODUCTION

1.1 Background

The National Solid Waste/Resource Management Policy establishes Trinidad and Tobago's waste management and resource recovery agenda within seven key commitments up to the period 2022:

1. Taking responsibility - the national community must share responsibility for reducing the environmental, health and safety footprint of products and materials across the manufacture-supply-consumption chain and at end-of-life.
2. Improving the market - facilitating efficiency and effectiveness of local markets that can be targeted for waste and recovered resources, utilizing indigenous technology and innovation where possible.
3. Pursuing sustainability - minimizing waste and improving the use of waste as a resource to achieve broader environmental, social and economic benefits.
4. Reducing hazard and risk - reduction of potentially hazardous content of wastes by adopting consistent, safe and accountable waste recovery, storage, transportation, treatment and disposal methods.
5. Tailoring solutions - increasing the capacity in LGAs and the THA to uniquely manage waste and recover and re-use resources.
6. Providing the evidence - facilitating access by decision makers to meaningful, accurate and current national waste and resource recovery data and information that could be used to inform integrated planning, measure progress, educate and inform the national society and also influence the behaviour and the choices of the community.
7. Behavioral Change - It would require a significant change among the population to achieve effective and efficient waste management. Decision-makers have to ensure that individuals, communities, businesses and institutions are provided with the information needed to

implement new attitudinal changes. Solid waste management touches every fabric of the society such that it presents a challenge to waste managers to develop solutions to solid waste management problems in the absence of the support of the general public.

1.2 Rationale

Solid waste management in Trinidad and Tobago has seen increases in waste generation, costs, institutions of responsibility, legislative and system management weaknesses and the need for physical system restructuring. In the absence of a national framework waste diversion efforts primarily by the private sector and non-governmental organizations have shown little visible impacts on the waste streams being disposed at landfill sites. National emphasis continues to be focused on final disposal rather than on comprehensive waste minimization and diversion strategies, a situation that has resulted in the inevitable build-up of comingled waste to be managed.

1.3 Situation Analysis

An analysis of existing practices provides information that forms the basis for administrative and technical considerations leading to the development of the policy.

1.3.1 Policies

The National Environmental Policy (NEP) addresses waste management based on the principles of reduction, reuse and recycling. The policy states that government will:

- a. Encourage the prevention or reduction of waste production and its harmfulness, particularly through the development of clean technologies, techniques for the final disposal of dangerous substances in waste destined for recovery, and the development and marketing of products designed to have minimal environmental impact by nature of their manufacture, use or final disposal;
- b. Encourage the recovery of waste, including recycling, reuse or reclamation, and the use of waste as a source of energy;
- c. Ensure that waste is recovered or disposed in a fashion that does not endanger human health and or use processes or methods which could harm the environment. In particular there should be little or no risk to air, soil, plants or animals, and no resulting nuisance through noise or odours, and no impact on the landscape;
- d. Prohibit the abandonment, dumping and uncontrolled disposal of waste; and
- e. Establish an integrated and adequate network of waste disposal installations.

The NEP also addresses hazardous waste through the Environmental Management Authority (EMA). This requires the development of a list of hazardous waste, establishment of requirements for their handling and disposal, establishment of standards and design criteria for hazardous waste handling and disposal facilities, and enforcement of these requirements through licensing and permitting requirements. Legislation is to be developed to give effect to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. A pollution control policy also deals with substances generated as wastes and discharged into the environment.

While the policy addresses a broad range of waste management issues, inherent in the policy statements are items that refer to the collection function. Some of these issues focus on:

- waste reduction, recovery, recycling and reuse;
- the use of clean technologies;
- concern for human health and the environment; and
- the establishment of an accessible network of disposal facilities.

1.3.2 Waste Characterisation

A waste characterisation study conducted in 2010 reported that approximately 700,000 tonnes of solid waste were recorded reaching the landfill sites in Trinidad during the same year.¹ Tobago recorded approximately 17,228 tonnes deposited at the Studley Park landfill site.² The data on Trinidad shows that organics, plastics, paper and glass dominate the waste type distribution of the samples analysed. 84% of the items were considered as recyclable and could be diverted from the landfill. Paper and Paperboard and plastics represent approximately 52% of the waste disposed at the Studley Park disposal site. Another 25% is represented by organic wastes. The waste types and percentage distributions are identified in Table 1.1.

1.3.3 Disposal

The SWMCOL operates the three major landfill sites in Trinidad at Beetham, Forres Park and Guanapo that receive approximately 95% of the wastes for disposal. A fourth site at Guapo is managed by the Point Fortin Borough through a sub-contractual arrangement. In the 1980s both

¹ Trinidad Solid Waste Management Program Waste Characterisation and Centroid Study, Final Report, September 2010.

² A Solid Waste Characterisation Study for Tobago, September 2010; Prepared by EGARR & Associates

Beetham and Guanapo were converted from indiscriminate dumps to managed sites with basic infrastructural and monitoring requirements. Forres Park was selected and developed based on technical criteria and design specifications. The site at Guapo further south of the island is also an upgraded facility operated by a private contractor.

Table 1.1: Waste Characterisation

Trinidad	Average Proportion %	Tobago	Average Proportion %
Material		Material	
Recyclable			
Organics	27.15	Paper and Paperboard	29.9
Plastics excluding beverage containers	19.17	Glass	8.3
Paper(all classes),	18.77	Metals	3.0
Glass	10.15	Plastic	21.8
Old corrugated cardboard	3.83	Textiles	9.6
Metals, Ferrous	2.33	Organics	25.7
Metals, Non-ferrous	1.41	Construction and Demolition	0.1
Beverage containers	0.92	Special Care	0.2
Sub-Total	83.73	Other Wastes	1.4
Non-recyclable		Total	100
Textiles and clothing	7.82		
Household Hazardous	5.24		
Other	2.71		
Construction and demolition	0.50		
Sub-total	16.27		
Grand Total	100		

At present all sites are operated under stress and have either gone beyond the prescribed boundaries or have exceeded the expected elevations. Ground and surface water monitoring have not been sustained and waste covering practices are either restricted by the cost of material importation or by inadequate availability on site. Added to this capacity challenge is the increasing evidence of organic wastes such as food and vegetable wastes, household hazardous waste such as batteries and spent detergent containers and non-biodegradable items such as plastics in the waste stream. Wastes generated from commercial and industrial activities have also been recorded entering these facilities creating unsafe conditions for both the users and site operators. Construction and demolition wastes (C&D) have become a part of wastes disposed at the landfill sites adding to volume increases. In addition the generation and management problems associated with biomedical and electronic waste (e-waste) add further complications to existing practices.

The anticipated expansion in the tourism industry in Tobago with the resulting waste volumes, require timely strategic planning. The island continues to experience high levels of imports with the

accompanying packaging and containerization. These increasing waste types and volumes continue to challenge the already exceeded disposal site-design capacity signaling the need to effect a national diversion and reduction initiative in the near future.

1.3.4 Collection

Approximately 90% of the collection function is performed by private contractors, and the remaining 10% by the public sector. The public sector focuses primarily on the town center areas. The Port of Spain City Council controls approximately 90% of the collection for the capital city. San Fernando, Point Fortin and Arima also perform some collection in their town centers. Private collection contractors are engaged through a tendering process by the Municipal and Regional Corporations. Services are engaged for a three-year period addressing primarily household, commercial and market waste. Bulky waste and yard wastes are also collected on schedules specific to the various corporations.

Trinidad and Tobago has enjoyed substantive solid waste collection coverage over the last 20 years. The country has seen new approaches to solid waste management services where equipment technologies gradually shifted from loose waste transportation systems to compaction capable of moving more waste per load for disposal. While these national efforts had been a manifestation of improvement, the rapid pace of development and industrialization exceeded the response ability to new system demands. Recognising the previous system stresses, the Government took initiatives to revisit the function with a view to identifying a series of strategic actions that would allow waste managers to adjust to the continuing demand for service improvement.

1.3.5. Institutional Arrangements

Under the present legislation the responsibility for the collection and disposal of solid wastes is designated to the MOLG. The MOLG is the central coordinating agency for the fourteen (14) Municipal Corporations, comprising:

- Two (2) City Corporations – Port of Spain and San Fernando
- Three (3) Borough Corporations – Arima, Point Fortin and Chaguanas
- Nine (9) Regions – Couva/Tabaquite/Talparo; Diego Martin; Mayaro/Rio Claro; Penal/Debe; Princes Town; San Juan/Laventille; Sangre Grande, Siparia and Tunapuna/Piarco.

The THA reports directly to the Central Government governed by the Tobago House of Assembly Act.

While the SWMCOL was formed as a state limited liability company with a clear mandate from cabinet for the management of the country’s wastes, a legal instrument has not been established to permit the institution to act as a national authority responsible for the function. The company continues with the key responsibility of managing the three major disposal sites in the country.

Figure 1.0 presents the institutional arrangement for solid waste management in the country.

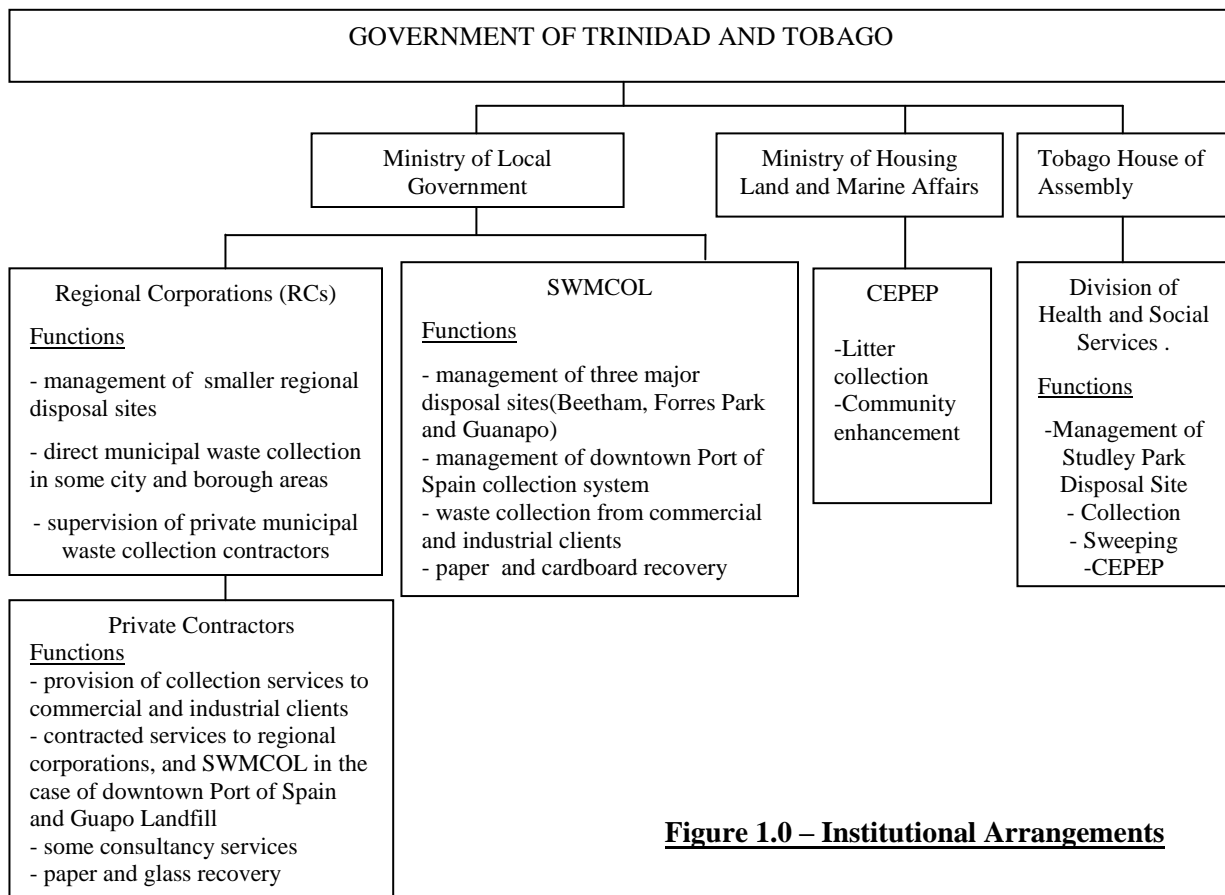


Figure 1.0 – Institutional Arrangements

1.3.6 Legislation

Environmental Management Act (2000)

The Preamble to the Environmental Management Act, No. 3 of 2000 (“the Act”) recites that sustainable development should be encouraged through the use of economic and non-economic incentives and that polluters should be held responsible for the costs of their polluting activities. Amongst the objects of the Act, set out in section 4, are the encouragement of the integration of

environmental concerns into private and public decisions and the development and effective implementation of written laws, policies and programmes *inter alia* in relation to Government's commitment to achieve economic growth in accordance with sound environmental practices.

Waste Management Rules (Draft)

The Environmental Management Authority is required to develop legislation to give effect to the Basel Convention and has to date, developed the Draft Waste Management Rules 2008 pursuant to the provisions of the Environmental Management Act. These Rules, once enacted, are intended to facilitate legislative and administrative mechanisms geared specifically towards the issues of generation, export and disposal of hazardous waste.

Municipal Corporations Act (Act 21 of 1990)

Section 232 of the Municipal Corporation Act confers a number of additional functions on corporations established under that Act. These include the disposal of garbage from public and private property, the development and the maintenance of sanitary landfills. Section 233 also confers on the corporation the promotion of development within the Municipality in accordance with plans approved by the Minister with responsibility for physical planning as well as the maintenance, control and enhancement of the physical environment.

Public Health Ordinance, Chapter 12

Section 59 of the Public Health Ordinance provides that the local authority may, and shall when so directed by the Board, provide and maintain in proper and convenient situations within their district sufficient privies and dustbins for public use.

By section 64, a local authority may, and shall when and as the Board may direct, undertake or contract for the execution of a range of services within their district. These include:

- Removal of house refuse and other rubbish from any premises;
- The sweeping, cleaning and watering of streets;
- The provision and maintenance in sanitary condition of suitable places, buildings and appliances for the disposal of refuse and rubbish.

Under section 64(2) all refuse, rubbish and waste matter collected by the local authority or their contractors in the execution of any services required by section 64(1) shall be destroyed. All moneys

derived from such sale shall be assigned to the fund applicable to such services and if there is no such fund, then the moneys shall form part of the funds of the local authority.

Section 65 provides that in every case where the local authority has undertaken or contracted for the execution of any of the services mentioned in section 64(1)(a)(c) such services shall be:

- Executed promptly, efficiently and at regular and prescribed intervals to the satisfaction of the Board;
- Where there has been default in executing such services efficiently or at the prescribed intervals and rubbish has accumulated, an officer of the Board may serve a notice on the local authority.
- Where the local authority does not undertake or contract these services (removing house refuse, rubbish etc.) the local authority may, and shall, whenever the Board so recommends make by-laws imposing on the owner or occupier of such premises the duty of effectually doing such service and at such regular intervals as may be prescribed by the local authority.

Section 67 allows the local authority to make by-laws for a range of matters including-

- Prescribing the size material and make of dust bins or moveable receptacles for refuse to be provided by owners or occupiers of premises and places where and the times which, such dust bins, receptacles shall be deposited for facilitating the removal of their contents by local authorities.
- The duties of owners or occupiers in connection with house refuse, so as to facilitate the removal by scavengers;
- For providing that the vessel, receptacle, cart, etc used for carriage of waste shall be properly constructed and covered so as to prevent the escape of any matter.

By section 158 a local authority may make by-laws as to matters relating to factories and workshops including the removal of refuse.

As regards slaughterhouses, section 160(3) allows the local authority to make by-laws for several matters including fixing the time and prescribing the conditions under which carcasses and animal parts of slaughtered animals can be removed from the slaughterhouses.

A wide range of nuisances are provided for in Part VII of the Act. For example by section 70(1) the following constitute nuisances:

- Any accumulation or deposit of any material wherever situated which is a nuisance or injurious to health;
- The drainage, refuse etc. of any town, village or building falling into any river, watercourse, ravine, pond or ditch or on to any foreshore as to be a nuisance or injurious to health.

Litter Act. Chapter 30:52

The Litter Act seeks to control the littering of public places and premises. Section 2 makes it an offence to deposit litter in a public place. Section 3A makes it an offence to deposit litter from a motor vehicle or trailer.

Under section 4 it is an offence for any person to throw down, drop or otherwise deposit or leave any litter in any premises without the consent of the owner or occupier of such premises.

Section 9 empowers any local authority to remove derelict vehicles and section sets out the procedure for the disposal of derelict vehicles.

Beverage Container Bill (2008)

The Beverage Container Bill seeks to provide for the regulation of the sale of beverages in sealable containers, the payment of a deposit on prescribed classes of beverage containers, the refund of the deposit on the return of reusable and recyclable containers, and other administrative and fiscal measures to encourage the reuse and recycling of beverage containers and reduce the disposal of beverage containers into the environment.

The objects and purposes of this Bill are:

- to ensure that the bottlers, importers, vendors and consumers pay the external costs of the sale and consumption of beverages in beverage containers;
- to create incentives for the manufacturers, vendors and consumers of beverages to reuse or recycle beverage containers;
- to reduce the generation of solid wastes, waste disposal and recycling costs;

- to reduce litter and litter related costs and hazards;
- to conserve natural resources; and
- to preserve the amenity of the environment and enhance the quality of life

The Bill provides that reusable or recyclable beverage containers sold or offered for sale in Trinidad and Tobago shall have a refund value. Glass, plastic, aluminum and other metal beverage containers containing 0.6 litres or less will have a standard refund value per container, while those same containers measuring more than 0.6 litres will have a greater refund value per container.

The amount of deposits to be paid on beverage containers is prescribed and the obligations of vendors in respect of the beverage deposit to consumers are specified. Measures are included to ensure that consumers are made aware of the refunds which can be redeemed on empties. Safeguards have been included to protect the enterprises of independent bottle collectors. Provision is made for the exemption from mandatory requirements of any bottler or importer who has in place a stewardship plan for beverage containers.

The manner in which moneys in the deposit/refund system must be handled and accounted for by bottlers and importers is stipulated. Provision is made for all abandoned deposits to be paid into the Environmental Fund. The Comptroller of Customs and Excise is made responsible for collecting the Deposit Levy payable on imports and paying the proceeds over into the Environmental Fund. Provision is made for the payment of a refund of the Deposit Levy upon proof that empty containers have been re-exported. Provision is also made for the payment to scavengers of a salvage value for non-returnable beverage containers and for the paying over of the Advance Disposal Fee to waste management facilities which dispose of these containers in accordance with the law. The purposes for which moneys collected under the Bill can be paid out of the Environmental Fund are specified in detail.

International carriers selling beverages in containers are exempted from the provisions of the Bill. The EMA is given the power to prohibit the use of non-biodegradable beverage containers, to prohibit the incineration or landfilling of returnable beverage containers, to charge administrative fees in connection with the administration of the Bill and to make any Regulations necessary to give effect to its provisions. Provision is also made for the enforcement of the Bill and for the protection of confidentiality in its administration.

Pesticides and Toxic Chemicals Act

The Pesticides and Toxic Chemicals Act regulates the importation, storage, manufacture, sale, use and transportation of pesticides and toxic chemicals. Although this Act does not strictly deal with waste it has implication for the management of waste.

1.3.7 Multilateral Agreements and Treaties

Trinidad and Tobago has also entered into the following multilateral agreements and treaties that govern the management of waste.

- a. **Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Disposal** – The Convention seeks to regulate the transboundary movements of hazardous and other wastes and also requires that its Parties ensure that these wastes are managed and disposed of in an environmentally sound manner.
- b. **Stockholm Convention** - In the Stockholm Convention, participating governments agreed to take actions to reduce or eliminate the production, use, and/or release of certain Persistent Organic Pollutants (POPs).
- c. **Rotterdam Convention** - The objectives of the Convention are:
 - to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm;
 - to contribute to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties.

The Convention creates legally binding obligations for the implementation of the Prior Informed Consent (PIC) procedure. It built on the voluntary PIC procedure, initiated by UNEP and FAO in 1989 and ceased on 24 February

- d. **Protocol Concerning Pollution from Land-Based Sources and Activities (LBS Protocol)**

The Protocol sets forward general obligations and a legal framework for regional co-operation. The following Annexes outline the requirements of each contracting party.

- Annex I establishes a list of land-based sources and activities and their associated contaminants of greatest concern to the marine environment of the Wider Caribbean;
- Annex II outlines and establishes the process for developing regional standards and practices for the prevention, reduction, and control of the sources and activities identified in Annex I.
- Annex III establishes specific regional effluent limitations for domestic sewage; and
- Annex IV requires each Contracting Party to develop plans, programmes and other measures for the prevention, reduction and control of agricultural non-point sources, respectively.

e. **Protocol of 1978 of the International Convention for the Prevention of Pollution from Ships, 1973, MARPOL 73/78**

These provisions require the government of each party to ensure the provision of adequate port reception facilities for Ship-generated waste as part of the implementation of the International Convention. A port reception facility is anything which can receive shipboard residues and mixtures containing oil, noxious liquids or garbage.

One should also note that there is a continuous move towards Local Government Agencies (LGA), such as the cities, boroughs, regional corporations and also the THA increasing self-sufficiency through the availability of supporting resources such as the Green Fund. This movement has presented new opportunities and initiatives at the regional levels. There is a general trend by the LGAs and the THA towards viewing waste as a resource where recovery activities can generate revenues and at the same time achieve waste reduction and prevention with minimum risk to public health and the environment. This new approach has to be adopted where waste diversion with the supporting principles of recovery, reduction, reuse and recycling will be the desired option resulting in minimum residual items for disposal. Analysis has shown that well over 80% of residential waste is recyclable and that the residential stream represents two thirds of overall waste generated in Trinidad³. Organics, paper and paper board and plastics, all recyclables, represent over 70% of waste generated in Tobago⁴.

³ Trinidad Solid Waste Management Program Waste Characterisation and Centroid Study, Final Report, September 2010, prepared by CBCL Limited in association with HMJ Consulting Limited, Green Engineering and LURA

⁴ Solid Waste Characterisation Study for Tobago, Drat Final Report, September 2010, prepared by EGARR & Associates

The existing scenario also recognizes the existence of formal (small and medium private sector businesses and NGOs) and informal sectors (individual salvaging activities on and off landfill sites) in the waste recovery and recycling industries that contribute to waste diversion. These sectors need to be incorporated and guided by a national framework that prescribes environmental standards and safeguards that could lead to sustainable rewards.

There has also been an increase in general public and business sector sensitivity and awareness on solid waste management issues, such as waste recycling, landfill management, storage and containerization methods and litter control. This sensitivity has fuelled increasing demands for a cleaner environment, improved sanitation practices in the communities and a general move by large industrial and commercial generators to seek improved waste containerization, transportation, processing and disposal services. Concerted efforts have been made by householders to improve containerization practices, and businesses and industries have engaged waste management contractors to address their generation quantities and types.

While the solid waste management industry should be commended for their efforts, the rapid increase in waste generation and types, plus the effects that come with socio-economic development, have exceeded efforts relative to the level of support infrastructure, new technology, and management strategies and systems. Prioritization in effectively researching new strategies and technologies has not paralleled the demands for new approaches and thinking to address solid waste management issues.

Trinidad and Tobago is presented with the opportunity to make fundamental national statements regarding environmental enhancement and sustainability and to demonstrate its commitment to the principles of Rio+20. Rio+20 presents a forum for a wide cross-section of stakeholders throughout the world to prescribe a way forward for the planet where poverty is reduced, social equity is advanced and environmental protection is assured. The “best practices” approach in solid waste management is critical to any national plan seeking to ensure a reduction in risk to human health and the environment.

Clearly the country has to recognize that a solid waste management dilemma is imminent and must develop a system of managing this challenge into the future supported by an effective policy framework. The chosen solution has to be economically, financially and environmentally sound and

should ensure that future generations continue to enjoy the existing benefits that we sometimes take for granted.

2.0 A FRAMEWORK FOR CHANGE

2.1 Policy Framework

A policy framework is the Government of Trinidad and Tobago's (GOTT) first strategic response to the growing challenges of solid waste management. It creates a blueprint for:

- a. Structure planning and sustainability;
- b. Synchronising the strategic vision of the GOTT as outlined in the Medium-Term Policy Framework 2011 to 2014;⁵
- c. Supporting economic, spatial and cultural aims;
- d. Encouraging full stakeholder support;
- e. Facilitating public and private sector collaboration and participation;
- f. Protecting public health and the environment;
- g. Unfolding more detailed plans, programmes and projects;
- h. Effective and achievable implementation and monitoring;
- i. Promoting greater public awareness and behavior change.

The policy framework is also a tool for all residents and businesses in the cities, boroughs, regional corporations, and jurisdictions under the THA. It could be used in the following ways:

- To educate citizens and businesses about solid waste issues and the generator's role in waste recovery, reduction, reuse, and recycling.
- To shape the development of future solid waste facilities, services, and investments.
- To guide solid waste management planning, outreach, and regulatory activities.
- To inform national solid waste legislative initiatives.

In addition, the policy framework will serve as an important reference for the revision of the Master Plan for Integrated System⁶ and the development of a new Integrated Solid Waste Management Plan (ISWMP). It will guide the development or revision of sub-plans by the cities, boroughs and regional corporations and the THA. The ISWMP will identify the outcomes and implementation strategies

⁵ Medium Term Policy Framework 2011 to 2014, Ministry of Planning and the Economy, October 2011

⁶ Solid Waste Management Plan for Trinidad and Tobago, Master Plan for Integrated System, October, 1980. Prepared by Planning Associates Ltd. and Stanley Associates Engineering Ltd., A Joint Venture

that will move the LGAs and the THA toward achieving the vision, goal, objectives of both the policy and the plan itself.

The GOTT has recognized the need to develop a modern and integrated enabling policy for the administration and implementation of a system for waste prevention, waste diversion, waste minimization, reuse, recycling and disposal. This policy framework is intended to inform the structuring of appropriate integrated solid waste management legislation that would regulate subsequent efforts towards planning, programme and project development.

The formulation of this policy framework will lead to the development of an ISWMP that meets the needs of the present and future. Such a development has to recognize previous plans and programmes that have been structured, revisit them, and build on the recommendations that may still be relevant to the current demands.

2.2 Priorities

The scale and complexity of addressing Trinidad and Tobago's growing solid waste stream has signaled the need for a policy. There has been a broad consensus regarding the need for such an instrument that will involve new inputs while building on existing policies and programmes.

Also emerging are obligations relating to Trinidad and Tobago's international agreements. One such obligation is the need to reduce the presence of additional persistent organic pollutants (POPs). These requirements are likely to provide focus for future actions under this policy. Some of the key priorities to be addressed among others in the first five years include:

- reducing the risk to public health and the environment;
- establishing institutional arrangements that comprehensively and effectively address solid waste management;
- developing nationally consistent waste (including hazardous waste) classification and data that would be beneficial in supporting evidence based decisions and future directions;
- enabling sustainable recycling industries;
- supporting agencies to use sustainable procurement principles;

- establishing a framework for introducing Generator Responsibility Schemes (GRSs) for specific products, with priority given to those that have significant impact on waste disposal, in either how they are produced, packaged, consumed or at the end-of-life. GRSs place the responsibility on manufactures, importers, retailers and consumers for what they produce and consume and how they dispose of the products.
- facilitating development of national standards and/or specifications for recovery and re-use of selected special waste items (i.e. tyres and reprocessed organics) in specific applications;
- developing strategies to reduce greenhouse emissions from landfills and other waste activities;
- establishing an approach to reduce hazardous substances in products and other goods i.e. through material substitution;
- monitoring the environment for selected chemicals of concern and in the process fulfilling the country's obligations to a number of international conventions such as the Stockholm Convention on Persistent Organic Pollutants (POPs), and the International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 known as MARPOL 73/78,
- creating institutional space for the development and implementation of public awareness and public education programmes on the value of waste reduction strategies.

2.3 Vision

The policy sets forth a vision of sustainability for Trinidad and Tobago over the next ten(10) years and beyond where solid waste is viewed as a resource and will be managed by technologies and methods that support sustainable communities and environments that minimizes waste, promotes ecological integrity through pollution prevention, promotes efficiency, and develops resources to revitalize local economies The country will seek to reduce its reliance on landfills, reduce the toxicity of waste, conserve natural resources and energy, improve public health, support the economy, and reduce greenhouse gases.

2.4 Goal

The goal envisaged in this policy framework is formulating and implementing a sustainable integrated solid waste management programme for Trinidad and Tobago. This programme will integrate socio-cultural, environmental and economic objectives; pursue waste prevention and minimization, promote awareness and involvement, and facilitate partnerships between public sector, private sector, and community stakeholders.

2.4.1 Goal Objectives

To bring the policy vision and goal closer to reality, a plan will be developed that targets four specific objectives, which represent elements of the sustainability vision.

- a. Objective 1: To manage waste in a manner that will protect public health, and the environment and that will conserve natural resources.
- b. Objective 2: To manage waste as an integrated management system in accordance with the preferred hierarchy where the focus is placed on prevention rather than disposal. The hierarchy seeks to minimize land-filling, with an increased emphasis on maximizing the reduction of waste volumes, through the initiatives of reuse, recycling and source segregation.
- c. Objective 3: To manage waste in a cost-effective manner that maximizes environmental benefits and minimizes long-term financial liability for the population.
- d. Objective 4: To ensure that generators take responsibility for the environmentally sound management of their wastes and to identify, allocate and communicate solid waste management system costs equitably among those who use or benefit from the system.

3.0 THE POLICY INSTRUMENT

3.1 Guiding Principles

A number of overarching principles have informed the formulation of this policy statement and will guide its implementation. These principles also reiterate and expand on the principles established in the NEP:

- Respect and care for the community of life: Human beings and communities are an integral part of the community of life which includes all living things. The implementation of this policy will be based on a premise that the integrated community of life shall be respected and supported.
- Evidence-based management: Policy formulation and implementation will be based, to the maximum extent possible, on tangible evidence, data and information as the basis of decision-making.
- Polluter pays principle: Those that cause pollution should pay the cost of managing it to prevent damage to human health and the environment. Polluters are those who “damage” or impose “costs” on the environment.
- Precautionary principle: Lack of scientific certainty as to the likelihood, magnitude, or causation of a potentially negative environmental impact, will not be used as a justification to prevent action to avoid serious or irreversible potential harm to human health and the environment.
- Sustainability: The capacity derived from resource development must be retained and maintained within, and for the benefit of our communities so that it feeds into sustainable initiatives.
- User Pay Principle: The theory or rule that a user of a service or resource pays directly for the amount they use, rather than the cost being shared by all the users or a community equally. Those who generate more waste should pay more for having their waste managed. Government will encourage and facilitate enhanced levels of waste management including cost recovery from commercial waste generators, linked to the amount of waste they

generate. This will provide these waste generators with incentives to reduce, reuse, and recycle the waste generated from their activities.

- Regulatory Tools: Regulatory tools will be applied where necessary to influence a direct response to particularly wasteful practices. These tools will also ensure that waste generation is minimized in ways that are broadly fair and equitable across the society. The GOTT and all relevant civil society stakeholders will take all necessary measures to ensure that this policy and its enabling legislation are adequately enforced, to include the provision of adequate personnel and resources.
- Policy Integration: Waste prevention strategies, such as reduction, reuse and recycling are critical components of a wider integrated solid waste management system and would therefore be linked to, and harmonised as far as possible, with other relevant policy areas and instruments.
- Adaptation and “learning-by-doing”: Waste generation, waste types, waste treatment and disposal technologies economic, social and cultural conditions, are constantly evolving and changing. As a result, policy and management responses must be able to adapt to these changes through continuous improvement and innovation. Monitoring and evaluation will therefore be an integral component of policy implementation, with data, results and lessons-learnt being used to empower management to be adaptive and responsive.
- Accountability: There will be fairness, transparency and accountability in the formulation, adoption and implementation of policy instruments and measures.
- Empowerment, collaboration and participation: The costs, benefits and responsibility for waste prevention, will be shared among all stakeholders, who must be provided with the right to actively participate in the management and decision-making processes.
- Viewing Waste as a resource: The policy framework advocates a transition to a new way of thinking about waste, based on principles of sustainability and resource conservation.

- Solid waste management hierarchy: The waste hierarchy is the framework for action. It stresses the need to manage waste in an integrated system in accordance with the hierarchy of preferred waste management practices, with an emphasis on reduction and recycling in order to promote resource conservation and environmental protection.
- Generator responsibility: This policy framework clearly states that generators are responsible for the waste they produce. That means generators must make wise purchasing, storage, containerisation and disposal decisions—paying the true cost of managing waste and evaluating and assuming responsibility for the effects of their waste disposal decisions.
- Government as a leader: The policy framework is designed to steer the country towards a vision, where government will have to lead the way by assuring that their actions are consistent with the policy.
- Product stewardship: Product stewardship will be emphasized with the intent being that government will reduce its role in the management of some wastes, while those that produce, import, sell, and use products will assume greater responsibility for the management of products at the end of their useful lives. This approach will be supported by the GRSs that require direct stewardship for items generated.
- Private sector initiative: The policy framework calls for the private sector to take a greater role in addressing the waste management dilemma consistent with the national vision. It advocates greater private sector involvement in solid waste management, and sets out the procedure for identifying, selecting, certifying, contracting, monitoring and evaluating private service providers.
- Consolidate and build recovery and recycling: The policy seeks to organize, formalize and consolidate recovery and recycling efforts and build on the existing initiatives, so that the LGAs and the THA and by extension the country can more fully realize the environmental and economic benefits of diverting resources from the waste stream.

3.2 Waste Categories

While the overall policy will address the integrated solid waste management system, particular attention should be paid to specific categories of waste regarding the handling of these waste types. The recovery of these waste categories will be governed by incentives such as deposit/refund, disposal fees, pay-as-you-throw, buy-back mechanisms and disposal bans. Collection, delivery and disposal alternatives will be developed under a regulated framework. Revenues from disposal will be part of the disposal/tipping fee measure. Waste categories under the policy also include waste disposed in territorial waters emanating from both inland activities and marine activities as outlined by MARPOL 73/78 such as visiting vessels as defined by the Protocol Concerning Pollution from Land-Based Sources and Activities. Categories identified to be addressed by the policy are:

3.2.1 Household Waste: These waste categories could be hazardous or non-hazardous. Non-hazardous household solid waste consist of garbage or rubbish (i.e. cans, bottles, clothing, compost, disposables, food scraps, packaging, newsprint, food, yard trimmings) that originates from private homes or high density housing areas. Hazardous household wastes are items such as fluorescent bulbs, batteries, some cleaning detergents, electronic waste, paints, pesticides and oils. Household non-hazardous wastes will be accepted at established and approved disposal sites and facilities, delivered as part of the national solid waste collection system operated and managed by the LGAs and the THA both directly or by contracted services. Hazardous household wastes will be diverted from the waste streams to approved and certified receiving centres which can be located at transfer stations or at certified private sector recovery and processing facilities. Buy-back and deposit/refund and pay-as-you-throw schemes will contribute to the recovery mechanisms.

3.2.2 Hazardous Waste: Hazardous wastes have been addressed comprehensively in the Draft Waste Management Rules 2008 (DWMR) prepared by the EMA as a legal framework. Although in draft form, these rules provide an extensive provision of definitions⁷ and proposed methods of storage, collection, transportation, treatment and disposal of hazardous wastes. It also addresses the permitting and licensing of treatment and disposal facilities and outlines the procedures to be followed from generation to disposal. These rules will be finalized making reference to the national policy for solid waste/resource management that would apply to all types of solid wastes categories. Finalization will seek to reflect the

⁷ Draft Waste Management Rules 2008, Part A and Part C

principles and goals of the national policy. GRSs will also form an integral part of managing hazardous waste where generators will be required to take responsibility through the product life cycle approach with the appropriate regulatory instruments and incentives developed to support the programmes. A manifest system will be introduced to monitor the movement of this waste category.

3.2.3 Bio-medical wastes: Part A of the First Schedule of the DWMR identifies bio-medical or clinical and related wastes as wastes arising from medical, nursing, dental, veterinary, or similar practices, and wastes generated in hospitals or other facilities during the investigation or treatment of patients, or research. The management of these wastes will be addressed under these rules. Bio-medical wastes will also be governed by the Code of Practice for Bio-medical Waste established under the MOH. The management of these waste will be addressed through, disposal bans, product labeling tied to importers, use of recyclable material where possible and disposal fees. As outlined in the Code of Practice a manifest system will parallel the movement of waste from generation to disposal.

3.2.4 Industrial Waste: Industrial wastes are types that are generated as a result of industrial activities and can pose a long-term risk to health or the environment. The DWMR also addresses this waste category and will be extended to include other designations such as toxic wastes and chemical wastes from both light and heavy industries all under the guidance of the national policy. Regulations, incentives and penalties will form a combination of measures for management of these waste categories in conjunction with the GRSs approach.

3.2.5 Electronic Waste (e-waste) – While it is also categorized under the DWMR, special mention need to be made of this waste type. E-waste is created by discarded electronic devices and components as well as substances involved in their manufacture or use. These end-of life products encompass electronic appliances such as computers, LCD (Liquid Crystal Display)/CRT (Cathode Ray Tubes) screens, laptops, TVs, DVD players, mobile phones, mp3 players, cooling appliances etc. which have been disposed of by their original users. While there is no generally accepted definition of e-waste, in most cases it comprises relatively expensive and essentially durable products used for data processing, telecommunications or entertainment in private households and businesses. The management of these wastes will be addressed through partnership programmes such as the GRPs where importer, manufacturers and assemblers will be regulated to conduct buy-back programmes

so that the responsibility for proper disposal will be covered. Up-front disposal fees will be applied that encourages incentives for the return of items at the end of its life.

3.2.6 Special Bulk Wastes – These waste categories refer to some appliances (white goods), tyres, derelict vehicles, construction and demolition wastes etc. that require special handling before it is disposed. While not considered a hazardous waste, improper handling can result in hazardous substances being released into the environment. Disposal fees, levies and tariffs will be applied to address the product life cycle approach in addition to disposal bans. Recycling and processing centres will be the delivery point for these items where refund schemes will encourage entrepreneurial activities for their recovery, dismantling, processing and recycling.

4.0 IMPLEMENTATION

Policy implementation has to be decisive and timely. Education and communication strategies have to precede and parallel the implementation process where all members of the public obtain a clear understanding of the issues, their roles and responsibilities and the proposed schedules. Implementation will also build on existing activities that can be strengthened in the short and medium term using the ‘learnings’ from these activities to formulate comprehensive planning for the long term.

4.1 Short and Medium Term Targets

4.1.1 An Advisory Committee (AC) chaired by the MOLG will be established within a six (6) month period to commence roundtable dialogue with stakeholders and to guide and monitor the implementation of the policy. The committee will consist of representatives of the relevant government ministries, authorities, agencies, local municipalities, appropriate private sector representatives to include light and heavy industrial sectors, non-governmental organizations, community-based organizations, civil society and academic institutions. The AC will be appointed for a period on one-year, in the first instance, after which an evaluation will be undertaken to assess the milestones, establish new targets and reconstitute the composition where necessary.

4.1.2 An Interim Policy Implementation Unit (IPIU) will be established within the MOLG within a one (1) year period to begin the implementation strategies guided by the policy. The MOLG will seek to transfer or acquire the necessary resources and the required technical capacity where possible to strengthen this unit that would drive the goals and objectives of the policy. One of the immediate tasks of the IPIU is to detail short, medium and long term plans to achieve the vision and goals of the policy. Similar units or sub-units will also be established at the LGAs and the THA that would assist with implementation at the regional levels. Solid waste management units will eventually be created within the public health departments so as to assist the TTSWMA with the role-out of national plans, programmes and projects.

Recognising the need to place immediate emphasis on waste diversion and to further influence the existing culture among the society one of the immediate tasks of this AC working with the IPIUs is to develop a national framework to strengthen waste recovery practices and encourage new initiatives in the industry. Some of the immediate activities will include establishing a register of waste recovery and recycling entities in the country, recommending immediate strategies to reduce

the obstacles that presently exist in the industry and developing a national framework for waste diversion. Consideration will be given to utilizing The Beverage Container Bill as a commencement strategy given its stage of advancement, and the opportunities it can present as one type of model that suggests the way forward for recovering other post-consumer resources. The developed and approved national framework should include a Resource Recovery Fund that will finance the operations and management of waste diversion activities.

4.1.3 A Solid Waste Management Authority (TTSWMA) will be established by legislation within a twenty-four (24) month period as the national institution responsible for solid waste management in the country. The early establishment of the TTSWMA is a central feature of the institutional arrangements for extensive implementation. The TTSWMA roles and function can be mirrored to the mandate of the SWMCOL except that it would have the legislation to support it as an authority. The authority will work in collaboration with the MHE, the EMA, the MOLG, the various LGAs, the THA, other public sector agencies, private sector and non-governmental organizations to further the implementation process. This has become necessary as there is the absence of a national authority with the required legislation that comprehensively addresses solid waste management in the country. Key functions will require that the TTSWMA:

- Recommend the development of solid waste management facilities and improve coverage and effectiveness of solid waste storage, collection and disposal facilities;
- Assist in the creation of an enabling environment for the disposal of all waste types in an environmentally sound manner;
- Develop, implement and maintain environmentally sound waste management plans, including National Integrated Solid Waste Management Systems.
- Implement the National Solid/Resource Management Policy;
- Facilitate the development of new engineer-designed second-generation sanitary landfills. Facilitate closure post closure and rehabilitation/remediation (where necessary) of dumps, illegal disposal sites and other waste management facilities.
- Encourage the development of new technology-based disposal methods reducing reliance of landfilling, given attendant problems for Small Island Developing States (SIDS);
- Administer and charge fees, environmental levy, household levy, tipping fees, and other cost recovery methods for services provided by the TTSWMA including methods to recover costs

from commercial and industrial generators of waste thus facilitating contribution to the management of solid waste;

- Provide technical assistance such as training, education and public awareness programs in solid waste management to schools and civic organizations. Encourage participation of communities.
- Design, implement and maintain a programme for public education on waste management.
- Assist in the creation of an enabling environment for Private-Public Partnership initiatives;
- Partner with Private Sector to develop cradle-to-grave/take-back stewardship arrangements.
- Embark on Research and Development initiatives and pilot projects geared towards resource recovery and waste diversion programmes.
- Develop, implement and maintain waste disposal and diversion/minimization strategies.
- Administer procurement and monitoring of waste management services on behalf of the Government.
- Develop, implement and maintain Codes of Practice, guidelines and standards governing all aspects of the waste industry.
- Provide Technical, Consultancy and Project Management services to private sector and Government agencies, and other potential clients nationally and regionally.
- Establish Technical Cooperation with Regional and International Agencies geared towards Capacity Building and Institutional Strengthening.
- Identify regional opportunities for reduction, recovery and recycling of solid wastes.

Alternatively the SWMCOL with the existing mandate as outlined in the Articles of Association could be strengthened with the legislation that gives it the authoritative arm to effect this mandate.

The existing mandate includes:

- the design and implementation of solid and hazardous waste management systems and structures;
- the construction and management of engineered landfills;
- the transportation and processing of faecal waste;
- the processing of recyclable materials; and
- the provision of advice to the local government body on waste management

The SWMCOL already has over thirty (30) years of experience in solid waste management in the country and is clearly positioned to provide an administrative and a technical resource base that can be beneficial to the formation of the organizational structure of the TTSWMA. However, to date it continues to operate as a limited liability company with no legal jurisdiction over waste management or the agencies that manage waste, such as the local government authorities that are legislated under the Municipal Corporation Act. Until the enabling legislation is put in place SWMCOL is limited in its national authoritative role in spite of the mandate that has been outlined in its articles of association defining it as a limited liability company.

Public institutions at the national and local levels also have responsibilities for the management of solid waste.

National Level - at the national level, the proposed Solid Waste Management Authority (TTSWMA) will provide that responsibility for waste management operations. Responsibility for environmental issues is the responsibility of the Environmental Management Authority (EMA).

The TTSWMA will ensure that it is appropriately organized in accordance with the requirements of the legislation that supports this policy as they are implemented. In particular, the TTSWMA will address its institutional capacity to oversee solid waste management activities by providing dedicated capability in solid waste management planning (including licensing and permitting), waste minimisation/recycling/composting, waste disposal and environmental monitoring of waste management systems and facility performance. TTSWMA will ensure that it maintains capacity to efficiently and effectively implement/coordinate environmental projects and national public awareness initiatives in the solid waste management sector.

The TTSWMA will work closely with all LGAs, the THA and other ministries, agencies and entities in the public and private sectors to implement this policy.

Once established the TTSWMA will Chair the Advisory Committee previously established under the MOLG at the preliminary stages of implementation, through which it can continue dialogue with stakeholders and coordinate the implementation of this policy. A first task of this Advisory Group will be to prepare a strategy to guide the implementation of this policy.

The TTSWMA will partner with both the University of the West Indies (UWI) and the University of Trinidad and Tobago (UTT) in research and development initiatives. Research and development

provides an opportunity to discover new knowledge about products, processes and services where that knowledge can be used to further develop new and improved products, processes and services in response to national needs. New, appropriate and indigenous technologies will be pursued to address the uniqueness and peculiarity of our changing wastes types that are generated in local environmental conditions. Technologies that would enhance national waste minimization initiatives will be seen as a priority utilizing the pilot/demonstration and case study approaches. The industrial and manufacturing sectors will be encouraged to partner with academic institutions to seek the creation of more environmentally friendly ‘green’ products that require minimal waste management processing after consumer use. The outcome of these research and development partnerships will also seek to facilitate waste source reduction that results in the marketing of core products for core uses with minimal waste types and volume excesses. The resulting technologies should be applicable, affordable and present minimal public health and environmental risk.

Local Level – at the local level the TTSWMA will work with the MOLG, LGAs, and the THA directly to facilitate the creation of local administrative structures that maximize the efficiency and effectiveness of solid waste management service delivery. In particular, the TTSWMA will work with the MOLG, LGAs and the THA to:

- Facilitate Integrated Solid Waste Management (ISWM) sub-planning at the local level together with implementation of Solid Waste Management Plans (SWMP);
- Adopt regionalized waste management facilities where such facilities offer financial, management and technical advantages as compared to the alternative of individual municipalities having their own waste management facilities.
- Direct responsibility for solid waste management planning, contract performance monitoring/compliance, financing/cost recovery and public awareness/community participation regarding local solid waste management activities.
- Ensure that the contribution of the informal sector is appropriately integrated into waste management activities at the local level.
- Establish a forum for continuing dialogue and communication among all of the LGAs and the THA on solid waste management issues.

4.2 Supporting Strategies for Policy Implementation

Policy implementation will be achieved through the following strategies and its components:

- Waste Minimisation
- Waste Recovery
- Technologies and Systems Applications
- Financing and Cost Recovery Mechanisms
- Incentives
- Private Sector Participation
- Community Participation,
- Public Awareness and Education
- Legislation
- Capacity Building

4.2.1 Waste Minimization

The GOTT will develop an enabling legislative and administrative framework for waste prevention and recycling to achieve the following mutually-reinforcing objectives:

- (i) Protection of human health and the environment;
- (ii) Maximization of resource use efficiency and value recovery from wastes;
- (iii) Incremental reduction to 50% of the quantity of waste requiring final disposal within a ten (10) period;
- (iv) Creation of a culture of waste minimization;
- (v) Enhancement of economic development by the creation of business opportunities in the reduction, collection, handling and recycling of waste;
- (vi) Creation of a culture of shared responsibility for waste management among government, producers, distributors and consumers.

Minimising the amount of waste generated will be a national priority, mandated and pursued by the GOTT. Scheduled and gradual minimization, supported by GRSs will be achieved through six target areas:

- The Producer Pay Principle – The generator, be it the processor, manufacturer, importer or industrial entity should pay the cost of ensuring recycling and proper disposal of its products at the end of its life cycle. In this case weight-based, volume based or frequency-based variable charge rates will be considered.
- Polluter Pay Principle – The cost of pollution, prevention and remediation should be borne by the entity which profits from the process that causes pollution. This will be implemented through policy approaches such as command and control (performance and technology standards) or market based instruments (pollution taxes or product labeling). Industries will also be encouraged to adopt self-regulation policies by achieving international standards certification. Standards such as the International Organization for Standardization (ISO) 14001, an environmental management standard and the SA 8000 a social accountability standard can contribute to firm self-regulation by specifying requirements that go beyond local government regulations. The industrial sector will also be encouraged through incentives to pursue waste exchange programmes where one generator's waste could become a raw material input for another industry.
- The User Pay Principle – Proposes an explicit charge on solid waste so that the general public can appreciate the true cost of the management of post-consumer items and gradually take steps to reduce the amount of waste generated through waste diversion mechanisms. As part of the integrated solid waste management system, these mechanisms will be developed through a combination of incentives and disincentives such as deposit-refund schemes, disposal fees and scheduled landfill disposal bans.
- Public Education and Awareness – The general public as a major stakeholder will be an integral part of the policy's successes and should be consistently provided with timely and clearly communicated information that could influence positive decisions in supporting the principles and mechanisms outlined in the document.

- Regulatory tools – Legal instruments will be developed to support the objectives of the policy in the form of a framework that will guide issues such as institutional arrangements and system development, operations and sustainability

4.2.2 Technologies and Systems Application

Waste management technologies and systems will be used to recover value from waste where economically and environmentally feasible, and to manage residual wastes in ways that are protective of community health and the environment. It should not be interpreted that the waste management technologies and systems proposed will completely eliminate the need for landfills. Rather, it should be considered that the waste management technologies and strategies proposed could reduce the amount of waste being landfilled, extending the lifetime of landfills.

The TTSWMA will be required to conduct annual evaluations of alternative technologies that are applicable, economically feasible, and environmentally safe and have the potential to be researched and developed indigenously based on these features. Solicited and unsolicited proposals regarding new technologies will be assessed against the principles, vision and goals of the policy and established technical criteria.

There are three major categories of waste treatment strategies that will be considered to reduce the amount of waste sent to the landfill, namely:

- Physical processes – those that separate the waste physically into different categories, with each stream being sent for use as a fuel, for recycling and/or for disposal. Waste is reduced to residual items as a result of extraction from the waste stream through the physical process of diversion and recovery;
- Biological processes – those that convert the organic fraction of waste through biological processing (including anaerobic digestion and aerobic composting) to other, useful products; and
- Thermal processes – those that reduce waste volumes through the combustion of the carbon-based fraction of waste, specifically the organic and plastics fractions.

Technologies will be adopted and where required adapted to drive the following components of the integrated solid waste management system based on the needs of the individual communities:

- Waste storage and collection
- Reduce, Reuse and Recycling
- Composting, Bio-conversion and Energy Recovery
- Disposal

(i) Waste Storage and Collection

Efficient storage and collection of wastes from areas of human habitation is a central goal of all waste management systems. The TTSWMA will therefore work with the MOLG, LGAs and the THA to design and select appropriate containerization systems at single and high-density residential generators, in the first instance. The objective is to provide safe and secure storage while limiting access to animals and persons rummaging through the waste items. Pilot projects will be established for source separation systems in selected areas on a phased basis. More tangible incentives will be introduced gradually as attitudinal changes are evident among the population. The TTSWMA, MOLG, LGAs and the THA will also collaborate with the commercial generators regarding storage devices and equipment given the large quantities stored by these generators.

A key objective of the collection system will be the maintenance of regular and convenient waste collection services throughout all communities utilizing human resources that benefit from the required health and safety standards under the OSHAct. The findings and recommendations resulting from the solid waste collection system revision of 2007⁸ will be revisited and where required steps will be taken to address improvement strategies and mechanisms within the principles of the policy.

Standards for storage, collection, macro and micro-routing, contract procurement and equipment management will be developed by the TTSWMA to ensure that wastes are properly contained, and efficiently and securely transported to the disposal site or facility. Waste collection is typically the most expensive component of a waste management system and will require that collection routes be revisited to ensure continuous efficiency. One of the efficiency mechanisms will include where possible engaging certified contractors that have established equipment depots in close proximity to the area(s) they have tendered to service. This strategy reduces daily mobilization and turnaround

⁸ Review of the Solid Waste Collection for Trinidad and Tobago, Final Draft, Marshall, Macklin and Monaghan, International Inc. in association with EGARR & Associates, , August 2007.

costs to the system and also creates a direct communication link between the service provider and the service receiver both located in the same community or within accessible distances of each other.

Transportation systems to include Transfer Stations will be designed, monitored and re-evaluated by TTSWMA as part of the integrated solid waste management system. The TTSWMA will therefore work with the MOLG and by extension the LGAs and the THA to ensure that waste collection systems are efficient and affordable to the communities they serve.

Waste management planning will also take cognizance of the social, physical, economic and environmental vulnerabilities of the country to natural disasters such as hurricanes, earthquakes and seasonal flooding and landslips. The TTSWMA will become an integral part of the coordinated response activities conducted by the Office of Disaster Preparedness and Management (ODPM), contributing to the collection, recovery and disposal of post disaster waste debris. The TTSWMA, the LGAs and the THA will also identify its role and responsibilities as outlined in the various national and municipal contingency plans⁹ in preparation for effective and efficient response strategies. The TTSWMA will also keep abreast of the introduction of new plans that would affect its participation in national response activities and will provide relevant inputs to the development, enhancement and effectiveness of future plans.

(ii) Reduce, Reuse and Recycle

Reduce entails using fewer resources in the first place. It requires a gradual change to practicing conservation where attitudes will have to change regarding the demands for the use of more than is required. Some reduction strategies include buying products that are made from post-consumer recycled materials such as paper and bathroom tissue, buying products that are not consumed by unnecessary packaging and avoid items made with toxic materials such as household cleaners.

Reuse involves the reutilization of a waste without a process to transform the waste into another product, for example, bottles may be reused. Recycling involves the reutilization of waste through transforming the waste into another product, for example treating used plastics for use in a new product. Recycling not only decreases the rate of depletion of our natural resources but also reduces pollution from manufacturing and industrial activities. Reuse and recycling create jobs, provide local resources to industry and reduce the amount of waste requiring disposal.

⁹ Draft Disaster/Emergency Standard Operating Procedures and Contingency Plans, September 2000; and National Flood Contingency Plan, March 2003

Reuse and recycling activities are driven by market demand; a market must exist for reuse and recycling activities to take place. Recovery, reuse and recycling activities have been undertaken by the “informal” sector for many years through salvaging initiatives both on and off the disposal sites. New initiatives to enhance reuse and recycling activities will be sensitive to this sector and will introduce appropriate standards and opportunities to formalize and enhance this activity.

The TTSWMA will work with the MOLG, LGAs and the THA, and other stakeholders, as appropriate, to promote waste diversion through reduction, reuse and recycling initiatives. This will be done in two ways:

Pre-Collection - The TTSWMA will work with importers, distributors and manufacturers to establish systems for the recovery of reusable/recyclable materials before they are discarded for waste collection. Initial priority will be given to packaging materials and reusable/recyclable materials generated by industrial, commercial and institutional entities. A regulatory framework supported by economic instruments and incentives such as waste exchange programmes, disposal fees, an environmental levy and take-back programmes (i.e. electronic waste) will be used to encourage and facilitate the diversion and recovery of these materials. Items such as tyres, waste oil, automotive batteries, derelict vehicles and white goods will be considered under these mechanisms. Pilot projects to test the source separation of reusable and recyclable materials by householders and small and medium commercial generators will be considered and selectively undertaken, as appropriate. These will be implemented on a wider scale where they can be shown to be logistically, technically and economically feasible. Pre-collection activities will also be enhanced by the GRSs that are adopted by the larger generators.

Post-Collection – Systems will be introduced for recovering reusable and recyclable materials from mixed waste. Items such as glass, plastics, aluminum cans and other beverage containers will be targeted for deposit refund systems as proposed under the Beverage Containers Bill. This approach provides economies of scale and is also critical to achieving a high quality of organic material suitable for composting. This approach will be driven by deposit/refund mechanisms, incentives, penalties and fines and disposal bans.

The recycling activities will be structured towards achieving a circular economy where waste generated as a result of economic activities is returned to the consumption loop. The GOTT intends to develop a long term, stable and robust recycling industry where a local source stream of recyclable

materials and products are recovered, and the concept of a circular economy is fully realized through sustainable activities. While the industry will be positioned to be sustainable, the GOTT will ensure that movement of items between recovery and recycling is maintained so that national goal of waste prevention is sustained. Efforts will also be made to engage the inputs of Caricom in achieving regional initiatives where the economies of scale can yield greater environmental, social and economic benefits.

To bolster support for small and medium business involvement in the industry, long-term land tenancy will be considered for entrepreneurs interested in participating in the recycling industry. The use of the Integrated Business Incubator System (IBIS) under the Ministry of Labour and Small and Micro Enterprises can provide the capital funding to facilitate commencement of these businesses. On a larger scale the policy sees the establishment of the Tamana In-Teck park in Trinidad and the Cove ECO-Industrial and Business Park in Tobago as prime initiatives that can drive the recycling industry through achievement of innovative technologies that can enhance existing practices. These parks can provide the facilities where waste recovery and recycling will be given the “Green” potential to become industrial and economic contributors to national development at the same time providing sustainable business opportunities for small and medium entities and employment for a wide cross-section of the society.

While 80 percent identified in the waste characterization study represents recyclable waste TTSWMA will prescribe a design of an appropriate mix of measures and initiatives to reuse or recycle waste generated. The design will incorporate a mix of small, medium and large entrepreneurial activities at several levels of the supply and demand chain, driven by a series of regulatory tools, incentives, disincentives, penalties and fines and supported by planned education and awareness programmes communicated through an effective media.

(iii) Composting and Bio-Conversion

Composting is a technology for converting organic wastes to a soil amendment. Bio-conversion refers to other technologies for recovering value from organic waste. High quality compost can have value and can be sold to the agricultural community for land reclamation or other purposes to include combating desertification. High quality composting relies on separating organic from inorganic wastes before the composting process is undertaken. Some bio-conversion technologies result in products with similar benefits as compost, while other bio-conversion technologies create energy. Particular focus will be placed on composting and biogas recovery, in the initial phases.

However, as new technologies emerge consideration will be given to these systems for recovering value from organic waste, based on their cost efficiency as well as their environmental safety.

Once established the TTSWMA will work with the MOLG, LGAs, the THA and other stakeholders, as appropriate, to determine the feasibility of composting of organic wastes. All composting initiatives will include:

- A design, construct and/or facilitation of both centralised and individual small backyard/satellite generator systems;
- The separation of organic from inorganic wastes prior to composting activity;
- Adoption of appropriate composting technology;
- Applications of finished compost, appropriate to the quality of the compost

Organic materials that decompose in waste disposal sites release gas that can have high energy value. The TTSWMA will work with other stakeholders including the EMA, LGAs and the THA to identify closed and existing waste disposal sites that may be large enough to have commercially recoverable amounts of gas and will work with all stakeholders to determine the feasibility of recovering biogas for energy. Organic waste generated averages about 28%¹⁰ of the waste stream and it is possible to compost a significant amount within a 10 year period. Potential for biogas recovery will have to be determined.

(iv) Disposal

Disposal of waste is a component of all waste management systems. Properly sited, designed and managed waste disposal sites are protective of public health and the environment. These sites, with accompanying transfer station operations can be designed to accommodate residual waste items subsequent to diversion strategies. The material recovery facility (MRF) concept as part of post collection activities will also be utilized where the informal sector could be structured and incorporated into the integrated solid waste management system. The TTSWMA will work with the LGAs and the THA to close uncontrolled disposal sites on a phased basis.

¹⁰ Trinidad Solid Waste Management Program Waste Characterisation and Centroid Study, Final Report, September 2010, prepared by CBCL Limited in association with HMJ Consulting Limited, Green Engineering and LURA

Standards for waste disposal facilities will be keyed to the circumstances of the facilities. Infrastructural design and construction will address the issues of safety and security. Hazardous and selected special wastes will be required to be separated at the source and should not be accepted at non-hazardous waste disposal sites. In addition, waste disposed at the landfill site should be covered daily. Landfill facilities should be equipped with the appropriate pollution control systems as well as landfill gas management systems. These pollution control systems is intended to further promote ecological integrity beyond landfill sites to other points of potential pollution where the environment is stressed by the presence of petrochemicals, pesticides, heavy metals, acidic precipitation and solid waste among other pollutants. These stresses affect water quality, soil chemistry, air quality, and may be contributing to habitat loss, population and community changes, as well as air pollution.

The TTSWMA will build on existing or develop standards and procedures for the siting and operation of waste treatment and disposal sites and the adoption of new technologies. The already established DWMR initialized by the EMA that primarily addresses hazardous waste and substances will be used as a base for expansion to include all types of wastes. These procedures – together with public information, local resident liaison communities and regular disposal site monitoring – will guard against the “not-in-my-backyard-syndrome”. In general, the TTSWMA will develop operating and environmental performance standards for waste disposal sites that will ensure public health safety, environmental security and opportunities for the informal sector to recover materials.

4.2.3 Financing and Cost Recovery Mechanisms

The long term viability of any waste management service depends, among other things, on the ability of society to pay for those services. The TTSWMA will work with other stakeholders or, where appropriate, will act to ensure financing and cost recovery frameworks are appropriate to the long term viability of waste management systems. It will also support private sector participation in the waste management sector as a tool to achieving this objective. The TTSWMA therefore has an interest in seeking and ensuring that there is adequate allocation and proper management of these resources.

Monies for financing waste management facilities may come from the following sources:

- Allocations/fees from existing domestic sources;
- Deposit/refund mechanisms, environmental taxes/levy, disposal fees and tipping fees;

- Contributions from importers, distributors and manufacturers of products that become waste;
- The international community, as either loans or grants;
- Savings from efficiencies achieved in existing waste management systems;
- Private sector waste management service providers by way of certification, permits and licensing charges.
- Green Fund

The TTSWMA will work with the LGAs, the THA, the international community, the private sector and other stakeholders to facilitate the financing of waste management facilities consistent with national priorities as reflected in this policy.

The long-term sustainability of waste management facilities requires that cost recovery frameworks be in place so as to ensure the proper operation and maintenance of those facilities. The TTSWMA will work with the LGAs, the THA and other relevant government agencies and stakeholders, to ensure that:

- Legal and institutional arrangements for the financing and recovering of costs for waste management are in place at national and local levels;
- Economic instruments are applied, as appropriate, for the purposes of minimising waste generation and for encouraging desired waste management behaviours and actions.
- Accounting, budgetary and management systems are in place at the local level to support effective implementation and efficient operation of municipal solid waste management services, private sector contracting, cost recovery systems and performance monitoring;
- Waste management technologies – and their financing and cost recovery requirements – are appropriate and affordable to local requirements.
- Sources of investment finance, and particularly grants and concessional financing are appropriately assessed to ensure that they provide acceptable conditions. Also the financial implications should be within the capacity of the local entity and the country to repay;

- Operational funding requirements and recurrent funding sources are identified before investment funds are committed;
- A portion of the costs to be recovered from a waste management system be paid directly by users, within the overall context of ability to pay; this proportion should be higher for industrial, commercial and institutional waste generators than for householders.

4.2.4 Incentives

This provides a parallel approach to the command and control mechanism by allowing generators to make choices driven by award and reward systems. It is also intended to encourage private sector investment in the waste minimization business where they stand to accrue benefits from engaging in the improvement of waste management practices. Some of the incentives for consideration will include short and long term tax holidays, subsidies on the interest of loans acquired for the development of waste diversion and minimization systems, rebates on waste disposal savings attributed to diversion activities and long term leases on properties also used to develop waste diversion systems.

4.2.5 Private Sector Participation

The Government will support the participation of the private sector in waste management in two ways:

- through the participation of importers, distributors, industrial entities and manufacturers of products that become waste;
- through the participation of waste management service providers in operating and financing waste management facilities and systems.

The policy of the TTSWMA with respect to importers, distributors and manufacturers of products that become waste has been addressed through waste minimization supported by GRSs. As a first priority the TTSWMA will engage these sectors to participate in consultations on the management of packaging waste.

The government will support the participation of private sector waste management service organizations where these organizations are technically and financially competitive with the public

sector. In particular, the TTSWMA will work with the LGAs, the THA and other public and private stakeholders to ensure that the participation of private sector organizations in the waste management sector is undertaken in the context of:

- Private sector service organizations being considered a tool through which the objectives of this policy may be met;
- Legal, institutional and financial frameworks supportive of private sector service organization participation in the waste management sector;
- Open competition, transparency and accountability;
- Equitable application of contractual obligations;
- Consideration of the social impacts associated with the participation of private sector service organizations in the waste management sector, and mitigation of negative social impacts as appropriate.

4.2.6 Community Participation,

Waste management systems must meet local community needs and priorities if they are to be effective. Accordingly, solid waste management decisions must be informed by community perspectives as well as by technical analysis. This approach encourages participation and enhances the efforts of waste managers as they seek new innovative ways to provide effective and efficient services to the community

4.2.7 Public Education and Awareness

Education and awareness also form the foundation of policy tools where all the stakeholders understand the need for retirement of existing habits so as to embrace new and innovative approaches offered by the policy. A series of direct and sustained national education and community participation programmes will be developed to engage all target groups and to reinforce the importance of solid waste minimization and diversion through reduction, reuse and recycling.

In the first instance primary schools through curriculum structuring will be targeted as the key change agents that will influence the habits of the older generation. Young people will be nurtured to develop habits that support “best practices” in the waste diversion initiatives where appropriate responsibility and behavior will precede misguided disregard for the environment.

The private sector through the various commercial and manufacturing associations will also be encouraged to participate as partners in bringing about change in the workforce that they engage. Corporate mandates and directives could begin to inculcate a new culture towards waste diversion, where labour will appreciate and embrace this national initiative in defense of the environment.

The TTSWMA will therefore work with the LGAs, THA and MTD, non-governmental organizations, community organizations and other stakeholders in order to understand and respond to community priorities in solid waste management. In this context, the TTSWMA will work to ensure:

- A participatory approach to solid waste management, in which all affected stakeholders have the opportunity to participate in solid waste management decision-making;
- Two-way communication, in which information and ideas are exchanged between government and community stakeholders at the national and local levels;
- Public awareness programmes that effectively communicate waste management issues and initiatives, where the media is also engaged as part of strengthening the messages;
- Communication with target audiences that use communications tools appropriate to those audiences;
- Ongoing feedback mechanisms that include responses to complaints and information on significant changes that can affect solid waste management;
- Monitoring and evaluation of communication programmes and interventions.

4.2.8 Legal Framework

The government will adopt a legal framework appropriate to achieving the objectives and implementation of the actions identified in the policy. Framework legislation will therefore be adopted that establishes:

- The overall role of a TTSWMA within the solid waste management sector;

- The long term focus on minimising waste generation together with achievable targets and phased timing for recovering value from waste;
- A date by which municipal corporations will identify uncontrolled disposal sites in their jurisdiction and additional dates by which local entities must upgrade or close their uncontrolled sites in their jurisdiction. The establishment of new sites and systems, and the upgrade or closure of existing sites will be done within the context of an Integrated Solid Waste Management Plan (ISWMP) prepared in consultation with key stakeholders.
- Scheduled submission of plans by the LGAs and the THA will be required within the context of a ISWMP prepared by the TTSWMA. These plans will respond to the objectives of the policy, identify implementable mechanisms while addressing the financing, cost recovery, institutional and other frameworks necessary to implement the plan. It will also address the waste management facilities and systems to be developed, and the role, if any of private sector waste management service providers. Also included will be the scheduling of waste characterization studies, with the resulting strategies to manage the collection, treatment and disposal of special wastes and agricultural wastes.
- The process that should be used to establish the plan identified above.
- The establishment of a new public/private entity that creates a forum through which importers, distributors, manufacturers and industrial sector entities will participate in decisions regarding the management of their products when they become wastes as part of the recovery and recycling industry.
- The responsibility of the TTSWMA to issue licenses and permits for waste management facilities and major equipment, to be operated in accordance with requirements set out in licenses and permits requirement of the DWMR 2008.
- Requirements for the application of social and environmental impact assessment in support of waste management facilities and systems;
- Economic incentives and measures that will stimulate a search for or the development of pollution control technologies by the manufacturing and industrial sectors in support of desired waste management outcomes;

- The “polluter pay” and “user pay” principles with respect to solid waste management;
- Penalty and liability provisions in instances where individuals or organisations contravene legal requirements;
- The basis for local entities to undertake cost recovery and to retain private sector waste management services;
- The institutional structure through which to deliver waste management services;
- The establishment of performance indicators to measure system efficiency.

Legislation will also be developed under TTSWMA that will identify waste management standards and the schedule of financial contributions of importers, distributors, industrial entities and manufacturers of products that become waste together with the institutional framework through which they will participate in the management of those contributions. Additional legislation to provide for effective integrated waste management systems will be developed over time under the authority of the framework legislation.

This approach will provide focus and coordination to the upgrading of solid waste management systems, while at the same time provide flexibility in how this policy is implemented.

4.2.9 Capacity Building

Implementation of this policy will require broad-based capacity building at the level of national institutions, local entities, private sector and non-governmental organizations. The TTSWMA will consult with stakeholders and provide capacity development opportunities at national and local levels through which all stakeholders can acquire the knowledge and skills necessary for the effective implementation of this policy. Partnerships will also be established with tertiary education institutions to structure an appropriate academic curriculum to meet the growing need for certified practitioners in the solid waste management industry. Key capacity development needs will include the following-

- Disposal and collection system design;
- Conduct of waste characterization studies;
- Standards, compliance and enforcement techniques;

- Developing economic instruments for desired behaviours and actions;
- Accounting, financing and cost recovery mechanisms and systems for capital acquisition, and also operations and management ;
- Private sector participation in the delivery of waste management services;
- Community participation;
- Education and awareness;
- Developing waste minimization and diversion programmes;
- Assessing waste treatment and recycling technologies.

4.2.10 Monitoring, Evaluation and Review

The established policy will be revisited every five years so as to test the success of the vision, goals and objectives targeted during implementation. The monitoring and evaluation will be done against a series of criteria that would effectively measure the level of success so that lessons learnt are documented, modifications needed are addressed and responses to current demands are fulfilled.

This activity will ensure that:

- a. The review is done every five years against a set of sound environmental, economic and social criteria and performance indicators;
- b. The Trinidad and Tobago Solid Waste Management Authority is established under a National Solid Waste Management Authority Act;
- c. A Resource Recovery Fund is established;
- d. The policy implementation and system development adhere to relevant national and international conventions and treaties;
- e. Information and data gathering from the review are adequately documented for future reference and reported to the appropriate evaluation committees established by Parliament and the Cabinet.

- f. There is an established feedback mechanism so that all stakeholders can be informed through the appropriate communication media regarding the status of policy implementation, system improvements and future developments.
- g. The Advisory Committee is established as a forum for key stakeholder participation in integrated solid waste management planning.
- h. Specific solid waste diversion targets are met.
- i. Measurable initiatives are established to influence national societal behavior changes through comprehensive education and awareness programmes.
- j. The general public can provide inputs to the policy review process.

5.0. PARALLEL SUPPORT FOR IMPLEMENTATION

Implementation of the solid waste management policy will follow best industry practices in relevant aspects of policy implementation. The implementation of this policy will also require the involvement of all relevant government ministries and agencies. Accordingly, the government shall address implementation through the incorporation and integration of elements of this policy into existing and proposed sectoral policy by way of revision where applicable, as well as facilitating implementation through the drafting and amendment of relevant legislation.

The implementation of this policy shall be coordinated by TTSWMA in consultation with MOLG, LGAs, the THA and key public and private sector entities. It is envisaged that the implementation of this policy will lead to the development of relevant plans, programmes and projects implementable over defined time periods.

Implementation of the above policy will require supporting actions from:

- national land use and physical development planning;
- related national policies;
- financing mechanisms;
- legislation;
- a communication strategy.

5.1 Land Use and Physical Development Planning

Solid waste management will be recognized as an integral part of land use and physical development planning. Land use and physical development policies and plans will incorporate the objectives of the solid waste management policy, to include other development requirements such as the Certificate of Environmental Clearance of the EMA and the approval processes of the Town and Country Planning Division. Adherence to these established physical plans will become significant where disposal and transfer station site selections are contemplated.

5.2 Relevant National Policies and Codes of Practice

The following relevant policies will also lend support to the implementation process.

- the Medium Term Policy Framework 2011 to 2014,

- National Environmental Policy,
- Renewable Energy Policy,
- Climate Change Policy,
- Tourism policy, and
- Code of Practice for Biomedical Waste Management

They will integrate issues relating to solid waste management and draw reference to the existing policy. The GOTT proposes to undertake within two years of adoption of this policy a process to establish a Solid Waste Management Authority to administer the coordination and implementation of solid waste management in Trinidad and Tobago.

5.3 Financing Mechanisms

GOTT will ensure sustainable financing of solid waste management through:

- creation of a Resource Recovery Fund to address operations and management financing relating to recovery and recycling services, incentives and deposit-refund schemes;
- timely allocations of budgeted financing for capital, operations and research and development expenditures to government agencies responsible for solid waste management;
- application of appropriate fees, payments for services, taxes, and penalties and charges for offences;
- providing incentives to private, NGOs and CBOs for recycling initiatives that coincides with other fiscal incentives;
- maximizing global benefits relevant to Trinidad and Tobago from carbon neutrality initiatives;
- enabling public sector/private sector partnerships in recycling;
- extending access to the Green Fund for wider participation in solid waste management.

5.4 Legislation

The existing legislative framework will be revised and laws and regulations will be developed to support implementation of the National Solid Waste Management Policy. Government will take steps to:

- (i) address the statements in the National Solid Waste Management Policy through the revision of the Litter Act and other related laws and regulations;
- (ii) make amendments to the Town and Country Planning Act (Chap. 35:01) that will require developers of multi unit structures and housing developments such as “gated” communities, to make provisions for solid waste separation, storage and collection facilities;
- (iii) Give legislative support to the objectives of the policy by developing new laws and regulations. New legislation will include:
 - The National Solid Waste Management Authority Act ;
 - Establishing a Resource Recovery Fund managed by the TTSWMA;
 - Establishing fees for service that would enable the required revenue generation;
 - Structuring appropriate fines as disincentives for poor solid waste management practices;
 - Development and scheduled revision of Integrated Solid Waste Management Plans as tools for strategic planning.

5.5 Communication Strategy

A policy is restricted if it does not move from rhetoric to a realistic implementation stage. It has to facilitate development and implementation of related plans, programmes and projects. It has to receive buy-in and support from the general population through an engagement process that elicits interest and participation by all stakeholders. It has to clearly convey the benefits of the policy so that they can be identified, received and accepted. It also has to stimulate a change in behavior where there is a desire to adopt a “best practices” approach.

A communication strategy has been developed at **Appendix 3** to effectively convey the vision, goal and objectives of the policy and also detail the roles and responsibilities expected of the stakeholders

it guides. It will be a tool to lend support to the implementation process. The strategy will address but not be limited to the following objectives:

- Build awareness of the policy among a wide group of stakeholders;
- Secure the commitment of a defined group of stakeholders to the vision and goals of the policy;
- Influence specific policies and policymakers to act on the key issues in a timely basis;
- Encourage participation by all stakeholders within the population.

6.0 THE WAY FORWARD

Doing nothing is not an option. Trinidad and Tobago must develop a sustainable system to manage solid waste. Concerns have been expressed with regards to rising costs, increasing waste volumes and the imminent saturation of the existing landfill sites. These conditions continue in the presence of a consumption-led lifestyle that requires limited responsibility for the real cost of solid waste management.

Pivotal to the success of the goals of the policy will be the level of responsibility assumed by all citizens. GOTT must take the lead and encourage the public to take ownership. Every generator must appreciate the real cost of achieving “best practices” in solid waste management so that the costs could be shared equitably. Residential generators will have an opportunity to contribute to good practices through mechanisms such as the deposit/refund systems and the commercial and industrial sectors have to assume responsibility through the GRSs.

The policy calls for a wide range of actions that challenges the status quo and demands responsible behavior that would ensure a safer environment for future generations. It is the working of a partnership between GOTT and the rest of the population.

APPENDIX 1

LIST OF RELEVANT POLICIES, TREATIES AND CONVENTIONS

- Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters
- Draft Policy for the Regional Corporations on Municipal Solid Waste Management -
- Kyoto Protocol to the United Nations Framework on Climate Change
- Montreal Protocol on Substances that Deplete Ozone Layer
- National Climate Change Policy (Draft)
- National Environmental Policy 2006
- National Forest Policy 2011
- National Health Policy (Working Document)
- Renewable Energy Policy (Draft)
- Medium Term Policy Framework 2011 to 2014
- Protocol of 1978 of the International Convention for the Prevention of Pollution from Ships, 1973, MARPOL 73/78
- Public Health Policy (Draft)
- Stockholm Convention on Persistent Organic Pollutants
- United Nations Convention on Desertification

APPENDIX 2

GLOSSARY OF TERMS

Diverted material

Anything that is no longer required for its original purpose and, but for commercial or other waste minimisation activities, would be disposed of or discarded.

Basel Convention

An international agreement on the control of transboundary movements of hazardous wastes and their disposal, drawn up in March 1989 in Basel, Switzerland, with over 100 countries as signatories.

Biodegradable material

Any organic material that can be broken down by microorganisms into simpler, more stable compounds. Most organic wastes (e.g., food, paper) are biodegradable.

Bulky waste

Large wastes such as appliances (white goods), furniture, and trees and branches that cannot be handled by normal MSW processing methods.

Collection

The movement of wastes from residences, businesses, or a collection point, to a vehicle, for transport to a processing, transfer, or disposal site.

Commingled

Mixed post-consumer items that are collected together as municipal solid waste.

Compost

A soil conditioner also called humus and may be used as a fertilizer.

Composting

Biological decomposition of solid organic materials by bacteria, fungi, and other organisms into a soil-like product.

Construction and demolition debris

Waste generated by construction and demolition of buildings, such as bricks, concrete, drywall, lumber, miscellaneous metal parts and sheets, packaging materials, etc.

Disposal

The final handling of solid waste, usually in a landfill, following collection, processing, or incineration.

Diversions

The re-direction of post-consumer items away from final disposal for reuse, composting or recycling.

Hazardous waste

Materials that are flammable, explosive, oxidizing, corrosive, toxic, ecotoxic, radioactive or infectious. Examples include unused agricultural chemicals, solvents and cleaning fluids, medical waste, and many industrial wastes.

Household hazardous waste

Residential, such as paints and some cleaning compounds, that are toxic to living organisms and/or the environment.

Incineration

The process of burning solid waste under controlled conditions to reduce its weight and volume, and often to produce energy.

Inorganic waste

Waste composed of material other than plant or animal matter, such as sand, dust, glass, and many synthetics.

Integrated solid waste management

Coordinated use of a set of waste management methods, each of which can play a role in an overall national solid waste management plan.

Landfilling

The planned final disposal of solid wastes in a controlled fashion at a permanent landfill location.

Leachate

Liquid (which may be partly produced by decomposition of organic matter) that has infiltrated a landfill or a compost pile and has accumulated bacteria and other possibly harmful dissolved or suspended materials.

Materials recovery

Post-consumer materials that can be reused or recycled.

Materials recovery facility (MRF)

A facility for recovering and separating commingled recyclables by manual or mechanical means.

Methane

An odorless, colorless, flammable, explosive gas, CH₄, produced by anaerobic decomposition of municipal solid waste at landfills.

Municipal solid waste

Solid waste generated except industrial and agricultural wastes that may include construction and demolition debris and other special wastes that may enter the municipal waste stream.

Organic waste

Includes garden waste, kitchen waste, food process wastes, and sewage sludge.

Post-consumer materials

Material following initial use which may be sold or discarded as wastes.

Producer responsibility

A system in which a producer of products or services adopts a product or service life cycle approach that takes responsibility for the waste that results from the products or services marketed.

Recyclables

Items that can be reprocessed into feedstock for new products. Common examples are paper, glass, aluminum, corrugated cardboard and plastic containers.

Recycling

The process of transforming materials into raw materials for manufacturing new products, which may or may not be similar to the original product.

Refuse

A synonym for solid waste.

Resource recovery

The extraction and utilization of materials and energy from wastes.

Reuse

The use of a product more than once in its original form, for the same or a new purpose.

Sanitary landfill

An engineered method of disposing of solid waste on land, in a manner that meets most of the standard specifications, including siting, site preparation, leachate and gas management and monitoring, compaction, complete access control, record-keeping, daily cover schedules and closure and post closure plans and management.

Solid Waste

A "solid waste" is defined as any discarded material that is abandoned by being disposed of, burned, incinerated or recycled and characterized physically by being a solid, liquid, semi-solid, or container of gaseous material.

Source separation

Setting aside of compostable and recyclable materials from the waste stream before they are collected with other municipal solid waste to facilitate reuse, recycling, and composting.

Special wastes

Wastes that are not defined as municipal solid waste but may enter the waste stream for disposal (i.e. household hazardous waste, construction and demolitions waste, industrial waste, tyres, oils, household batteries, medical waste).

Tipping fee

A fee for disposal of waste at a landfill, transfer station, incinerator, or recycling facility.

Transfer station

A facility at which municipal solid waste from collection vehicles is consolidated into loads that are then transported by larger trucks or other means to more distant final disposal facilities.

Waste characterization study

An analysis of samples from a waste stream to determine its composition.

Waste

Any item disposed of or discarded, and includes a type of waste that is defined by its composition or source (for example, organic waste, electronic waste, or construction and demolition waste); and may also include any component or element of diverted material, if the component or element is disposed of or discarded.

Waste minimisation

Reduction of waste and the reuse, recycling and recovery of waste and diverted material.

Yard waste

Leaves, grass clippings, prunings, and other natural organic matter discarded from yards and garden

APPENDIX 3

COMMUNICATION STRATEGY