



PARLIAMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO

TENTH PARLIAMENT

NINTH REPORT OF THE JOINT SELECT COMMITTEE ON MINISTRIES, STATUTORY AUTHORITIES AND STATE ENTERPRISES (GROUP 2)

ON

THE TRINIDAD AND TOBAGO SOLID WASTE MANAGEMENT COMPANY LIMITED (SWMCOL)

Ordered to be printed with the Minutes of Proceedings
and Notes of Evidence

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THE COMMITTEE

Establishment

Section 66 of the Constitution of Trinidad and Tobago declares, that not later than three months after the first meeting of the House of Representatives, the Parliament shall appoint Joint Select Committees to inquire into and report to both Houses in respect of Government Ministries, Municipal Corporations, Statutory Authorities, State Enterprises and Service Commissions, in relation to their administration, the manner of exercise of their powers, their methods of functioning and any criteria adopted by them in the exercise of their powers and functions.

Motions related to this purpose were passed in the House of Representatives and Senate on September 17, 2010 and October 12, 2010, respectively, and thereby established, inter alia, the *Joint Select Committee to inquire into and report to Parliament on Ministries with responsibility for the business set out in the Schedule as Group 2, and on the Statutory Authorities and State Enterprises falling under their purview with regard to their administration, the manner of exercise of their powers, their methods of functioning and any criteria adopted by them in the exercise of their powers and functions.*

The business as well as the entities which fall under the purview of your Committee is attached as *Appendix I.*

Membership

The current membership of your Committee is as follows¹:

- Dr. James Armstrong - Chairman
- Dr. Victor Wheeler - Vice Chairman
- Dr. Tim Gopeesingh, MP
- Mr. Clifton De Coteau, MP
- Dr. Bhoendradatt Tewarie
- Mr. Collin Partap, MP
- Mr. Kevin Ramnarine
- Dr. Lincoln Douglas, MP
- Mrs. Lyndira Oudit

¹ Dr. Bhoendradatt Tewarie was appointed to this Committee w.e.f. September 09, 2011

- Ms. Alicia Hospedales, MP
- Mr. Fitzgerald Jeffrey, MP
- Dr. Lester Henry

Secretariat Support

Mr. Ralph Deonarine	-	Secretary
Mrs. Nataki Atiba- Dilchan	-	Secretary
Mrs. Jacqueline Phillip-Stoute	-	Secretary
Ms. Candice Skerrette	-	Assistant Secretary
Ms. Candice Williams	-	Graduate Research Assistant

Powers

Standing Orders 71B of the Senate and 79B of the House of Representatives delineate the core powers of the Committee which include *inter alia*:

- to send for persons, papers and records;
- to adjourn from place to place;
- to appoint specialist advisers either to supply information which is not otherwise readily available or to elucidate matters of complexity within the Committee's order of reference; and
- to communicate with any other Committee of Parliament on matters of common interest.

PREAMBLE

It is the collective view of the Committee that outstanding issues raised which remain incomplete or inadequately addressed necessitates further examination of the Trinidad and Tobago Solid Waste Management Company Limited (SWMCOL).

The Committee therefore reserves the right to recall SWMCOL and to engage the entity under Standing Orders 71 of the Senate and 79B of the House of Representatives.

INTRODUCTION

Background

In 1983, Trinidad and Tobago Solid Waste Management Company Limited (SWMCOL) was mandated with the responsibility of managing three (3) major waste disposal sites namely, Beetham Landfill, Guanapo Landfill and Forres Park Landfill.

In an effort to safeguard the environment, this mandate was expanded from management of landfills in the year 2003 to include the preservation and upgrade of the environment. As a result, SWMCOL now offers a wide range of waste management, environmental protection and consultancy services. Their services include:

- Waste Collection
- Waste Disposal
- Management of Landfills
- Liquid Waste Services
- Bulky Waste Services
- Portable Products (toilets, urinals, sinks)
- Faecal Waste Disposal
- Recycling (paper, dry cell batteries)

In an attempt to provide these services, SWMCOL manages a number of programmes. These include:

- The Community-based Environmental Protection and Enhancement Programme (CEPEP) responsible for cleaning, enhancing and beautifying the environment;
- The Community Environmental Improvement Initiative (CEII) responsible for educating the general public on the need to conserve the environment;
- The Dead Animal Removal Team (DART) which oversees the removal and disposal of animal carcasses from the roads;
- “I LOVE MY BEACH PROGRAMME” which aims to help with the cleaning of the nation’s beaches.

Most recently, on 17th September, 2011, SWMCOL spearheaded a clean-up exercise at Indian Bay, Mayaro. This was part of “The International Coastal Clean Up” which is the world’s largest volunteer-based conservation project to clean up the marine environment and make the oceans and other waterways more resilient to the harmful effects of pollution, climate change and damage to habitat.

Objectives of the Inquiry

- To ascertain the challenges and effectiveness of each of the programmes managed by SWMCOL with particular focus on :
 - the use of new technologies for waste disposal
 - systems to deal with illegal dumping sites
 - conversion of landfills from open dumping sites into managed landfill operations

- security of landfills and reduction of scrap dealing activities
- disposal of potentially harmful toxic waste e.g. computer, cell phone , motor vehicle and appliance parts
- To ascertain the type of relationship that exists between the Company and the Tobago House of Assembly (THA) and whether similar programmes are successfully undertaken in Tobago.

Conduct of the Inquiry

On Friday December 9, 2011, representatives of SWMCOL were invited to a public hearing. Prior to this, notice was given as to the general objectives of the inquiry and written submissions were requested from the Company. These responses provided the basis for the supplementary questions pursued at the hearing.

SWMCOL was represented at the meeting of Friday December 9, 2011 by:

Mr. Stephen Creese	Deputy Permanent Secretary, Ministry of Local Government
Mr. Uche Osuji	Ag. CEO/ General Manager, Integrated Waste Systems
Mr. Richard Warren	Manager, Wastewater Operations
Ms. Keisha Rogers	General Manager, Operations
Mrs. Tricia Gilbert-Bain	Corporate Secretary

Several issues raised at the hearing warranted detailed responses which were subsequently submitted in written form to your Committee. The Committee agreed that follow up discussions into the administration and operation of SWMCOL was necessary and as a result, it was decided that a second meeting should take place. The second meeting took place on Wednesday March 28, 2012 but with great difficulty since there were a number of re-scheduled meetings prior to this:

- On Friday February 10, 2012 – meeting was aborted due to lack of quorum of the Committee
- On Friday March 16, 2012 – meeting was postponed due to the unavailability of critical members of SWMCOL's senior management team

SWMCOL was represented at the meeting of Wednesday March 28, 2012 by:

Mr. Suruj Baboolal	Chairman
Mr. Kavir Ramjattan	Deputy Chairman
Mr. Ricky Ramkissoon	Director
Mr. Josh Peters	Director
Mr. Neil Balgobin	Director
Mr. Shiva Hardit-Singh	Ag. Chief Executive Officer
Mr. Uche Osuji	General Manager, Integrated Waste Systems
Mr. Rhyan Hanoomansingh	General Manager, Communications

Ms. Keisha Rogers
Mr. Frank Hernandez

General Manager, Operations
General Manager, Finance

The draft of this Report was considered and approved with amendments at the meeting of the Committee held on Friday February 15, 2013.

The Minutes of these meetings of the Committee with regard to this inquiry are attached as *Appendix II*.

The Notes of Evidence of these hearings held on Friday December 9, 2011 and Wednesday March 28, 2012 are attached as *Appendix III*.

THE EVIDENCE

Introduction

The management of SWMCOL is governed by a Board of Directors and four (4) General Managers. Its mandate states that they are charged with the responsibility of dealing with the final disposal of solid waste. It falls under the aegis of the Ministry of Local Government but it is registered as a public limited liability company.

Vision and Mission

SWCOL's vision is to be the premier environmental services company in the Caribbean Region. SWCOL's mission statement is, "Provision of quality waste management and environmental services that will ensure the protection and enhancement of the environment."

Budgetary Allocation

SWCOL's budgetary allocation for the period October 2011 to September 2012 was a government subvention of seventy-five (75) million. Approximately fifteen percent (15%) is spent on administrative purposes. *Refer to Table 1.*

Table 1 – Estimated Expenditure on Operations & Maintenance of Landfill Sites & Transfer Stations for the period October 2011 to September 2012

Site	Total
Beetham Landfill	
Equipment Rental	16,139,123
Landfill Maintenance	4,627,600
Security	2,520,211
Sub-Total	23,286,934
Forres Park Landfill	
Equipment Rental	15,174,549
Landfill Maintenance	7,127,700
Security	2,609,194
Sub-Total	24,911,443
Guanapo Landfill	
Equipment Rental	11,266,320
Landfill Maintenance	3,781,200
Security	1,024,898
Sub-Total	16,072,418

Transfer Station & Material Recovery Facilities	
Equipment Rental	
Operation & Maintenance	27,600
Security	1,211,309
Sub-Total	1,238,909
Administration	
Expenses	9,826,456
Sub-Total	9,826,456
Total Expenditure	\$75,336,160

Human Resources

SWMCOL is divided into five (5) divisions. The number of staff members for each division within SWMCOL. Refer to Table 2.

Table 2 – Number of Employees

Division	Number of Staff Members
Chairman's Office	8
Finance and Corporate Services	34
Operation	125
Communication, Sales and Marketing	14
Integrated Waste Management	59
	240

Waste Categories under SWMCOL

Although a total of 700 000 tonnes of waste are produced per year within Trinidad and Tobago, SWMCOL only operates within a narrow band of one-third (1/3) of total waste consisting of industrial, commercial and institutional waste. The other two-thirds (2/3) of total waste is collected by regional corporations. Additionally, SWMCOL operates within approximately fifty-five percent (55%) of the general waste market of vacuum tanker and portable toilet services.

Organizational Structure

The Company's organizational structure can be seen in *Diagram 1* hereunder:

Diagram 1 – Organizational Structure

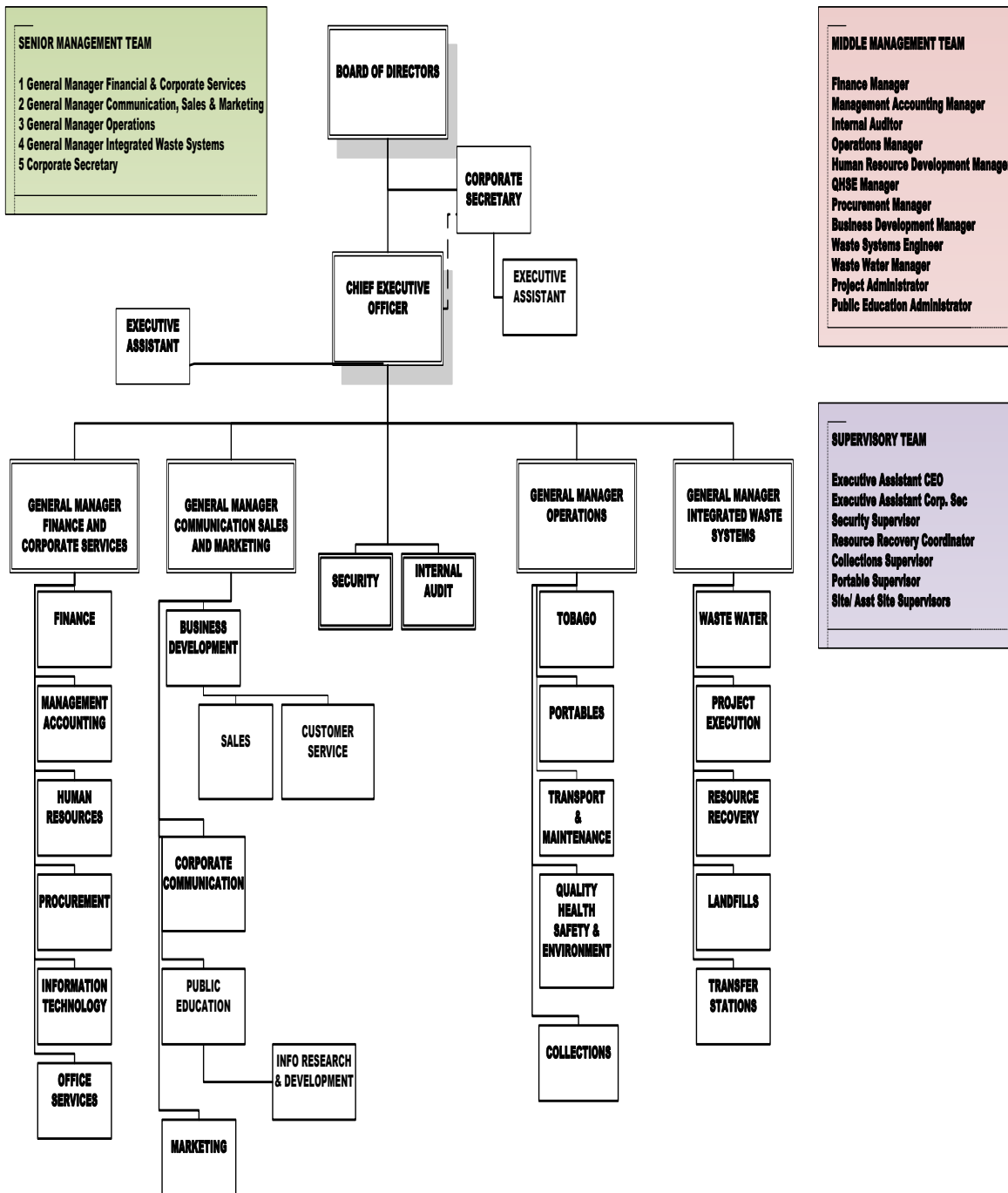


Table 3 – Remuneration Packages for Senior Management

Position	Salary	Travel Allowance	Cellular Phone
Previous Acting CEO	\$18,067 - \$29,050	\$2000	\$800
Salary			
Current CEO Salary	\$33,500	\$1500	\$1500
Middle Management	\$17,100-\$19,965	\$1500	\$400

Relationship with Board of Directors

SWMCOL's Board is currently guided by its mission statement and draft strategic plan. While the board of directors does not interfere with the daily operational affairs of the company, it focuses on ensuring that the Company fulfills its statutory and shareholder obligations.

Modern Landfill Site

A well-engineered sanitary site would have a leachate collection system, possibly a treatment system, make accommodation for proper venting of methane gas and carbon dioxide. Many civil engineering and hydrogeological considerations would be built into its design. Aesthetically, it would not have the visual appearance of a dumpsite, as it would not have any salvagers because it would not have anything of economic value at the site. There would be gas harnessing equipment to generate electricity for infrastructure, staff housing and vehicles.

Linkages between the DERT and ODPM Operations

The Disaster Emergency Relief Team (DERT) was formed by SWMCOL under the Community-based Environmental Protection & Enhancement Programme (CEPEP). The CEPEP Programme is now a separate company therefore DERT is no longer linked to SWMCOL.

Relationship between SWMCOL and the THA

SWMCOL has maintained a branch office in Tobago since the early 1990s and currently provides Commercial General Waste Collection Services, Commercial and Residential Vacuum Tanker (or Septic Tank Pump-Out) Services and Portable Sanitation (Restroom) Services.

At one time, the company was under contract to the THA to provide waste collection services to several districts on the island of Tobago. This arrangement came to an end in 2005. With the advent of the new Board of Directors at SWMCOL, a concerted effort has been made to strengthen the relationship between SWMCOL and the THA. Members of the Board visited Tobago in July 2011 and met formally to offer

Technical Support and Guidance to the THA with respect to waste management in Tobago. Follow-up visits have since been made.

SWMCOL recently re-established links with the THA to provide services. However, the THA handles all contracted services for waste in Tobago. SWMCOL is currently in the process of putting together a proposal for consideration by the THA with respect to their landfill site.

Relationship with other Agencies

SWMCOL has a working relationship with:

- All Municipal Corporations
- Ministry of Works and Infrastructure,
- Ministry of Transport,
- Environment Management Authority (EMA); and
- The Water and Sewerage Authority of Trinidad and Tobago (WASA).

In addition, SWMCOL has collaborated with the Town and Country Planning Division in relation to approvals required for a transit system in collaboration with the Environmental Management Authority (EMA) for site visits of new landfill sites.

Waste to Energy Proposals

SWMCOL has received correspondence from persons interested in the process of waste-to-energy. Initial evaluations are being conducted and it was presented to the Board of Directors on August 16, 2012.

With respect to used motor vehicle tyres, a draft Cabinet Note was prepared in March 2012 and the Permanent Secretary and Minister of Local Government requested that consultations are held with stakeholders before proceeding with the Note.

Closure of Landfill Sites

Landfill sites are generally closed when a landfill has been filled, or when the landfill continually affects the surrounding environment. The closure procedure for landfills has been adopted from the World Bank Document, "Solid Waste Landfills in Middle and Lower Income Countries: A Technical Guide to Planning, Design and Operation." Money spent on the closure and rehabilitation of Toco and Cushe landfill sites amounted to \$520,312.50 and \$663,062.50 respectively.

Currently, any plans with respect to the Guanapo Landfill were not seen to completion. However, at the time the 1980 Solid Waste Master Plan and the 1998 Visual Assessment of Solid Waste Disposal Sites were completed, it was thus suggested that the landfill be closed by the year 2001 and a transfer station be considered as post closure usage of the site. The 1980 pre-design reports on the Guanapo and Beetham Landfill are included in the *Appendix IV*.

Challenges to site closure include limited manpower and financial resources, location challenges and insufficient implementation of existing environmental laws and limited legislative statutory authority.

Further challenges include the identification of a new site, land availability issues, policy requirements, receiving Environmental Management Authority (EMA) approvals, planning approvals, high financial resources necessary for the construction of a new landfill site and the likelihood that other illegal sites may crop-up. Further, the criteria for identifying an alternative site is based on geology characteristics, soil characteristics, other scientific criteria and a public consultation process. The gestation period for new sites is typically three (3) to four (4) years and the rehabilitation period for old sites is approximately two (2) years.

Rehabilitation of Landfill Sites

SWMCOL is currently pursuing, "Closure and Rehabilitation of Old Landfills" as a project under the PSIP. Monies spent to date on this project were \$1,450,937.50 out of the \$2,850,000.00 received to date. Thus far, SWMCOL has successfully rehabilitated the Old Toco Road Landfill Site as well as the Old Cushe Landfill Site.

Other sites for rehabilitation have already been identified, and these include Princes Town (located ¼ mile off the Naparima/Mayaro Road, along Malgretoute Road), Tabaquite, Cedar Grove (Mayaro), San Fernando (near Roodal Cemetery), Flannagin Town (Caroni), Shipping Road (Felicity), Parrylands (Santa Flora), Marabella and Cedros. The Princes Town site operations are currently closed and based on a document prepared by Planning Associates Limited and Stanley Associates Engineering Limited entitled "Evaluation of Existing Disposal Sites and Practices" of 1980 it was estimated that the site had an estimated five (5) year lifespan remaining.

Public Education Drive

There are future plans with Trinidad and Tobago National Library and Information System Authority (NALIS) regarding the use of its mobile library facilities. The Charlie Education Programme had to be terminated due to lack of finances. Other initiatives include appearances on radio programmes.

However, in August 2011 the Public Education Department (PED) commenced sustainable initiatives to educate the public. Notwithstanding this, SWMCOL has been involved in schools through lectures and presentations, partnered with the Rotary Club of San Fernando and Atwell's Educational Institute, participated in public exhibitions hosted by WASA, RHAND Credit Union and the Town & Country Planning Division and held meetings with environmental non-governmental organizations in Tobago.

Selection of Contractors

The evaluation committee of SWMCOL makes initial recommendations on the selection of contractors based only on ability and pre-established criteria. The Ministry, in conjunction with Regional Corporations make and convey the decisions of the Tenders Evaluation Committee with regard to the final award of contracts. The selected contractor then goes to the particular corporation and signs a contract with the Chief Executive Officer of the respective Regional Corporation. Under the existing laws there are no provisions for subcontracting.

Advisory Role with HDC

SWMCOL performs site visits to provide advice on the type of bins for apartments under the aegis of the Ministry of Housing and the Environment as well as other clients. SWMCOL and the Housing Development Corporation (HDC) are currently engaged in a contractual arrangement to dispose of General Waste accumulated within housing developments.

However, at a recent January 2012 meeting it was decided that a thorough needs assessment for waste management at all HDC housing developments. This assessment will inform the HDC, based on SWMCOL's expertise of the actual number of bins and any other requirements of each housing development required by HDC for each location, the size of the bins (cubic metres) recommended for the area and the frequency of service (HDC to provide relevant personnel to accompany SWMCOL personnel to conduct site visits and audit.

Biomedical Waste

The disposal of bio-medical waste is not under the purview of SWMCOL. Facilities are also needed for Biomedical Waste.

Challenges

The Use of New Technologies for Waste Disposal

Consideration has been given to the urgent need for a new Sanitary Landfill Site for the final disposal of Municipal Solid Waste (MSW). The location for a new sanitary landfill has not yet been finalized. Notwithstanding this, as at December 2012, SWMCOL has embarked on a concerted effort that would see the involvement of the Inter-American Development Bank in trying to provide a comprehensive solution towards a National Integrated Waste Management System (NIWMS)

SWMCOL had started a pilot project transfer station, intended to be part of the phased implementation of a National Transfer Station System. However, funding was not available and the Company was forced to close with the hope that the closure would be temporary. During the project period there was a reduction in the number of trucks going directly into the Beetham Landfill Site. Some of the challenges continued to be insufficient funding, land availability issues and current data from studies done to determine siting of transfer stations and operation of the stations.

SWMCOL continues to consider various options for waste-to-energy as part of the National Integrated Waste Management System for Trinidad and Tobago, however proper feasibility studies are needed to inform its viability. Notwithstanding this, consideration is also being given to implementation of a National Recycling Programme.

Management of Landfill Sites

This was done initially in the 1980s when SWMCOL first took over operations of the main disposal sites in Trinidad and Tobago. Over twenty (20) dump sites were closed and SWMCOL maintained operations of the three (3) major sites in Trinidad. These are Beetham, Forres Park and Guanapo. There is another landfill site, but, this is privately managed by the Point Fortin Borough Corporation. The following chronology of reports were also submitted for the Committee's attention.

Table 4 – Chronology of Plans for Guanapo Site

Date	Study / Report	Author / Produced For	Recommendations / Actions
February 1980	Evaluation of Existing Disposal Sites and Practices	- Planning and Stanley Associates Limited / Ministry of Health	<ul style="list-style-type: none"> - Purchase and maintain 500 ft buffer zone around site - Improve access road - Monitor leachate, ground-water and stream on bi-weekly basis to determine need to intercept all leachate and contain on site (or treat before discharge) - If aquifer isolation from site does not exist – close - Improved facilities and equipment should be provided - Salvagers should not be allowed access to the disposal site
August 1980	Predesign Package – Landfills and Transfer Stations	- Planning and Stanley Associates Limited / Ministry of Health	<ul style="list-style-type: none"> - Recommended to be one of the three major landfills serving Trinidad - Site building should be replaced with a new building with an area of 200 sq metres. The building would contain an office, lunchroom, sanitary facilities and space for equipment storage. - A weigh scale should be installed at the site in 1985 so that accurate waste quantity information is available for the larger area which will be served at that time. - Access road at the site needs to be upgraded - Sign should be erected with the following details – Name of Facility; Owner / Operator ; Hours of Opening; Site Instructions - Final site contours should direct runoff water westward to the creek and eastward to the drainage area on the east side of enlarged site - The creek to the west should be sampled once every 2 months both upstream and downstream of the landfill to check for leachate contamination - 3 Ground water monitoring wells should be established at the site which should be sampled every 6 months
August 1980	Master Plan for Integrated System	- Planning and Stanley Associates Limited / Ministry of Health	<ul style="list-style-type: none"> - Redevelopment and extension of the site to the North and East is planned, allowing for its continuation for 15-20 years
September 1980	Integrated Processing and Disposal System	- Planning and Stanley Associates Limited / Ministry of Health	<ul style="list-style-type: none"> - After Guanapo site is filled, it should be replaced with the new Carapo site - Groundwater and Surface water monitoring recommended for the Guanapo site
January 1982	Report on Soil Borehole Investigation - Guanapo	- Materials Testing &	<ul style="list-style-type: none"> - Soil types identified

Date	Study / Report	Author / Produced For	Recommendations / Actions
	Landfill	Surveying Services / Planning and Stanley Associates	
August 1982	Executive Brief: Take Over and Conversion of Guanapo Disposal Site to a Regional Sanitary Landfill	- Planning and Stanley Associates / SWMCOL	<ul style="list-style-type: none"> - Landfill design to include the reshaping of the topography to accommodate waste for 15 – 20 years - Provision of leaching facilities to prevent contamination of water sources - The training of personnel to properly manage the site, especially controlling personnel on site, making sure the equipment is functioning properly, while ensuring health and safety standards are maintained.
January 1983	Pre-Conversion Report Guanapo Sanitary Landfill	- Planning and Stanley Associates / SWMCOL	- Existing Site conditions identified
April 1983	Proposal for Water / Leachate Sampling and Analyses Guanapo Landfill Site	- Materials Testing & Surveying Services / Planning and Stanley Associates	- Regular sampling and analysis recommended
June 1983	Guanapo Landfill Perimeter Fence	- Planning and Stanley Associates / SWMCOL	- Fencing of entire site
October 1983	Operational and Development Programme at Guanapo Landfill Site	- Planning and Stanley Associates / SWMCOL	- Operational Plan developed
July 1983	Tender Document: Guanapo Sanitary Landfill Engineering Operations Design	- Planning and Stanley Associates / SWMCOL	- Site operations to be contracted out; to be operated based on Engineering Operations
July 1983	Guanapo Sanitary Landfill – Engineering Operations Design	- Planning and Stanley Associates / SWMCOL	<ul style="list-style-type: none"> - Planned programme of works for Site operations - Construction of a temporary leachate lagoon so as to arrest the leakage of leachate to the El Cedro river - Construction of spur leachate pipe, to assist in collecting and conveying leachate from the existing dump area, towards the lagoon - Construction of 2 surface water diversion ditches, to intercept runoff and to prevent it from reaching the excavations and landfilling operations - Construction of some of the peripheral ditch and drainage reserve to control on-site runoff

Date	Study / Report	Author / Produced For	Recommendations / Actions
October 1983	Evaluation of Tenders for Operation and Maintenance of Guanapo Landfill Site	- Planning and Stanley Associates / SWMCOL	- Evaluation of Tenders Submitted for the Operation and Maintenance of the Guanapo site
May 1996	Report on Waste Quantification and Characterisation Exercise at the Guanapo Landfill Site	- SWMCOL	- Quantities and Categories of wastes entering the site
July 1998	A Visual Assessment of the Existing Solid waste disposal sites in Trinidad and Tobago	- SWMCOL / PAHO; WHO	<ul style="list-style-type: none"> - Further improve the infrastructure at Guanapo. The lighting for night operations directly to the tip, a facility for vehicle washing, and truck scales are the main concerns for which there should be an increased budget - Further improve the operational items at Guanapo, with regard to monitoring incoming waste and testing the waste resources in the vicinity of the landfill sites for possible pollution - Guanapo site should be closed eventually and post closure measures implemented by the year 2001. A transfer station should be considered to accept the waste currently disposed at the site. - Budgets should be allowed for the necessary works at the landfill sites that are to remain open, to predict and monitor site life. This will require a formal design of the expected cuts and fills, a record of the as-built cut and fill patterns, and monitoring of the incoming wastes - Formal recycling programmes should be instituted on all the remaining sites with due regard especially to the concerns for public health and unhindered operations - Alternative solid waste management systems should include, but not be limited to, a mix of improved collection; transfer stations; reduce, reuse and recycle options; and landfilling - The reduce, reuse and recycle options should be supported by state incentives where necessary, to encourage the options as business ventures and, by extension, the adoption of the initiatives by the generators - Provide closure plans for all the landfills that continued in the short term; Guanapo, Toco, Point Fortin and possibly Beetham

Date	Study / Report	Author / Produced For	Recommendations / Actions
			<ul style="list-style-type: none"> - All systems should be supported by enacted legislation to encourage compliance from the generator to those responsible for the final act of disposal
November 1999	Trinidad Solid Waste Management – Preliminary Status Report 1	<ul style="list-style-type: none"> - Marshall Macklin Monaghan / SWMCOL 	<ul style="list-style-type: none"> - Closure of the Guanapo Landfill which would be replaced by a Transfer Station
January 2000	Trinidad Solid Waste Management – Draft Conceptual Design Report	<ul style="list-style-type: none"> - Marshall Macklin Monaghan / SWMCOL 	<ul style="list-style-type: none"> - A large transfer station to be located at the Guanapo Landfill
September 2006	Invitation to Tender – New Waste Management Facilities	<ul style="list-style-type: none"> - SWMCOL 	<ul style="list-style-type: none"> - Closure, Rehabilitation and Post Closure management of all existing solid waste disposal sites in Trinidad and Tobago

Security of Landfills

SWMCOL has hired private security for the landfill sites to control access to and activities on the landfill sites.

Disposal of potential harmful toxic waste

SWMCOL, under the PSIP has implemented actions for a category of hazardous waste, namely e-waste. This was supposed to engender the storage and collection of e-waste. Thus far monies spent are \$2,126,644.67 out of the \$3,420,000 received to date. Outlined below is a detailed breakdown outlining the dates monies were received and spent for e-waste collection.

YEAR	DATE	DESCRIPTION	INCOME	EXPENDITURE
2007-2008			420,000	
	Oct 07	East Caribbean Industries Limited		32,000
	Oct 07	East Caribbean Industries Limited		32,000
	Oct 07	Altex Construction Limited		59,316
	Nov 07	Altex Construction Limited		8,897
	Nov 07	East Caribbean Industries Limited		85,702
	Feb 08	East Caribbean Industries Limited		85,846
	Feb 08	East Caribbean Industries Limited		85,846
	Mar 08	Dover Waterproofing Technologied Ltd		126,500
	Apr 08	East Caribbean Industries Limited		85,846
	May 08	East Caribbean Industries Limited		85,846
	Jun 08	East Caribbean Industries Limited		85,846
	Jul 08	East Caribbean Industries Limited		42,851
	Aug 08	East Caribbean Industries Limited		42,851
	Sep 08	East Caribbean Industries Limited		42,861
	Sep 30		127,364	
		Sub-total		1029,573
2008-2009			1,500,000	
	Oct 08	East Caribbean Industries Limited		42,841
	Oct 08	East Caribbean Industries Limited		42,841
	Dec 08	East Caribbean Industries Limited		42,851
	Jan 09	East Caribbean Industries Limited		42,851
	Jan 09	East Caribbean Industries Limited		42,851
	Mar 09	East Caribbean Industries Limited		42,851
	Apr 22	East Caribbean Industries Limited		42,851
	May 14	East Caribbean Industries Limited		42,851

	May 15	East Caribbean Industries Limited		42,851
	June 30	T & T E C		2,969
	June 30	East Caribbean Industries Limited		42,932
	Aug 31	East Caribbean Industries Limited		42,851
	Aug 31	East Caribbean Industries Limited		42,851
		Sub-total		517,242
YEAR	DATE	DESCRIPTION	INCOME	EXPENDITURE
2009-2010			1,500,000	
	Oct 08	East Caribbean Industries Limited		43,143
	Nov 11	East Caribbean Industries Limited		43,691
	Dec 14	East Caribbean Industries Limited		43,304
	Dec 15	T & T E C		1,584
	Jan 07	AAJMS Company Limited		5,465
	Jan 07	East Caribbean Industries Limited		43,238
	Feb 09	East Caribbean Industries Limited		44,629
	Feb 28	T & T E C		1,276
	Mar 05	East Caribbean Industries Limited		43,770
	Apr 14	T & T E C		870
	Apr 16	East Caribbean Industries Limited		43,316
	May 12	East Caribbean Industries Limited		43,112
	Jun 11	East Caribbean Industries Limited		43,492
	Jun 17	T & T E C		665
	Jun 24	Pereira & Company Ltd.		4,876
	Jul 05	East Caribbean Industries Limited		44,033
	Aug 18	East Caribbean Industries Limited		43,554
	Sep 17	East Caribbean Industries Limited		42,906
	Sep 21	East Caribbean Industries Limited		42,906
		Sub-total		579,830
		TOTAL	3,420,000	2,126,645

Three (3) e-waste symposia were held in 2005, 2006 and 2008 and a facility was rented for the storage of e-waste for a short time. In addition, SWMCOL recently had an initiative with the Ministry of Housing and the Environment on a pilot project in one (1) municipality on dry recyclables.

SWMCOL is currently pursuing the disposal of potentially harmful waste under the PSIP. Three (3) of these are:

1. Evaluation Study for Hazardous Chemicals in Schools;
2. E-Waste Collection and Storage; and
3. Biomedical Waste Collection System.

Challenges include:

1. Initial response from schools is slow;
2. Schools do not have the capability for proper disposal of chemicals;
3. A suitable partner needs to be found for e-waste disposal to ensure that any e-Waste would be managed in an environmentally sound manner;
4. Proper inventory of e-waste; and
5. Additional research needs to be completed on Biomedical Waste disposal from both public and private facilities.

OBSERVATIONS/FINDINGS

Your Committee has found that SWMCOL is challenged to effectively manage its operations in the disposal of approximately one-third (1/3) of 700 000 tons of national waste per year. The inquiry of SWMCOL on December 9, 2011 was constrained as the majority of officials that appeared before the Committee had only five (5) months' or less work experience at the Company.

Records Management

Although both the Beetham and Guanapo sites were inherited and converted to landfills by SWMCOL, there has been a lack of consistent management records and statistics on its landfills since 1980.

Commercial Activities

SWMCOL generated approximately \$27.7 million profit from its commercial activities in 2010/2011. A breakdown of commercial income is listed in Appendix V. This is exclusive of the \$75 million in annual government subventions. SWMCOL owns a limited fleet of compactor trucks and vacuum tankers which serves commercial clients in the area of general waste and sewerage to supplement existing revenue. This existing income level does have the potential for growth, as officials admitted that commercial entities had successfully entered the waste management industry.

Waste Collection Rate

Approximately fifty percent (50%) of the waste managed by SWMCOL goes to Beetham and the other two (2) sites receive the rest. The existing system for the collection of national waste is approximately fifty to sixty percent (50-60%), there is a level of unaccounted waste.

Solid Waste Management Policies

The Ministry of Local Government had embarked upon a consultancy project to develop a national policy for dealing with waste resource, with an estimated completion date of January 2012.

The Request for Proposals (RFP) and other activities on the Integrated Solid Waste Resource Management Policy for Trinidad and Tobago are being formulated without the input of SWMCOL within the Ministry of Local Government. SWMCOL was not a part of the initial philosophy. The non-involvement of SWMCOL has raised the concerns of the Committee, considering that officials

admitted to past collaborations with the Ministry of Local Government in the area of procurement because SWMCOL had possessed the expertise.

Of grave concern is the fact that SWMCOL does not presently have a National Integrated Waste Management System. This system is a philosophy, a principle, an intent or vision that guides the operations of SWMCOL. There has never been an official or formal feasibility study for the commissioning of this particular system.

Waste Energy Proposals

Although proposals have been received in the area of waste energy, that has not been any official or formal feasibility study commissioned for any waste energy system. The low cost of natural gas as well as the fact that eighty percent (80%) of national waste can be recycled are arguments that favor a recycling industry rather than a waste energy system.

Notwithstanding this, there are factors that make a material recovery industry which separates, selects, packages and exports more feasible than a recycling industry. The existing percentage of recyclable waste (80 %) is not sufficient to build a recycling company and the facility would not be optimized.

Guanapo Landfill

Officials agreed that both the Guanapo and Beetham landfill sites should be closed. Indeed, most of the recommendations and actions (listed in “Table 4 – Chronology of Plans for Guanapo Site) were not implemented by SWMCOL.

The Guanapo Landfill has been in operation since 1964, and was managed by the County Council. SWMCOL took over operations of the Landfill in 1983 and has been managing the landfill since then. There were two (2) major assessments done of the site; one, the 1980 Solid Waste Master Plan and the other the 1998 Visual Assessment of Solid Waste Disposal Sites, done in collaboration with the Pan American Health Organisation (PAHO) and the World Health Organisation (WHO).

Rehabilitation of the Guanapo landfill site by the end of 2012 will lead to the establishment of five (5) to seven (7) transfer stations throughout Trinidad and Tobago to offset the potential collection and transportation of waste problems, funded under the PSIP. SWMCOL is currently exploring technical assistance options with Japanese International Corporation Agency (JAICA) to rehabilitate all landfill sites with closure as the end result. This process is at the preliminary stage.

Further, at a subsequent Committee meeting with officials from the Water Resources Agency (WRA) on May 11, 2012 it was conveyed that the Guanapo leachate and over-land flows get into a tributary of the Caroni River and then treated at the Caroni plant.

There is also a Guanapo intake that is upstream of the location of the Guanapo landfill site. It is not directly impacting the intake in the Guanapo area, but it is impacting the Caroni River system and WRA's ability to treat that water lower down at the Caroni Arena Treatment Facility.

Forres Park Landfill

The Committee expressed concerns that the prospective site identified for the replacement of existing landfill locations is located at Claxton Bay, which is adjacent to the existing Forres Park Landfill site. The Preliminary Status Report prepared by Marshall Macklin Monaghan in November 1999 recommended the expansion of the existing Forres Park site to establish a state-of-the-art landfill.

The proposed use of the Forres Park site would necessitate the update of studies, costing and drawings from 2000 as well as new consultations towards the requisite approvals from the Town and Country Department, the Environmental Management Authority (EMA) and other stakeholders. Forecasting information pertaining to waste disposal options and the waste management strategy for the proposed Forres Park landfill are included in *Appendix V*.

Although scientific reasons were outlined for the selection of the location, there was no mention of the social opportunity cost to the surrounding communities if another landfill is located in south-west peninsula. In addition, the Preliminary Status Report admitted that, *"there is some concern amongst environmental groups that impacts from landfill operations may affect the sensitive mangrove crops."*

Low Priority of Waste Management

Although SWMCOL has made attempts to raise the importance of waste management and the need for a number of facilities, it has still remained a low priority for central government. This is evidenced by the limited resources allocated to SWMCOL. Further, it has resulted in halted discussions with development agencies interested in providing solutions to infrastructure requirements related to waste management.

Past submissions to the line ministry articulating plans to improve waste management operations of SWMCOL is evidenced by a "Request for Proposals for the Development of a National Solid Waste Management System for Trinidad and Tobago (T&TSWMCOL-RFP-001-2002)." This was

prepared by SWMCOL for the Ministry of Public Utilities and the Environment in 2006 and detailed the preparation of a feasibility study for the development of a National Solid Waste Management System for Trinidad and Tobago.

Evaluation of Tenders

A Cabinet decision in 2009, SWMCOL replaced the role of the Central Tenders Board (CTB) in the evaluation of tenders. SWMCOL acts as an agent of the Ministry of Local Government in the tendering process for contracted garbage removal by regional corporations. The reasons for this shift were ascribed to concerns raised on the high cost of scavenging and that SWMCOL has the expertise to perform assessments for evaluation of tenders.

The existing structure of procurement awards set up by CTB when the value is beyond \$1 million it has to go to CTB. However, the existing district award ceiling in 2009 of \$50 000 would have been insufficient to counter the \$400 million value ascribed to scavenging. Concerns were raised whether SWMCOL had the legal foundation for the management and evaluation of tenders given that the Municipal Corporations Act ascribes the collection of domestic waste to Corporations only.

As at January 31, 2012 SWMCOL was awaiting the review and acceptance of its Tender Rules and Procedures by the Board of Directors. However, SWMCOL admitted to recently awarding a contract to provide security at the the Guanapo Landfill with a start date of November 25, 2011 for a period of two (2) years. The Police Service - Guard and Emergency Branch commenced a contract to provide security at the Guanapo Landfill for the period August 1, 2012 to July 31, 2014.

Disposal of Medical Waste

The method used to deal with biomedical and pathological waste is incineration. A number of incinerators managed by the various hospitals, abattoirs and laboratories are in various states of disrepair which has resulted in some aspects of hazardous waste being improperly disposed. SWMCOL has not been approached to provide the technical know-how with respect to the treatment of this waste.

Monitoring Programmes

Approximately four to five years ago, a study was done on the Beetham site into the relationship that the leachate might have with, if any, the ground and surface water. Due to financial constraints, SWMCOL has not been able to fulfill the requirement that it should conduct investigations on a yearly basis on all current landfill sites and monitoring investigations on closed landfill sites. A

significant challenge experienced by SWMCOL is the low level of importance that is given to waste management.

The current environmental impact of landfill sites is unknown, as officials indicated there has been a sporadic monitoring of old sites and the last analysis was conducted five years ago in collaboration with Water and Sewerage Authority (WASA). Officials however indicated that it is a requirement for the annual assessment of sites; SWMCOL has been challenged to meet this standard. This is evidenced from each study/report from 1980 to 1998 listed in “Table 4 – Chronology of Plans for Guanapo Site” which recommended the monitoring of the Guanapo Landfill.

RECOMMENDATIONS

Consequent on the evidence received during this inquiry, your Committee wishes to make the ensuing recommendations with regard to the operations of the SWMCOL:

Records Management

A document management system should be introduced to store documents; historical, current and future data-related to the management and operation of all landfill sites. Data is also a crucial element in the development of a monitoring system for landfill sites as well as providing accountable management.

Commercial Activities

The current business model is obsolete and needs to be redesigned to turn waste disposal into a business opportunity. This new approach to the business of waste will determine that it is a value proposition, encourage private sector investment and in the long term reduce the level of government subvention to SWMCOL.

Waste Collection Rate

The fifty to sixty percent (50-60%) level of unaccounted national waste should be treated through a collaborative effort between regional corporations and SWMCOL. The integration of systems between parties can lead to increased collection rate of unaccounted garbage and thereby alleviate the problem of flooding in the long term as it is a major contributor to illegal dump sites and dumping.

Solid Waste Management Policies

The recommendations of the 1980 Solid Waste Master Plan and the 1998 Visual Assessment of Solid Waste Disposal Sites should be re-visited and reviewed before any new policies dealing with waste are developed by the Ministry of Local Government. Further, any new policies dealing with waste should be done in collaboration with the relevant experts in SWMCOL to encourage knowledge sharing and transfer of knowledge between the consultant and SWMCOL.

The issue of waste management policy and an effective plan of action which benefits from a review of existing reports and studies and embraces application of global best practice should be undertaken immediately.

This should provide a comprehensive solution to the challenge of waste management as well as implications for water resources management and water quality including a mix of public/private options.

The Committee is of the view that this could most usefully be achieved through an integrated approach involving the Ministry of Planning and Sustainable Development, the Ministry of the Environment and Water Resources and the Ministry of Local Government (under whose jurisdiction SWMCOL falls) and any other relevant agencies.

Waste Energy Proposals

Existing policy and legislation needs to be revamped to address the recyclables environment and the collection of curbside recyclables. This is necessary to support the development of a material recovery facility and to facilitate curbside source separated collection. There should also be economic incentives to encourage businesses to separate recyclable materials from waste.

Closure of Guanapo Landfill

Although the Committee has been apprised of the numerous challenges associated with the closure of the Guanapo Landfill, the evidence submitted for the closure of this Guanapo Landfill since 2001 far outweighs these challenges. It is recommended that resources be allocated for the immediate closure of the Guanapo Landfill.

Closure of Forres Park Landfill

Submitted criteria utilized for the evaluation of sites and eventual selection of the Forres Park site was insufficient and unsatisfactory. It is recommended that public consultations be held with the communities surrounding the Forres Park area as well as environmental groups before the project initiation stage is undertaken.

Further, given that Preliminary Status Report was prepared by Marshall Macklin Monaghan since November 1999, it is possible that the criterion adopted for the selection of Forres Park as the preferred alternative is outdated. The reasons advanced by the Preliminary Status Report of Marshall Macklin Monaghan in November 1999 were unsatisfactory. It is recommended that a new evaluation of proposed sites for the location of the landfill is done.

Low Priority of Waste Management

In order, to raise the national level of importance on waste management SWMCOL officials should revamp their existing communication plans for the national community. In order to increase the

level of national awareness of this issue, there should be increased initiatives such as a public education program which incorporates the use of social media.

Evaluation of Tenders

Although, SWMCOL officials may have the competence to conduct competent evaluations in the area of procurement, there is clear absence of independent oversight and monitoring mechanisms. This is evidenced as at January 31 2012, that SWMCOL's tendering rules and procedures are only reviewed and accepted by the Board of Directors. It is recommended that mechanisms should be developed to improve the level of transparency in procurement.

Disposal of Medical Waste

The offering of technical and specialist advice on a requested basis is not sufficient to alleviate the existing problem of improper disposal of bio-medical waste. Indeed, significant technological improvements are needed to all pathological incinerators utilized at hospitals throughout Trinidad and Tobago.

A better managed system needs to be developed especially as number of clinics and hospitals increase within Trinidad and Tobago. In addition, once protocols are established for disposal, there should be an element of monitoring these facilities to ensure protocols are being carried out efficiently.

Urgent steps ought to be taken by health institutions (both public and private) and Regional Health Authorities (RHAs) for a more scientific and best-practice approach to medical waste disposal throughout the country.

Monitoring Programme

A consistent monitoring programme should be conducted annually for all closed and current landfill sites. The monitoring of ground and surface water should also be conducted annually in collaboration with the Water Resources Agency (WRA). This should encompass testing of run-off water of landfills in order to prevent contamination of water reserves.

Your Committee respectfully submits this Report for the consideration of the Parliament.

Sgd.

Dr. James Armstrong
Chairman

Sgd.

Dr. Victor Wheeler
Vice Chairman

Sgd.

Dr. Bhoendradatt Tewarie
Member

Sgd.

Dr. Tim Gopeesingh, MP
Member

Sgd.

Mr. Clifton De Coteau, MP
Member

Sgd.

Mr. Collin Partap, MP
Member

Sgd.

Mr. Kevin Ramnarine
Member

Sgd.

Dr. Lincoln Douglas, MP
Member

Sgd.

Mrs. Lyndira Oudit
Member

Sgd.

Ms. Alicia Hospedales, MP
Member

Sgd.

Mr. Fitzgerald Jeffrey, MP
Member

Sgd.

Dr. Lester Henry
Member

February 15, 2013

APPENDIX I

BUSINESS ENTITIES

List of Ministries, Statutory Authorities and State Enterprises that fall under the purview of this Committee:

1. Local Government

- Trinidad and Tobago Solid Waste Management Company Limited
- Community Improvement Services Limited
- East Port of Spain Development Company Limited
- Palo Seco Agricultural Enterprises Limited
- Rural Development Company of Trinidad and Tobago

2. National Security

- Defence Force Commissions Board
- Defence Council
- National Drug Council
- Strategic Services Agency
- Youth Training Centre Board of Management

3. Office of the Prime Minister

- Sport and Culture Board of Management

4. People and Social Development

- Social Welfare District Boards
- Trinidad and Tobago Association in Aid of the Deaf
- Trinidad and Tobago Blind Welfare Association

5. Planning and the Economy

- Advisory Town Planning Panel
- Caribbean Industrial Research Institute (CARIRI)
- Chaguaramas Development Authority
- Council for Innovation and Competitiveness
- Economic Development Board
- National Population Council

6. Public Administration

- Telecommunications Authority of Trinidad and Tobago (TATT)
- Government Human Resources Services Limited (GHRS)

7. Public Utilities

- Regulated Industries Commission
- Water and Sewerage Authority (WASA)
 - Water Resource Agency
- The Trinidad and Tobago Electricity Commission (TTEC)
- The Trinidad and Tobago Postal Corporation (TTPOST)
- Telecommunications Services of Trinidad and Tobago Limited (TSTT)

8. Science, Technology and Tertiary Education

- Accreditation Council of Trinidad and Tobago (ACTT)
- Board of Industrial Training
- College of Science, Technology and Applied Arts (COSTAATT)
- Eastern Caribbean Institute of Agriculture and Forestry (ECIAF)
- John S. Donaldson Technical Institute
- National Institute of Higher Education (Research, Science and Technology)
- National Training Agency
- San Fernando Technical Institute
- Teachers Training Colleges
- Trinidad and Tobago Hospitality and Tourism Institute
- University of the West Indies
 - Open Campus
- University of Trinidad and Tobago:
- Metal Industries Company Limited (MIC)
 - Government Vocational Centre
- National Information, Communication, Technology Limited (iGovTT)
- Youth Training and Employment Partnership Programme Limited (YTEPP)

9. Sport

- National Stadia Board of Management
- Regional Complexes
- Trinidad and Tobago Boxing Board of Control
- Sport Company of Trinidad and Tobago Limited

10. Tobago Development

- Tobago Regional Health Authority

11. Tourism

- Zoological Society of Trinidad and Tobago
- Tourism Development Company Limited

12. Trade and Industry

- Betting Levy Board
- Trinidad and Tobago Bureau of Standards
- Trinidad and Tobago Racing Authority
- Weights and Measures
- Evolving TecKnologies and Enterprise Development Company Limited (e-Teck)
- Export-Import Bank of Trinidad and Tobago Limited

- Trinidad and Tobago Free Zones Company Limited
- Business Development Company Limited
- Point Lisas Industrial Estate
- Trinidad and Tobago Entertainment Company Limited (TTent)
- Trinidad and Tobago Film Company
- Caribbean Leasing Company Limited (CLCL)
- National Flour Mills
- Premier Quality Services Limited (PQSL) subsidiary of TTBS

13. Works and Infrastructure

- National Infrastructure Development Company Limited (NIDCO)
- National Maintenance Training and Security Company Limited (MTS)

14. Transport

- Airports Authority of Trinidad and Tobago
- Air Transport Licensing Authority
- Pilotage Authority
- Port Authority of Trinidad and Tobago
- Public Transport Services Corporation
- Transport Board
- Trinidad and Tobago Civil Aviation Authority
- Caribbean Airlines Limited
- The Vehicle Maintenance Corporation of Trinidad and Tobago Limited
- National Helicopter Company Limited
- Point Lisas Port Development Corporation Limited (PLIPDECO)
- LIAT (1974) Limited

15. Gender, Youth and Child Development

- Adoption Board
- Children's Authority
- Interdisciplinary Child Development Centre
- Princess Elizabeth Home for Handicapped Children
- Trinidad and Tobago Association for Retarded Children

APPENDIX II

MINUTES OF PROCEEDINGS

**MINUTES OF ELEVENTH MEETING HELD IN THE J. HAMILTON ROOM, MEZZAZINE FLOOR,
OFFICE OF THE PARLIAEMNT, TOWER D, WRIGHTSON ROAD, PORT OF SPAIN
ON FRIDAY, DECEMBER 9, 2011**

PRESENT

Dr. James Armstrong	Chairman
Dr. Victor Wheeler	Vice-Chairman
Mrs. Lyndira Oudit	Member
Mr. Clifton De Coteau, MP	Member
Mr. Fitzgerald Jeffrey, MP	Member
Ms. Alicia Hospedales, MP	Member
Dr. Lincoln Douglas, MP	Member
Dr. Tim Gopeesingh, MP	Member
Mr. Collin Partap, MP	Member
Mrs. Nataki Atiba-Dilchan	Secretary
Ms. Candice Skerrette	Assistant Secretary
Ms. Candice Williams	Graduate Research Assistant

ABSENT

Dr. Bhoendradatt Tewarie	Member (Excused)
Mr. Kevin Ramnarine	Member
Dr. Lester Henry	Member

**REPRESENTATIVES OF THE TRINIDAD AND TOBAGO SOLID WASTE
MANAGEMENT COMPANY LIMITED**

Mr. Stephen Creese	Deputy Permanent Secretary, Ministry of Local Government
Mr. Uche Osuji	General Manager, Integrated Waste Systems
Mr. Richard Warren	Manager, Wastewater Operations
Ms. Keisha Rogers	General Manager, Operations
Mrs. Tricia Gilbert-Bain	Corporate Secretary

INTRODUCTION

1.1 The Chairman called the meeting to order at 9:41 a.m.

1.2 Members were informed that Dr. Bhoendradatt Tewarie had asked to be excused from the meeting.

CONFIRMATION OF MINUTES

2.1 The following correction was made to the Minutes:

Page 3 Paragraph 6.2 (b); Line 9 Delete the word "of" and insert "or"

2.2 The motion for the confirmation of the Minutes, as amended, was moved by Mr. Clifton De Coteau and seconded by Mr. Fitzgerald Jeffrey.

2.3 The Minutes, as amended, were thereby confirmed.

MATTERS ARISING FROM THE MINUTES

3.1 Members were informed that documentation requested from East Port of Spain Development Company Limited had not yet been received. The Secretary was directed to follow up on the status of the information, as well as, to request the Inception Report on Strategic Development Plans for East Port of Spain prepared by Dover Kohl.

REVIEW OF QUORUM

4.1 On motion moved by Mr. Clifton De Coteau and seconded by Dr. Victor Wheeler, the Committee agreed to the revision of the quorum to comprise five (5) members with one representative from each House, each Bench and inclusive of the Chairman or Vice Chairman.

OTHER BUSINESS

5.1 The Committee was advised that comments on the Draft Reports were received from Mrs. Oudit and Ms. Hospedales. It was agreed that at the next meeting the Third, Fourth and Fifth Reports of the Committee would be reviewed and finalized.

5.2 Clarification was sought as to whether Committee reports were limited to submissions received from entities and information presented at the date of the meetings. Members were advised that Committee Reports could reflect more recent developments. As well, consequent on the content of ministerial responses, the Committee could pursue a follow-up inquiry.

5.3 It was agreed that the hearing with the National Drug Council would be deferred to the meeting of February 2012.

PRE-HEARING DISCUSSIONS

6.1 Members discussed the approach to be taken at the hearing and agreed to the order of questioning.

(The meeting was suspended at 10:08 a.m. and resumed in the J Hamilton Maurice Room at 10:13 a.m.)

HEARING WITH THE OFFICIALS OF TRINIDAD AND TOBAGO SOLID WASTE MANAGEMENT COMPANY LIMITED (SWMCOL)

7.1 The Chairman welcomed officials and introductions on both sides were made.

7.2 The following matters were discussed with the representatives of Trinidad and Tobago Solid Waste Management Company Limited:

(a) Overview of Company

Members were informed that SWMCOL's operations began in 1980, consequent on a decision of the Cabinet. The Company previously operated under the aegis of the Ministry of Health. There are currently four (4) General Managers and a Board of Directors that govern SWMCOL. SWMCOL has been mandated to manage solid waste and act as a public company, as an agency for government. The solid waste process includes the collection, storage, treatment and final disposal. SWMCOL is only involved in the final process of disposal as well as general and septic waste.

Officials indicated that the priority for waste management has been low with successive governments, notwithstanding efforts to raise its current level of priority by SWMCOL.

SWMCOL receives \$75M in funding from the Government of Trinidad and Tobago and approximately fifteen percent (15%) of this is allocated to administrative purposes.

(b) **National Integrated Waste Management System**

Members were informed that although the establishment of a National Integrated Waste Management System was one of the goals of the Company, little headway had been made. No formal feasibility studies have been conducted and only a rudimentary analysis has been done to date.

(c) **Company Achievements**

In response to a question on the Company's achievements over the last 30 years of operations, Members were informed of the existence of several studies and reports done in this regard. Details were educational campaigns, interactions with international agencies, and cooperative agreements. Mention was made of changes in the technology of waste management from open-tray trucks to proper garbage compactor trucks and of initiatives related to managing waste disposal during Carnival.

(d) **Landfill Sites**

Members were advised that SWMCOL took over operations of the main disposal sites in Trinidad and Tobago, closed over twenty (20) dumpsites and retained three (3) managed landfill sites at Beetham, Forres Park and Guanapo. There is a fourth landfill site but this is privately owned by the Point Fortin Borough Corporation. An estimated 700 000 tonnes of waste is disposed of per year. Fifty percent goes to the Beetham landfill site and the rest to Forres Park and Guanapo.

Concerns were raised about the proximity of the Guanapo Landfill Site to the Guanapo Water Treatment Plant and its effect on downstream catchment areas as far as Mayaro.

The officials highlighted problems faced in creating new landfill sites which included financial, infrastructural and legal challenges. As well, land availability issues, Environmental Impact Assessment (EIA) approvals and community approval from residents were also to be considered.

Members were informed that contracts were recently signed to strengthen existing security at the Guanapo Landfill site. This issue has been further compounded by the lack of legislative foundation as an "authority" for SWMCOL.

(e) **1980 Solid Waste Master Plan**

Officials indicated that this Plan had specific flaws and this resulted in implementation problems.

It was noted that the Guanapo Water Treatment Plan was not closed as recommended in the Plan, although a site was identified in Claxton Bay, because of the negative responses received after public consultation.

(f) **Biomedical Waste Disposal**

The Committee was informed that biomedical and pathological waste is disposed of through incineration but because of the volume and the disrepair of incinerators, some waste finds its way to landfills.

SWMCOL is currently pursuing with the Ministry of Housing and the Environment avenues for the disposal of harmful waste such as e-waste.

(g) **Relationship with the Tobago House of Assembly (THA)**

SWMCOL and the THA have a good historical relationship. However, officials indicated that they do not manage the Tobago Regional Health Authority's (TRHA) incinerators as hospitals manage their own waste. Neither was the Company involved in the arrangements for waste disposal at the new Scarborough Hospital, although they possessed expertise in this area of technology.

(h) **Housing Developments**

Specific reference was made to the overfilled garbage bins at the Maloney Housing Development and the officials were asked to explain the procedures for supplying bins. Members were told that site visits were conducted by field officers with respect to bins for housing developments. It was suggested that a site visit should be conducted soon at the Maloney Housing Development.

(i) **Disposal of derelict vehicles**

Members were advised that the Company did not purchase, as intended, machinery to crush derelict vehicles because of a lack of funds. Proposals for initiatives relating to tire waste has been sent to the MHE.

(j) **Relationship with Regional Corporations**

The Officials explained that their relationship with the regional corporations was limited to procurement of contractors for waste collection services. This system was established in 2009 with a decision of Cabinet. However, the actual contracts were issued by the corporations.

SWMCOL did a small amount of collection in the private sector.

Members expressed concerns that the level of entrepreneurship by the local (community-based) contractor was being neutralized by this process. Officials indicated that the contractual boundaries for contractors do not permit the subcontracting of any part of the contract awarded.

(k) **DERT and DART Programmes**

Both the Disaster Emergency Response Team (DERT) and Dead Animal Retrieval Team (DART) were related to CEPEP, which was no longer under the purview of SWMCOL.

(l) **Relationship with EMA and TCPD**

The representatives indicated that with regard to the selection and closure of sites collaboration is done with both the Environmental Management Authority and Town and Country Planning Division, since approvals are sometimes required from both agencies.

(m) **Public Education**

Lectures and presentations have been done in communities on proper waste disposal but have not been sustained. It was revealed that the Education Division of SWMCOL has been revamped. Consideration is being given to approaching National Library and Information System of Trinidad and Tobago (NALIS) to incorporate use of its mobile libraries to reach rural communities. As well, the topic of proper waste disposal could be included as a component under an existing area of study in the school curriculum.

(n) **Salvage Waste**

The dry recyclable waste is separated and no longer in landfills. Officials conveyed that new methods are needed to minimize the involvement of persons in salvaging in its present form. A recent joint initiative has been launched recently with one private sector organization and one regional corporation. It is anticipated that this would expand into a national programme over the next six (6) months.

(o) **Landfill Monitoring**

Approximately five (5) years ago a study was conducted on the Beetham Landfill site on the effect of ground and surface water. No other monitoring studies have been done since then.

Members expressed concern that monitoring mechanisms have not been put in place for closed sites and about the lack of partnering with Caribbean Industrial Research Institute (CARIRI) and Water and Sewerage Authority of Trinidad and Tobago (WASA).

(p) **Senior Management Experience**

The Committee noted the work experience of the officials as follows: Mr. Uche Osuji was employed with SWMCOL for approximately six (6) months, Mr. Richard Warren, three (3) years, Ms. Keisha Rogers, three (3) months and Mrs. Tricia Gilbert-Bain, five (5) months.

Requests for additional information

7.3 The representatives were unable to provide information on the following and therefore written documentation was requested:

- documents outlining the areas of major achievements as implemented within SWMCOL
- details on projects commissioned under PSIP
- copies of requests made to line ministry with regard to plans to improve the waste management operations of the Company
- copy of the 1980 Solid Waste Master Plan
- details on the landfill site located in Princes Town for rehabilitation
- details on the Communications programmes conducted within schools
- details on current budgetary allocation and how it is spent
- details on the human resource components, including number and category of staff
- details on the organizational structure of the Company
- details on the remuneration packages for senior management
- mission statement of the Company and its general strategic objectives, in terms of nature and purpose of the work of the Company
- procedure and criteria for the closure or rehabilitation of landfills
- explanation of the relationship between SWMCOL and other relevant agencies e.g. Municipal Corporations
- explanation of relationship with the Board of Directors in determining the way forward for the Company
- clarification of the rules of the contractors of solid waste, relating to subcontracting
- explanation of the role played by the Municipal Corporations in the tendering process for solid waste contractors
- details on the time and money spent on the closure and rehabilitation of older landfills for e.g. Toco (and any other such landfill identified)

- details on the current plans with respect to the Guanapo site
- clarification on the tendering procedures utilized from 2009

Adjournment

8.1 The Chairman thanked the representatives of SWMCOL for attending the hearing and for the information provided.

8.2 The meeting was adjourned at 12:30 p.m.

I certify that these Minutes are true and correct.

Chairman

Secretary

December 9, 2011

**MINUTES OF THIRTEENTH MEETING HELD IN OFFICE OF THE PARLIAMENT,
TOWER D, PORT OF SPAIN INTERNATIONAL WATERFRONT CENTRE, #1A WRIGHTSON
ROAD, PORT OF SPAIN ON WEDNESDAY, MARCH 28, 2012 AT 9:00 A.M.**

PRESENT

Dr. James Armstrong	Chairman
Dr. Victor Wheeler	Vice-Chairman
Mrs. Lyndira Oudit	Member
Dr. Lincoln Douglas, MP	Member
Mr. Kevin Ramnarine	Member
Dr. Lester Henry	Member
Mr. Fitzgerald Jeffrey, MP	Member
Dr. Bhoendradatt Tewarie	Member
Mrs. Jacqueline Phillip-Stoute	Secretary
Ms. Candice Skerrette	Assistant Secretary
Ms. Candice Williams	Graduate Research Assistant

ABSENT

Mr. Clifton De Coteau, MP	Member (excused)
Ms. Alicia Hospedales, MP	Member (excused)
Mr. Collin Partap, MP	Member (excused)
Dr. Tim Gopeesingh, MP	Member (excused)

**REPRESENTATIVES OF THE TRINIDAD AND TOBAGO SOLID WASTE
MANAGEMENT COMPANY LIMITED**

Mr. Suruj Baboolal	Chairman
Mr. Kavir Ramjattan	Deputy Chairman
Mr. Ricky Ramkissoon	Director
Mr. Josh Peters	Director
Mr. Neil Balgobin	Director
Mr. Shiva Hardit-Singh	Ag. Chief Executive Officer
Mr. Uche Osuji	General Manager, Integrated Waste Systems
Mr. Rhyan Hanoomansingh	General Manager, Communications
Ms. Keisha Rogers	General Manager, Operations
Mr. Frank Hernandez	General Manager, Finance

INTRODUCTION

1.3 The Chairman called the meeting to order at 9:58 a.m.

CONFIRMATION OF MINUTES

2.1 The following corrections were made to the Minutes:

- Item 4.2 Page 3 Bullet 20
Delete “a system of” in the second instance

- Item 4.3 Page 3 Bullet 1
Delete “TRHA” and insert “THA”

2.2 The motion for the confirmation of the Minutes, as amended, was moved by Dr. Victor Wheeler and seconded by Dr. Lincoln Douglas.

2.3 The Minutes, as amended, were thereby confirmed.

MATTERS ARISING FROM THE MINUTES

3.1 Members were advised of the following updates:

- Documentation was received from the Trinidad and Tobago Solid Waste Management Company Limited (SWMCOL) and circulated to Members by letters dated February 01, 2012 and March 23, 2012.
- A letter was forwarded to the Chief Executive Officer of SWMCOL to request the attendance of the Board of Directors at today’s meeting.
- The Children’s Authority falls under the purview of the Ministry of Gender, Youth and Child Development.
- A letter was forwarded to the Chief Executive Officer of the Tobago Regional Health Authority on January 19, 2012 with a deadline of February 01, 2012. A response was received and forwarded to Members. Additional information was requested on March 20, 2012 and a response is expected shortly.

OTHER BUSINESS

4.1 The Chairman advised that the Third and Fourth Reports of the Committee on the Sports Company of Trinidad and Tobago (SPORTT) and the Office of Disaster Preparedness and Management (ODPM) were laid on Tuesday March 13, 2012 in the Senate and Friday March 16, 2012 in the House of Representatives respectively.

4.2 The Committee agreed that its next inquiry will be with the National Drug Council on April 13, 2012 at 9:00 a.m.

PRE-HEARING DISCUSSIONS

5.1 The Committee agreed that questioning would commence with Mr. Kevin Ramnarine followed by Dr. Bhoendradatt Tewarie and thereafter, the Chairman.

SUSPENSION

6.1 The meeting was suspended at 10:09 a.m.

(Members proceeded to the J. Hamilton Maurice Room, Mezzanine Floor)

HEARING WITH THE OFFICIALS OF TRINIDAD AND TOBAGO SOLID WASTE MANAGEMENT COMPANY LIMITED (SWMCOL)

7.1 The meeting resumed in the J. Hamilton Maurice Room at 10:15 a.m.

7.2 The Chairman welcomed officials of SWMCOL. Introductions were exchanged.

7.3 Detailed below are the matters raised and the responses which emanated from the discussion with the representatives of SWMCOL:

(a) **Waste to Energy Proposals**

- Correspondence was received from individuals who have an interest in the process of waste-to-energy. This information is currently being evaluated, which will then be presented to the Board of Directors of SWMCOL and subsequently forwarded to the Ministry of Local Government.
- With respect to tyres, a Committee was formed, but has not yet met. A Note has sent to Cabinet for approval as to the best way forward with respect to tyres, that is, whether tyres should be used as a method of waste-to-energy or as part of the recycling aggregate. At a meeting held with the Ministry of Local Government, it was decided that tyres will be collected and stockpiled pending a report from the committee.
- Possible waste energy from garbage may not be feasible because eighty percent (80%) of the present waste stream is recyclable.

(b) **Non-Governmental Organization (NGO) Participation**

- SWMCOL would welcome input from NGOs with respect to tyres. Any interested NGO can submit a formal letter outlining its position. In the future, a plan will be formulated in order to deal with NGOs.

(c) **Technical Expertise**

- SWMCOL has technical competence in-house. There is a General Manager who is responsible for integrated waste.

(d) **Waste Statistics**

- Trinidad and Tobago produces 700,000 tons of waste annually, approximately 2,000 tons a day. Thirty-three percent (33%) is called industrial, commercial and institutional. The other two-thirds is collected by private contractors, contractors by the Regional Corporations, who are engaged in curb side and residential collection. SWMCOL's collection is more for private businesses and state enterprises.
- The waste collected by contractors of the Regional Corporation is disposed of at SWMCOL's sites.
- Fifty percent (50%) to sixty percent (60%) of the waste is collected by Local Government. Fifty percent (50%) to forty percent (40%) is not collected.
- In order to collect the uncollected waste, an incentive system is required to be set up, and legislative and operational changes undertaken.
- SWMCOL commands about fifty percent (50%) to fifty five percent (55%) market share of the general waste market. Vacuum Tanker Services has approximately thirty percent (30%) and portable toilets an estimated fifty percent (50%).

(e) **Collaborations with the Tobago House of Assembly (THA)**

- SWMCOL is currently in the process of forwarding a proposal to the THA with respect to their landfill site and to address the issue of bio-medical waste or waste from patients and the incineration of drugs used in chemotherapy.
- In May 2012 a comprehensive package will be delivered to the THA.

(f) **An Integrated Solid Waste/Resource Management Policy for Trinidad and Tobago**

- The Requests for Proposals (RFPs) with respect to the Integrated Solid Waste/Resources Management Policy for Trinidad and Tobago was issued approximately six (6) months ago.
- Twelve (12) companies responded to the RFP – local and foreign companies and joint ventures.
- Edison Garraway and Associates, a local company, won the consultancy to undertake the development of the policy.
- The project was undertaken solely by the Ministry of Local Government. The cost is unknown to SWMCOL.
- The Policy document essentially espouses tenets of recycling and deriving the value of the waste and the creation of a Solid Waste Management Authority.
- The document is a work-in-progress which will be transformed before it is sanctioned by the Cabinet.
- SWMCOL agrees with the philosophy espoused in the document.
- Tobago was treated separately with respect to waste characterization and management by the Tobago House of Assembly (THA).

(g) **Recycling**

- There is responsibility for recovering waste, bale it, containerize it and ship it for eventual recycling.
- SWMCOL does not have the ultimate potential for recycling. There is no presence of an industry in Trinidad and Tobago that can adequately deal with recycling.
- An industry can be established to separate, select, package and export recyclable waste.

(h) **Landfill Sites**

- SWMCOL is in the process of consulting with members of the Japanese Government to rehabilitate the Guanapo site with a view for eventual closure.
- It is anticipated that before the end of 2012 rehabilitation of the Guanapo site would be completed.
- The setting up of waste transfer stations is currently being done under the Public Sector Investment Programme.
- SWMCOL has expressed a desire to have technical assistance as it relates to the rehabilitation of all the landfill sites to the Japanese International Corporation Agency (JAICA).
- In 2000, in collaboration with Town and Country Planning and the Environmental Management Agency (EMA), conceptual plans for a new landfill site at Forres Park were agreed to.
- Drawings have been done and rapid environmental assessments undertaken. SWMCOL wants to update the study and based on the updated study, approach Town and Country and the EMA to obtain the requisite permission and approvals.
- Closure of landfill sites at Guanapo and the Beetham is envisaged. The island will be serviced by one landfill at Forres Park.
- Several other sites were considered, but Forres Park proved useful from a hydrogeological

standpoint. This means that there is clay deposit which makes it essentially impervious, the topography and circulation with respect roadways for easy transportation to any facility on that site. A number of scientific criteria went into determining the suitability of the site for a landfill.

- SWMCOL recently embarked on preliminary investigations of other sites for example in Turure.
- The landfill will be well engineered and will make accommodations for possible contamination with the ground water or surface water. It would have a leachate collection system, a treatment system, make accommodation for proper ventings of the gas, the methane gas, carbon dioxide, make accommodation for a borough essentially an area from which naturally derive cover material.
- The landfill will not look like a dump site. There would be no salvagers because nothing of economic value would be dumped in the site. The infrastructure would consist of a facility for housing the workers, staff vehicles, wash room facility, etc.
- The landfill will conform to international best practices.
- Waste devoid of recyclable materials and processed waste will be deposited into the dumpsite at Forres Park.
- The sanitary landfill is designed with the population growth in mind. The projection and allocation of the land is done with some projection on the demographics which would cater for, among other things, tourist influx.

(i) **Contracts**

- Contracts are awarded for landfill security, equipment and materials through public notices.
- SWMCOL is in the process of inviting contracts for equipment.

(j) **Waste Disposal Technology Alternatives**

- An alternative would be the conversion of waste to energy through incineration. This alternative is used in other small islands as a mechanism to generate electricity in the absence of natural resources.

(k) **Transfer Stations/Recovery facility**

- Transfer stations would be used solely for transferring the waste and reducing the long distances associated with the collection exercise.
- The material recovery facility will be used to collect recyclables and package them for export.

(l) **Request for Proposals (RFP)**

- The RFP for the development of a national solid waste management system for Trinidad and Tobago was made in the year 2000. Submissions were received from international companies and the process then ended abruptly.
- The RFP for the integrated solid waste/resource management policy for Trinidad and Tobago issued by the Ministry of Local Government was prepared without the input of SWMCOL.

(m) **Finances**

- SWMCOL is subsidized to the amount of \$75 million and generates \$40 million through its commercial department. The level of commercial activity was attributed to a business model that does not embrace the commercial aspect of the waste industry.

REQUESTED INFORMATION

- (i) Forecasting documents with respect to the Guanapo and Forres Park landfill sites

ADJOURNMENT

8.1 The meeting was adjourned at 11:59 a.m.

I certify that these Minutes are true and correct.

CHAIRMAN

SECRETARY

March 28, 2012

APPENDIX III

NOTES OF EVIDENCE

**VERBATIM NOTES OF THIRTEENTH MEETING HELD IN OFFICE OF THE
PARLIAMENT, TOWER D, PORT OF SPAIN INTERNATIONAL WATERFRONT CENTRE,
#1A WRIGHTSON ROAD, PORT OF SPAIN ON FRIDAY DECEMBER 09, 2011**

OFFICIALS OF TRINIDAD AND TOBAGO SOLID WASTE MANAGEMENT COMPANY LIMITED

Mr. Uche Osuji	General Manager, Integrated Waste Systems and Acting CEO
Mrs. Tricia Gilbert-Bain	Corporate Secretary
Mr. Richard Warren	Manager, Wastewater Operations
Ms. Keisha Rogers	General Manager, Operations

Mr. Chairman: I am Sen. Dr. James Amrstrong, I am the Chairman and I would ask the other members of the committee to introduce themselves, starting at my right.

[Members of the committee introduce themselves]

Mr. Chairman: Thank you. As you may be aware, this is a committee of the Parliament. You are required, all the authorities, to submit reports which would then be tabled in Parliament. This is intended really to basically get an overview of your operations; the progress that you might have made, any difficulties that you might have had. I would now ask the Acting CEO to just give us a brief overview of SWMCOL, to see how you are structured and how you operate. Just introduce the organization to us, briefly.

Mr. Osuji: SWMCOL has been in existence for 30 odd years, since the 1980s. We were mandated, at the time, to deal with issues that were topical and coming out of the master plan that was commissioned at that time. At that time, we were under the Ministry of Health. As time evolved, we have been housed under various ministries, but the mandate has more or less stayed the same.

Presently, we are constituted by a board of directors. We have four General Managers, a number of middle managers and then supervisory teams. That is primarily how we were configured.

As it relates to the mandate, we were and continue to be charged with the responsibility of dealing with solid waste. We are actually a private company but an agency of the Government and our line Ministry—*[Interruption]* sorry, we are a public company and we report to the Ministry of Local Government, presently.

Mrs. Oudit: Could you clarify for me, please, are you a public company under the local government ministry, or are you a private company working under the local government Ministry?

Mr. Osuji: No, sorry, as I have said, public company. We report to the Ministry of Local Government and the Ministry of Finance under Corporation Sole.

Mrs. Oudit: Thank you. I would like to start off with—I had indicated to this committee four questions in particular, coming out of your submission dated November 30, 2011, which is a two-page document that you have here. It is addressed to the Chairman, Dr. Armstrong.

On your second page, I see that you have, under “(a)”, the last paragraph of (a), which identifies that SWMCOL continues to consider various options for waste energy part of the National Integrated Waste Management System for Trinidad and Tobago. However, proper feasibility studies are needed to inform the viability.

My first question to you is that, if you still have proper feasibility studies to inform of any viability of any programme to be implemented, what actually was used to justify your current National Integrated Waste Management System, especially as you indicated that there was a master plan some 30 years ago? That is the first question, so if we can take it question and answer.

Mr. Osuji: Can you actually repeat the question?

Mrs. Oudit: What exactly was used to justify, or on what basis was your National Integrated Waste Management System founded? Because, you are now indicating that there are feasibility studies required for the waste energy.

Mr. Osuji: We do not actually presently have a National Integrated Waste Management System. That is a philosophy, a principle, an intent or vision. We always get submissions from various private sector companies wanting to, in essence sell various types of technology to us.

Waste energy, has always been a consideration. No official or formal feasibility study has been commissioned for any particular system. But, as with most of these systems that have been presented to us, they would do their rudimentary analysis based on their interpretation of the characteristics of the waste and their interpretations of the financial implications/revenue streams/cost, et cetera. That is all that has happened thus far.

Mrs. Oudit: You have been in operation for 30 years, is there any document or series of document that would show to this committee what you have done and what you have implemented or achieved over the 30 years that we can look at and say: Yes, this operation has been a successful one? We all know what we have read in the newspapers, et cetera, but from a committee point of view, do you have documents to support what has been implemented?

Mr. Osuji: We have several documents that speak to various studies that were done, various recommendations that were made, issues unearth, challenges, et cetera, but a lot of what might have been intended over the course of the years have been stymied by either one challenge or another.

Mrs. Oudit: Let us hold that thought.

Mr. Osuji: So, to answer your question directly, yes, we have. We have documents that can answer to, and mostly they were circumscribed by intent and would have delved into making recommendations, et cetera.

Mrs. Oudit: Mr. Chairman, through you, could I ask that those documents be supplied to this committee for consideration?

Mr. Osuji: Certainly.

Mr. Chairman: Do you understand that has been required; the documents that would be required?

Mr. Osuji: Yes, I can demonstrate studies that were commissioned and recommendations that were made, where we would have made efforts in certain directions and what those efforts would have yielded.

Mrs. Oudit: I would like to move to my second question which deals with your illegal dumping sites. You identified that SWMCOL has rehabilitated both the Old Toco Road Landfill, as well as the Old Cuche Landfill Site. My question is: Could you indicate to this committee the time, money and resources that have been allocated or already spent towards the closure of these dump sites?

Mr. Osuji: Off-the-cuff, I could not give you the precise figure, but these projects were commissioned under PSIP. And, as the submission states, two landfills were successfully remediated and closed and a number identified for future action. I could make the figures available to you but I could not, off-the-cuff, give you the exact amount of money that was spent on closure of those two landfills.

Mrs. Oudit: Thank you very much for your honesty. Certainly, if you can, again, put that on the documentation we would appreciate, seeing that those two were the ones identified as successfully being closed, so if you can submit the resources and moneys, et cetera allocated in that exercise.

Mr. Osuji: Certainly.

Mrs. Oudit: My third question deals with item "(c)", which talks about the conversion of landfills from open dumping sites into managed landfill operations and I am particularly concerned with Guanapo. You have identified Beetham, Forres Park and Guanapo. But my concern really is with the Guanapo Landfill. From what I understand, and from what I have read, your master plan and subsequent documents had recommended, for several reasons, that the Guanapo Landfill should be closed/terminated and for a simple reason that it is actually uphill from the Guanapo Water Treatment Plant. That recommendation came several years ago, that the water treatment plant feeds into a significant area, not only Arima, you have sections of the East/West Corridor, and all of the water courses actually go through some of those areas. The very strong recommendation was that

landfill should be closed. I see here, however, that your intent, as indicated here, is to convert it into a managed landfill operation. My first question is if it was identified for closure several years ago, why has the decision been taken to retain it? Secondly, instead of closing it, managing landfill operation simply to change the nature of the operation but having it remained there?

10.25 a.m.

Mr. Osuji: Let me qualify a couple of things actually. You are right in saying that it is deserving of closure. Guanapo is not the only landfill site deserving of closure, Beetham is as well. But there are challenges associated with closure, least of which is identifying a new site. You could not close a site without having the waste resident or contained elsewhere. Land availability issues permitting and all the policy requirements which surround permitting, it is a whole process. You have to get your conceptual design, get it passed, get your EMA approval, get the approval of the residents and all of that entails, it is a whole journey to establishing a new site. So in the meantime and for as long as that site continues to be used the way it is, we would like it to be operated in a managed manner.

Mrs. Oudit: Well, I hear you when you say the processes required in getting a new site, but this does not answer the question as to why—if you know the processes—the first thing you have identified is land space and I agree with you and certainly the requirement for that. It has yet to be confirmed that we do not have land in this country; it is just where we would like to have the landfill.

Mr. Osuji: Right, yes.

Mrs. Oudit: So the site location should not be an issue in terms of land availability, it is simply a question of where.

The second thing is if the issue of land is simply a matter of sourcing a site and yes, getting all the requisites, I do not think any agency would deny the process has to be done. What is so different about Guanapo and Beetham is the water treatment plant, and from what I recall in my own research with the water treatment plant, is the source of the water is being contaminated in significant amounts, and all of that is feeding into as far as central. In fact, one of the reports identified as far as Mayaro, is being fed, the water which goes through from the catchment areas from the Arima and the Guanapo water treatment plants.

In fact, I also know that the Arima Government School has lodged several complaints and they have had several testings done to ensure and to prove, it is almost like a battle, that maybe 20 years in the making that they have been battling because the water treatment—there is a high level of skin infection, many pulmonary illnesses associated with the school in particular; so that is why the urgency is greater to have that particular landfill closed.

Mr. Osuji: Right. There is a concern, we recognize the concern, we have attempted several times before—one of the hurdles which I must actually mention is a huge financial hurdle in the construction of a new landfill site. Because a new landfill site which does not conform to Guanapo standards will have to be engineered, have a liner, a leachate collection system, treatment system, et cetera. That is also one of the challenges which we face, that the priority which has been given to waste management generally has been low.

Mrs. Oudit: Is it that you are actively trying to—

Mr. Osuji: We have been actively in pursuit of trying to raise the importance of waste management and the need for a number of facilities including the landfill site. So I will be very candid in saying that and without any fear of being chastised is that the importance of it is really low. We are competing with the need for resources in other areas which are possibly more important: housing, et cetera, et cetera. If considerable importance is given to waste management then we would have the tools which we require to do what is needed.

Mr. Chairman: [*Inaudible*]

Mrs. Oudit: Okay, sure go ahead.

Mr. Chairman: I am still not very clear Mr. Osuji. What exactly has been the problem then, if you say you have been making all these efforts, where exactly are the bottlenecks? Have you made presentations to what—to your Minister to—

Mr. Osuji: Okay. I would give you an example—

Mr. Chairman: Yes, could you give us some examples?

Mr. Osuji: Recently I had very detailed discussions with Caribbean Development Bank, because the types of moneys which are involved in, and there are various reports which alluded to the amount of money involved in constructing a landfill site is not something which we can come up with on our own. It requires some type of financial agency or—in the route which we have taken, some sort of intervention by a regional development agency: Caribbean Development Bank, IDB, et cetera. We have approached them several times historically, and recently I myself have pursued Caribbean Development Bank, identified all of the challenges we have from an infrastructure perspective on the hard side, not the soft side; because we are also operating in an environment which does not have much legislation, et cetera, to govern and other things. After much discussion with them they came back and they were very timid in providing the response, but they said that waste management is not considered a priority by our government; so that they cannot go further with rectifying or providing solutions to any of the infrastructure requirements which are related to waste management. That is just at the level of CDB, but we have also had discussions at various levels with various development agencies, usually the discussion and you see, the way it was structured there is only so far we can go. Those discussions require, if you are going to actualize an arrangement with them, a government to government—Government has to agree that this is the course of action we are going to take, and sign on to that type of intervention.

Mr. Chairman: Therefore, could you have approached the bank without the Government giving you—

Mr. Osuji: No, the bank approached us.

Mr. Chairman: Or, the bank approached you.

Mr. Osuji: And we used that—we capitalized on that to bring to the fore much of the issues. Apparently they were on a mission which was meant to determine where or on which sectors they could make intervention; this is one of the sectors they identified.

Mr. Chairman: The bank should have approached the Government first.

Mr. Osuji: They did, yes, yes, they did.

Mr. De Coteau: Thank you, Mr. Chairman. Mr. Osuji made a statement, which government were you referring to when you said waste management is not a priority of this government?

Mr. Osuji: I would not want to identify any particular government, I think that response is across the board.

Mr. De Coteau: No, no, no Mr. Osuji, this is a very serious statement.

Mr. Osuji: It is across the board, because I am not going to say this Government or that government, because we have made attempts regardless of who was in power.

Mr. De Coteau: So are you saying that you made specific attempts to the present Government?

Mr. Osuji: We have made attempts to all the governments to raise the importance of waste management as an issue which needs to be dealt with from several perspectives, environmental, from a resource management perspective, from an economic perspective, from all the various perspectives, yes; in various fora.

Mrs. Oudit: Mr. Osuji, okay. In light of that we have had several agencies come before this joint select committee indicating that they have made attempts to either liaise with their line Ministry, et cetera. I am going to ask through you, Mr. Chairman, can you submit all the relevant requests which were made, so that you can have discussions with, so that we can—you see the role of this committee is not only to identify 10 years ago, or 15 years ago what went wrong. If there is any way that the committee out of this proceeding can assist this body in moving forward, if we identify what are some of the issues facing you, and we can pass it through to

the relevant Ministries. So any request which you made in writing, or any formal request which you have indicated either to the line Ministry, or to any other area or any other Ministerial body, if we can get a copy of those so we can also probably follow-up from on our end. I have—

Mr. Osuji: I will certainly look for that. Most of the requests would be in various fora and verbal, but there might be written requests and I can check on that, certainly.

Mrs. Oudit: Certainly, I always know that whatever you say, you must back it up with some letter or something, because everything goes haywire if you do not.

Mr. Osuji: Of course, of course.

Mrs. Oudit: A verbal communication is not always as dependable and reliable. So I see one of the challenges here just before we close off on the Guanapo landfill, one of the challenges you identified was the updating of the 1980 solid waste master plan.

Mr. Osuji: Yes.

Mrs. Oudit: From what I have gathered from persons who are in the water and wastewater areas, in the industry out there—it was quite an impressive document and if it is quite an impressive document, have you identified specific flaws and specific limitations with the document, that you require urgent remedial work, or is it that we can simply continue with a master plan which was identified, because I read pieces of it, but it is such a huge document, a comprehensive document which really and truly it speaks to quite a good plan and if it can be done.

Mr. Osuji: It is a good document, the problem, as usual, is moving beyond the plan and actually implementing.

Mrs. Oudit: Well, 1980 to now is quite a number of years.

Mr. Osuji: It is a long time, yes, I agree.

Mrs. Oudit: And also we have had significant changes in technology which would have eased the transition, or made it even easier to transition from 1980 to now in terms of how we update a master plan. So I am a little concerned that there are so many reasons for not updating the master plan, not finding a new site, being put forward here today. I am letting you know.

Mr. Osuji: Attempts have been made in the past, sites have been identified, I can tell you that an alternative site which was identified was adjacent to one of the existing landfill sites in Forres Park, Claxton Bay. That started off as a site which was selected based on certain criteria, hydro geological, et cetera. It had a liner to protect the migration of leachate, et cetera, into the ground water, et cetera. There were many criteria which went into identifying an alternative site. Studies have been done, recommendations have been made, and persons have voiced those recommendations, but for various reasons and for various challenges we have not been able to move into that realm of actually extending the existing site.

I remember in one forum in particular we were told verbally to identify a site, and when we made our recommendations known based on scientific studies, it was almost shutdown, because there are many implications, many social implications to, or that accompany the recommendation of a site, nobody wants a solid waste management facility in their backyard.

So if you were to go through the process of the public consultation you are going to get much resistance. So it is not for lack of trying. Detailed hydro geological studies have been done in attempting to find an alternative site, and those are usually the criteria. The criteria are not based on the persons who reside in the area, the primary criteria are the ground, the geology, the chemistry of the soil, et cetera; many things which are more scientific in arriving at the criteria than the social and the scientific will tend to take precedence over the social.

Mrs. Oudit: Well, I am even more concerned that the allocation of up-hill of a water treatment plant would have been chosen after such scientific studies.

Mrs. Oudit: That was done way before our time, those sites were ill-conceived, they predate our existence, SWMCOL's existence. When we came on board one of the first things which we did was to convert what were essentially 20 dump sites into three managed facilities. Even the siting of the Beetham Estate, the Beetham landfill site predates SWMCOL's existence. It was done at a time when swamps were treated the way they are.

Mrs. Oudit: Well, I think we have crossed the age and stage of saying that everywhere that somebody dumps things in the back of their place or at the end of a street, that we automatically must take that same location and simply develop it as a managed landfill. When I look at Beetham I think that is probably exactly what happened, that it went house to house and it just continued, and that was the allocation or the area chosen—definitely a bad decision. As you say many of these decisions were bad.

I know that other Members would have other questions, but I have one final question I hope they can go back to that one. Also for the benefit of the committee, could you supply us with a copy of the master plan?

Mr. Osuji: Definitely.

Mrs. Oudit: The 1980 Solid Waste Master Plan.

Mr. Osuji: Definitely.

10.40 a.m.

Mrs. Oudit: My last question is—I know that Dr. Wheeler, as well, had some questions about your hazardous toxic biomedical waste. You have identified that you have done an evaluation study for hazardous chemicals in schools, as well as for e-waste collection. My question is, apart from that particular study, what tangible programmes and processes do you have identified and approved and currently implemented to reduce the improper dumping of biomedical waste and to eliminate the effects of the improper dumping of such material?

Mr. Osuji: Historically, a number of studies have been done that allude to the impact of the biomedical waste. Presently the method used to deal with biomedical and pathological waste is incineration. A number of incinerators throughout the country are in various states of disrepair. So, by and large, you will find some aspects of hazardous waste being disposed of improperly. I agree with you.

A lot of recommendations have been made in the past, studies commissioned, possibly even as recent as five years ago. Under PSIP, we have tried to implement action with respect to one category of hazardous waste, and that is e-waste. That was supposed to engender, firstly an inventory and then a mechanism for dealing with e-waste. We started in that direction. Recently, we had an initiative with the Ministry of Housing and the Environment. Discussions are being had because hazardous waste—just to give you some insight, we can banewaste from the landfill site, but to properly deal with e-waste, we have to offer citizenry an alternative. The best alternative is to get it off the island and disposed of properly via the Basel Convention for the transboundary movement of hazardous waste. That, in combination with an extended producer liability, or something that refers to product stewardship from cradle to grave are more sustainable ways of dealing with hazardous waste than anything we can start and end up with it being not sustainable.

Mrs. Oudit: I want to go back quickly to biomedical because you are saying that they actually dump their waste in the usual landfills. Having visited the Guanapo landfill, I noticed that you have very, very limited security, if at all. I have seen trucks, supposedly from the hospitals, dumping their biomedical waste. If you do not have basic security, then how do you deal with all the other things?

Mr. Osuji: We have addressed the security recently. We gone out to tender and we have recently signed contracts for new security arrangements at that site. There are so many challenges. We are trying to secure a site that is not fenced; that we do not own. We are trying to secure a site, as a public company that is not an authority, so we do not have anything that is legislative that gives us the teeth to do what we need to do.

Mrs. Oudit: Let me ask you a question in light of your comments, then. Is SWMCOL necessary to ensure that we as a nation dispose of our waste? You are telling me all the issues for 30 years and all the reasons why not.

Mr. Osuji: SWMCOL and the expertise that is housed in SWMCOL is very relevant.

Mrs. Oudit: How effective has SWMCOL been?

Mr. Osuji: As effective as any other state agency that has not been able to make significant progress with whatever mandate that they have had. We are hugely challenged. I do not think that the challenges are uniquely ours and I do not think that the challenges are systemic. I do not want to take the blame essentially. We can apportion blame at any point in time, but if you are going to do justice to the solid waste management industry, there has to be significant political will and the importance is significant enough for us to transform the entire landscape.

Mrs. Oudit: Then that political will was never present, it seems.

Mr. Osuji: I do not think it was sufficient to bring about the transformation that would have been required. I think that we can do a lot more. That is all I am saying. There is scope and room for improvement.

We have always adopted the view that you cannot treat with one aspect of the waste stream alone. We have always said that anything that is done has to be national and integrated. In other words, cognizance is given to all the other wastes and the relationship they bear with each other. We have tried in the past to do recycling at the level of the household and we met with a lot of resistance. What is required is really a treatment of all the waste that comprises the waste stream. So recyclables are dealt with, and whatever is left we use technology to deal with.

We have various initiatives. Currently, we have one on the burner to roll out a pilot project in one of the municipalities that would deal with the dry recyclables and the success we have from the pilot will, hopefully, engender a response that allow us to roll out into the other municipalities and eventually cover the entire country.

As you would imagine, there are a number of challenges along the way, even with just that. So SWMCOL is very relevant. I would reiterate that. There is a lot of expertise resident in SWMCOL. There are lots of teachings, successes, failures, et cetera that have been had and can be used, but the qualification is that we are limited in what we can do by virtue of the fact that we are not a pseudo authority that can actually do what is required with the legislative backing.

Mr. Chairman: I want you to keep in mind that this committee would like to get a very clear picture from you as to the difficulties. You keep referring to the difficulties that you have had over the past 30 years. We would like you to be very open about that, so that this committee might be able to assist you in addressing some of those problems. Mr. De Coteau.

Mr. De Coteau: Thank you, Chairman. I am glad you asked for specifics. For instance, we spoke in terms, again from your report, page 2:

SWMCOL is currently pursuing the project under PSIP, Closure and Rehabilitation of Old Landfills.

Thus far, SWMCOL has rehabilitated both the old Toco Road landfill, Cuchelandfill...

And then you go on to identify nine other landfills. Heading the area is Princes Town. Could you be specific and state clearly which part of Princes Town and what is the rehabilitation process?

Mr. Osuji: We can do that. I cannot do that in this forum, but I can provide that—

Mr. De Coteau: So you will provide the report, in writing.

Mr. Osuji: Just to expound a bit, one of the challenges that we have here is that you go in to remediate a site and close it, but for every site that you close, you have five others that crop up. So how do you deal with it in a sustainable manner? There has to be a multi-pronged solution, including legislation. Now, the Ministry of Local Government has embarked on a consultancy project that is supposed to give, essentially, a national policy for waste resource. That is a framework that I hope would form the basis for a lot of things. Until now, a policy has been lacking, and that is on the soft side. With that policy, we hope to make some significant transformation. So, for every landfill, illegal dumpsite that you close, five or six others will crop up. If you want to deal with it in a sustainable manner, I think it relies on a combination of things, including maybe, an authority-like body that will have the backing of legislation. There is a social component, an educational component. There are so many components that some of them are outside of our remit.

Mr. De Coteau: Mr. Chairman, I know that Mr. Osuji has been speaking more in terms of an historical approach and the challenges and so on. Is there anything that you can say about being associated with SWMCOL that makes you proud to be associated with SWMCOL based on achievement? So far we have heard about challenges. You have not said how you will overcome those challenges or how you intend to overcome those challenges. What about SWMCOL do you feel proud to be associated with? What has been delivered so far that you feel proud of?

Mr. Osuji: We have done a lot of good things.

Mr. De Coteau: Or any member of the committee.

Mr. Osuji: We have had several educational drives in the past.

Mr. De Coteau: Be specific. We have a machine gun firing and I do not really like that.

Mr. Osuji: We have had the whole Charlie Campaign. We have had attempts at educating the public. We have had interactions with various international agencies.

Mr. De Coteau: Mr. Chairman, I wanted more specifics. I am hearing the Charlie Campaign; I am hearing attempts at—I want something specific. Listen, we have achieved these. We are proud of this.

Mr. Osuji: I can tell you very recently because my involvement is recent. If you want historical, I can pass you on to my colleague, who has been there for a lot longer than I have.

Mr. De Coteau: Probably his colleague might be able to—

Mr. Osuji: Recently we have had a number of cooperative agreements that we have tried to capitalize on. We have had interactions with the Japanese; we have had interactions with the Canadians, et cetera

Mrs. Oudit: Maybe it might be preferable, in response to some of the concerns. We have not been hearing what has happened; what has been achieved, so, if there is something—is it Mr. Warren, Wastewater Operations?

Mr. Warren: If I go all the way back; if you so desire, one of the things I can say we were proud of was basically changing the whole technology of waste management in the country. Initially, when we started, we found that garbage was being collected with open-tray trucks, what they call roll-top trucks, and one of the things that we can say we achieved was basically changing that and getting people to understand that they need proper garbage compactor trucks. It was amazing what they were using. We got the whole tendering for garbage collection to change to require compacted trucks. Of course, there were some very innovative people trying to present a truck when the tenders come up that looked like a compactor truck, but when you catch them on the landfill, the men had to open the back, climb in and shovel it out. It was a shell to fool the tender procedure.

One of the things we can also say that we achieved was, historically, people were accustomed to and expected that on Ash Wednesday morning when they got up, the city would be in a mess. We initially tried to implement certain things through some of the regional corporations, but we got little cooperation. The company itself got involved and showed them—that first year we did that carnival clean-up and people came out on Ash Wednesday and saw the place totally clean, they were in total shock. That is one of the things I can proudly say we showed them—that it can be done. We do not have to walk around in garbage for weeks after carnival. Now, that has become the norm. When people go out there now, on Ash Wednesday, and see the place dirty, they make noise. They want to know what has happened. Why was the place not cleaned up?

We have been changing the landscape slowly. That whole Charlie Education Programme was fantastic, but people do not understand that programmes like that cost money and when they cut the money for that programme, it had to be terminated.

10.55 p.m.

Charlie actually went to India and Antigua. Other countries were learning from us actually. That is

just some of the things that we were able to achieve in spite of all the challenges.

Now, quite frankly, I have always questioned whether having the company as a limited liability company was the best option and not having it as an authority. Maybe a waste management authority might have been a better option way, way back. After 30 years we still do not have proper waste management rules. We all know the Beverage Container Bill has been dancing around for quite some years. Some of these things that we have been trying to push for whatever reason, they just did not get implemented.

We know that back in 1980—I guess when you get the document you will see there were at least 25 dump sites all over the country. We successfully got most of them to close and try to change the system. But as Mr. Osuji indicated, people did not understand the importance in your land use planning that you have to cater for waste management facilities. It is reality, we are all generating waste. The waste is not going to evaporate and disappear if you close your eyes. So the importance and the needs for these kinds of facilities have been a bit lacking.

I must say that in recent years we have been seeing a lot more changes. Part of our education programme, at one point, included appearances on radio programmes. We actually started to get people calling in from all over the world. Trinidadians who came back for Carnival, for instance, were calling in to say, they found it was excellent. The first year when we introduced the portable toilets all over the different strategic locations for Carnival, so it would reduce the amount of people doing their personal affairs all over people's walls and behind cars.

We actually got quite a number of calls from foreigners coming to Trinidad for Carnival and saying, thank you for at least recognizing the need for that and putting facilities in place. So, you know, now if that is not done there would be a big clammer. Some of the more pro-active Carnival bands now have mobile facilities. In the past that was not even a thought. We have been able to influence certain things, but the bigger picture, the whole—basically what we have been trying to promote as a national integrated waste management system in the country and the whole concept of viewing waste as a resource as opposed to dealing with it and the landfills, we have managed to convince them that something needs to be done.

So you have lots of initiatives, I know our ministry, Local Government has this consultancy going on now that is supposed to end, I think, January or so. Looking at the whole thing again to see what are the best options to go forward—because sometimes you have a lot of duplication of effort and different people will be doing initiatives on the same thing and wasted resources and wasted funds.

Mr. Chairman: Mr. Warren, this consultancy that is ongoing now, what exactly is that about?

Mr. Warren: It is the ministry doing it but if I remember correctly it is like developing a national policy for dealing with waste.

Mr. Chairman: You mentioned a while ago about some trucks and the tendering process and the inadequacy of the trucks. But the trucks were bought. Could you tell us a bit about that?

Mr. Warren: Oh no, I was going historical. That was way back in 1979/1980.

Mr. Chairman: Oh, I see.

Mr. Warren: That has improved significantly now.

Mr. Chairman: Okay.

Mr. De Coteau: Mr. Chairman, I just wanted to follow up on that. Then would you say—I mean I was once a local government representative—at some point in time that SWMCOL more or less undermined the authority of the Municipal Corporation when they mandated who probably would be the preferred contractor? So that is whereas before, you would have had situations where you had the little entrepreneur in the village, getting a truck and being able to apply through the municipal corporation to be a remover of garbage. And then there was this edict from high that certain persons would be the preferred contractor. Would you say that that may have neutralized the authority of the corporation in some way?

Mr. Warren: I am sorry. I am not familiar with that aspect of it. I am sorry.

Mr. De Coteau: Could you find out what was the role of the Municipal Corporation vis-a-vis, Mr. Chairman?

Handing out of contracts—

Mr. Osuji: SWMCOL's role in that whole process has been to, as an agent of our line Ministry, handle the tendering process. That is what we have done. We have not and will not issue contracts to any contracting company. That is a role left to the regional corporations. We make our recommendations as per the outcome of the tendering process and that is as far as it goes. The rest of it is handled by the Ministry of Local Government in conjunction with the regional corporations.

Mr. Chairman: Thank you.

Mr. De Coteau: Mr. Chairman, the point I wanted to raise here is to what extent then it would have killed entrepreneurship on the part of the local contractor. Because what you found happening with that approach is that the little man in the village he was neutralized, he was diminished.

Mr. Osuji: But we do not and have not gotten into such localized politics. Our role has always been at the level of the Ministry of Local Government as our line Ministry and only with the tendering process. That is it.

But just to add to what my colleague has said, all of what we have done to overcome issues and challenges really, appeals to moral suasion. As you would know, Dr. Armstrong, holistic consideration to all that is waste has to happen from cradle to grave. From the land use planning at that stage all the way down to the end. Despite our best attempts, we continue to see large scale infrastructure without cognizance given to waste. Its treatment, its management, even how it is contained—and we have been at various fora trying to make that point time and time again within the way we are constituted.

So, one of the limitations is the way we are configured. The willingness to take onboard those recommendations might be a consequence of how we are configured. Because, certainly, in the 30-odd-years we have existed there has not been that integration of consideration to waste from a land use planning perspective.

Mr. Chairman: Okay. Thank you. Dr. Wheeler?

Dr. Wheeler: Just wanted to ask a couple of things in relation to Tobago and bio-medical waste. Now, you had said that in your document you do have a relationship with Tobago House of Assembly, and you had mentioned that at one time you provided waste collection services to several districts in Tobago. Is it that those services are no longer in place now?

Mr. Osuji: Up to fairly recently, yes. But we very recently made several in roads into reestablishing linkages with THA and providing services to them. But THA governs itself and by extension all the affairs of Tobago. They have really handled their own waste and contracted services et cetera. But historically we have had a very good relationship. Somewhere along the line that relationship may have weakened. We have made recent attempts through our marketing division to strengthen those ties. We had hoped that we can provide, once again, services to them.

Dr. Wheeler: All right. On that front, the Tobago Regional Health Authority—cause you mentioned that in Trinidad you would manage incinerators—is that correct, as part of your strategy for dealing with bio-medical waste?

Mr. Osuji: No, we do not manage incinerators. But the country, at the various hospitals, abattoirs and labs, et cetera, have their own incinerators, but in various stages or states of disrepair. You have some private sector players that also have their own incinerators for handling hazardous waste, but the ones that belong to the hospital and the labs, et cetera, they handle their own waste largely, but I am certain, and as Mrs. Oudit had suggested, there are instances where you will find some unscrupulous activity where waste does get past that system, because of the contractors involved in holding the waste or dealing with waste and will find its way onto our landfill sites. So the process is not 100 per cent.

Dr. Wheeler: But with respect to specific reference to Tobago and the TRHA, because currently the hospital has two incinerators; one I would more call an oven, because all it does is spew gas into the atmosphere. Does your company possess technical expertise that you can offer to the hospitals in assisting them in managing it, because it is totally unacceptable that biomedical waste, in particular, is not properly being disposed of and I am not sure if for the new hospital your company would have been approached to provide some assistance in dealing

with the biomedical waste that they would be generating.

Mr. Osuji: Not as far as I am aware. We were not approached, but we do have the know-how to inform any treatment or any consideration or any treatment. We have on board a number of specialists who can advise and if the advice is sought, we could definitely inform the process hopefully in that way. We do not have what I would say is very specific knowledge of a particular system. We would not go that far to recommend a particular system, but from a system perspective and understanding how incineration is supposed to work, we have the technical know-how and the experience. We have officers who can do that and we also have a chemical engineer who can offer that advice.

Dr. Wheeler: Thank you.

Mr. Chairman: Miss Hospedales.

Miss Hospedales: Thank you, Mr. Chairman. Based on my observations with respect to the Maloney Housing Development, there are a number of SWMCOL garbage disposal bins there. Do you all provide advice to the Ministry of Housing and the Environment with respect to the number of bins that are suited for the particular number of apartments in terms of garbage disposal?

Mr. Chairman: Can you speak into it, a little closer?

Miss Hospedales: Sorry, Sir.

Mr. Osuji: We do, to answer your question in a nutshell, but what we do not do is to tell people what they can and cannot dispose of in those bins or have any limitation on quantities and so on. So, you do have, if you provide a bin, by and large what you are going to have happening is that people are going to find a way to dispose of everything in that bin. So you do have situations where I think what you might be alluding to, but I leave you to ask the question.

Miss Hospedales: The reason I am asking is, there is only one bin forevery 128 apartments and you could just imagine what it looks like on weekend, so that is why I am asking if you all normally would have provided advice to them with respect to the number of bins that are needed for the number of apartments.

Mr. Osuji: I would have my General Manager Operations, answer that question.

11.10 a.m.

Ms. Rogers: What we would normally do is, we have site visits by field officers, and they would go to the areas and do an assessment of the bins, and with that we give advice to our customers and clients as to the results of the assessment and what type of bins they should use for the area.

Miss Hospedales: Can I ask, was an assessment ever done for the Maloney Housing Development?

Ms. Rogers: It is something I would have to check on.

Miss Hospedales: If not, I would really appreciate if something like that could be done so that the issue of garbage just all over the place on weekends would really be resolved. There was discussion in the past with respect to machine that would crush derelict vehicles, have you all ever purchased the machine?

Mr. Chairman: Sorry, can you repeat that?

Miss Hospedales: There was discussion in the past regarding a machine that you all were to purchase to crush derelict vehicles, I would like to know whether or not the machine was actually purchased.

Mr. Osuji: No, we do not have such a machine. I think we did not get the funds to make the purchase.

Miss Hospedales: There was also discussion about a machine to shred car tyres and then recycle the rubber. Was that machine ever purchased as well?

Mr. Osuji: Similarly we did not get the funds. There have been a lot of discussions and a lot of recommendations and so on, but when it comes to the actual equipment to be purchased, that is where things would have fallen apart.

Miss Hospedales: Was any recommendation made to the present Government with respect to the value of having such machines?

Mr. Warren: Well, I would just like to add that just recently we actually participated in a meeting at the Ministry of Housing and Environment where a proposal was tabled for tyres. There were different stakeholders like the Ministry of Works, the Ministry of Local Government and private sector representation, et cetera, and they are looking at several initiatives to deal with waste tyres now, including using it as part of the road paving material, so that is being looked at again.

Mr. Chairman: Before we proceed, I would like to acknowledge two additional Committee Members, Dr. Gopeesingh and Mr. Collin Partap.

Miss Hospedales: I would like to ask, how many community environment improvement initiatives you have had so far and how often do you have these initiatives?

Mr. Osuji: Historically, we have had several. We have had the Community Environment Improvement Initiative and CEPEP. Those were programmes that were resident under SWMCOL. It is only fairly recently that CEPEP is no longer a feature of SWMCOL. So I would have to say that historically we have. As you would know, CEPEP and CEII mandates were community geared, but that is no longer under SWMCOL, that is now a separate company.

Miss Hospedales: Earlier you highlighted a communication plan which you all had in the past with respect to informing people about the importance of disposing of their waste properly and so on. Do you all still have a plan in place for communicating to the public how they should dispose of their waste? You also made mention of the move towards recycling. Is there a communication plan attached to that as well?

Mr. Osuji: Well, we have a communication division in the company and they have been making inroads in that regard, and yes to answer your question directly. I guess as time goes on, those plans will be firmed up and, hopefully, there would be some sort of compliance. As I said before, the reliance has been mostly on moral suasion. That is what we are using as our ammunition. There is nothing economic about the approach. There is no economic incentive, there is no legislation and there is nothing else that would tend to bind or to alter the behaviours of people. I believe what is needed is a multi-pronged approach; education, yes, but with other systems in place like economic incentives, legislation, enforcement and all those things.

Mrs. Gilbert-Bain: We have a new department for communication for education, and I believe with that department, once it has been developed, we are working on educating the population. We are looking at going into schools and being more active, and I believe that in itself will improve the communities. That is one of the areas that we are looking at in actually improving the communities.

Miss Hospedales: How long has the communication department been up?

Mrs. Gilbert-Bain: We have a communication sales and marketing department, however, we have an educational facet of that department and that has been up for about five months, so it is very new. It has been revamped. It was reconfigured and it is very new, and we have very willing and active staff, so we are looking at that.

Miss Hospedales: The reason why I asked about the communication is because as a child I remember the “Chase Charlie Away Campaign” and I can tell you that it really impacted upon my life in terms of not littering, and so most of the things that I need to dispose of end up in my bag for some reason.

Mrs. Gilbert-Bain: We have “Folio”, he is one of our new mascots, but as Mr. Osuji stated before, is because of the lack of funding we are suffering. We also participated in the Mayaro clean-up campaign. We

were also part of that.

Miss Hospedales: Have you all ever thought about public/private partnerships with respect to the campaigns that you have?

Mrs. Gilbert-Bain: Yes, we have.

Mr. Osuji: Yes, we have and we are looking at that as a model for further outreach and further penetration, and getting some capital injection in essence. We have been looking at that and we know that is the present Government's thrust.

Mr. Chairman: Mr. Chairman, okay thank you. Do you have a new Member that joined you?

Mr. Osuji: Yes.

Mr. Chairman: Could you introduce yourself?

Mr. Creese: I am Mr. Stephen Creese, acting Permanent Secretary in the Ministry of Local Government. Currently, the substantive PS is on vacation.

Mr. Chairman: Okay, you are welcomed. Mr. Osuji, with respect to the legislation where you mentioned it on occasions, have you approached your Ministry or the Minister with respect to the inadequacy of the legislation and what you think is required? You keep talking about moral suasion and the fact that things are not supported by statutory requirements. Is that something that is under consideration?

Mr. Osuji: We have been part and parcel of a lot of the fora that have been geared towards either coming up with the legislation or making alterations to what exist. So, we have been there and we have done that. Even within the Ministry of Local Government, where at one point in time they were resident to a number of committees, and each of them was dealing with various components, one of the committees was also looking at the legislative bit and the extent to which that could be handled differently, or what improvements were required to give teeth, essentially, to any type of action.

Mr. Chairman: Is this something that was recent? Is current consideration being given to it?

Mr. Osuji: Yes, it is very recent and it has climaxed with the Ministry of Local Government. As I mentioned earlier, the consultancy have undertaken to come up with a national policy for waste resource management and that is the culmination of a number of other smaller steps, and this would feed off the successes or failures of any of the other smaller initiatives. So I think this is where all those efforts have culminated.

Mr. Jeffrey: I am very thankful for the progress made at the Cedros Landfill Site. That was near to the Main Road and I know a lot of students and I, myself, had problems when I was down there with the stench that we had to encounter every day. So that is some progress. I am still worried about the Beetham and the Forres Park Sites. What prospective sites have you identified for official landfills?

Mr. Osuji: The sites that have been recommended in the literature have been the sites at Claxton Bay adjacent to the existing Forres Park Site. As I said before, the criteria that they used to establish where a site should go are scientific. So you have to look at the characteristics of the geology and the characteristics of the soil. When Forres Park was first built, it was cited on, at the time, what was considered geologically appropriate. So any alternative site will have to give recognition to those scientific criteria and Forres Park is such an identified site.

Mr. Jeffrey: You are not living down on that side, but for somebody who has to pass that area every day, that is an area that needs urgent attention. You have to get another place. Forres Park is not a good place at all.

Mr. Osuji: The site that is there now also needs to be addressed, but with cognizance given to the fact that a new site is needed nationally, that is the preferred scientific location.

Mr. Jeffrey: I am particularly worried because, you see people who have to go to church in Tortuga have to pass on that roadside every day, and when they go to church and so on, I find in 2011—

Mr. Osuji: I mean, a state-of-the-art landfill site does not look like that. What we are going to be evolving towards is a sanitary landfill site, an engineered landfill site. What we have, strictly speaking, are landfill sites that are not. So anything that is constructed now, the technology is such that what you have that is called landfill is different. It is well engineered; it is well managed and sometimes you can feel so calm and comfortable within the site. You do not see vermin or flies or anything like that.

Mr. Jeffrey: What timeframe you have in mind where we will be comfortable that we could pass by a landfill site and not feel—

Mr. Osuji: For the existing sites or the new sites?

Mr. Jeffrey: The new ones.

Mr. Osuji: The new sites, typically they have gestation periods of three or four years, assuming everything else is in place; the site has been approved from a planning permission process and you have all your permits, et cetera in place, I would think about three to four years.

For remediation or rehabilitation of the existing sites, once we have the green light and we have the technical cooperation that is required, I would think about two years to remediate those sites.

Mr. Jeffrey: So, you are expecting to get the green light soon.

Mr. Osuji: Yes, I am very optimistic about that. What we have done recently is that we have capitalized on some of the government-to-government arrangements that exist and we have explored partnerships with the—all this is not firmed up as yet—various private sector companies and at a government-to-government level, we have looked at getting the involvement of the Japanese as well who have had ownership rights on technologies involved with remediating or rehabilitating or improving sites. So these things are in the pipeline, and once we have the green light, I do not see those activities taking more than three to four years

11.25 a.m.

Mr. Jeffrey: My last question, what is SWMCOL's official position on persons who salvage waste from the dump sites? What is the official position of SWMCOL on that, because I find it is real objectionable?

Mr. Osuji: When you say, "official position" I am not sure exactly what you mean.

Mr. Jeffrey: Well you see everyday when you look at the Beetham you see boy, fellas coming from Beetham ever so often, they make a living off that thing.

Mr. Osuji: Ideally what we would like is a system where you have all your dry recyclables separated at source, and do not end up at final disposal at the landfill sites. That will remove the existence of that industry—that whole salvaging industry. We are not proponents for or support the salvaging, and certainly not under the conditions that it exists, which is very informal and poses risks to they themselves—the salvagers.

So, our position has, and always will be, to minimize the involvement of salvaging in its present form. If it should morph from its present form, it should bear resemblance to incorporating them in a formalized manner, either in a material recovering facility or something like that, but there is an overarching presence for separation at source, so that all your recyclables are market-destined and do not necessarily fall into the hands of informal recycling by the real salvagers.

Mr. Jeffrey: How soon do you expect that to happen, to take place?

Mr. Osuji: We have had several attempts before at starting threat. Even SWMCOL itself commissioned, in the past, an attempt to try to source separate, and it was not very, very successful. But more recently we had an initiative—a joint initiative—with a private sector company, and we are looking at trying to initiate a pilot programme in one of the regional corporations—just one. The intent being that if we have

success with removing all the dry recyclables from the waste stream, then we would be able to roll into a national programme eventually. So, it is in the pipeline, its topical and I am hoping that once we have the—and I do not see any problem with it—once we have the buy in of the Ministry of Local Government, it would take root. So, I would say, if I were to hazard a time period, it would probably be six months.

Mr. Jeffrey: Six months.

Mr. Osuji: In one regional corporation, yes, to roll out into one regional corporation.

Mr. Jeffrey: I hope it comes out from the pipeline quickly because it is a real problem to see young people going across to the dump to make a living there. I mean you saw the recent situation with the guy who had to buy the shoes to go to school, and he was working on the dump and so on, you know. I find we need to have some kind of official policy on that, and some plan you know, with a time frame, to deal with that situation.

Mr. Osuji: As I have said before, how we are configured is one of the hurdles that we would perpetually have to deal with.

Mr. De Coteau: Chairman, I remember at some point there was an acronym for the Dead Animal Retrieval Team. Was that the responsibility of SWMCOL? Is it still a responsibility of SWMCOL or the regional corporation? I would like to know because we see these dead animals on the road everyday and no one seems to be responsible for having them removed. Could you—

Mr. Osuji: DART, Dead Animal Retrieval Team, was a programme under CEPEP. And when CEPEP was a programme under SWMCOL DART was, as a consequence, a programme under SWMCOL, but now that CEPEP is no longer a part of SWMCOL that still exist but it is just a feature of CEPEP entirely, not us. But that is for the DART, Dead Animal Retrieval Team. I think you also made mention of DERT—

Mr. De Coteau: So it is not your responsibility—

Mr. Osuji: DERT is a different programme.

Mr. De Coteau: So the Dead Animal Retrieval Team—

Mr. Osuji: Yes, I think that you are mixing them up. Dead Animal Retrieval Team—

Mr. De Coteau: You have to tell me, I do not know.

Mr. Osuji: Dead Animal Retrieval Team is DART. What was requested was information on DART, but Dead Animal Retrieval Team and DERT, Disaster Emergency Response Team are both, or were both programmes under CEPEP. When CEPEP was part of SWMCOL both programmes were under CEPEP. They continued to be programmes under CEPEP but CEPEP is now detached from SWMCOL. So you have Disaster Emergency Response Team, which is community-based, and your Dead Animal Response or Recovery Team.

Mr. De Coteau: The one that I am interested in is the Dead Animal Retrieval Team or whatsoever, who is responsible for that?

Mr. Osuji: CEPEP.

Mr. De Coteau: Is CEPEP aware that they are responsible for that?

Mr. Osuji: They are, yes.

Mr. De Coteau: Well, I am glad that you can edify the national community. And Mr. Chairman, the other question that I would want to ask to the Corporate Secretary—I am happy when I heard she mentioned that they are trying to get the schools involved. What were the kind of recent communication you would have had with the schools? First of all, I am saying this not because I am the Minister in the Ministry of Education,

and my colleague Dr. Tim is here, but we want people who are going to get the schools involved, that they should be au corant with the mission and vision of the Ministry as it exists today. So that whatsoever programme they are trying to initiate, it would be in tandem with the Ministry's theme. But how do you approach getting the schools involved?

Mrs. Gilbert-Bain: I would not be able to answer that question at this point in time, I would have to refer it to the head of the educational division of communications—he has a marketing department and I will be able to get back to you to send some information to you.

Mr. De Coteau: Well, we would like to guide you somewhat, and I will ask my colleague, Mr. Chairman, probably Dr. Tim could tell them how we would like them to go about, and it will be alerting the national community as well, because what we have found is that a number of people just involved in schools, some people may get a vaps—

Mr. Osuji: Yes.

Mr. De Coteau: —with all due respect, involved with schools. So probably if you permit Dr. Tim to probably enlighten the national community how we would like them to approach. We do not want to turn them down—the corporate bodies.

Mr. Osuji: No, but I mean historically we have always had the involvement of the schools—we have always been involved in schools. Yes, lectures, they invite us for lectures, they invite us to make presentations, there has been that thrust. I think where we need to lay emphasis is on making it a sustainable thrust, and that is the challenge we will always have. Also maybe the time has come for integrating into the curriculum a component that deals with and allows for the creation of environmental sensitivities within the schools. I think it is needed, it is necessary. What we are finding is that if you want to change the entire landscape, that educational component is necessary, and it does not have to be a separation subject, it can be a component under one of the existing subjects, maybe Social Studies or Social Sciences.

Mr. Chairman: Sorry, one minute Dr. Gopeesingh. You wanted to add something? Sorry, one minute.

Mrs. Gilbert-Bain: What we are also considering is approaching the National Library [NALIS] the authority, to partner with them regarding using their mobile library facilities to educate the more remote communities.

Dr. Gopeesingh: Thank you, Mr. Chairman. Permit me to welcome members of SWMCOL, your executive management team. This morning the enquiry, I believe, is being nationally filmed, yes, and so there are citizens looking on and we are looking at the administration and operations of SWMCOL.

I would just like to ask you some overall questions related to SWMCOL. As I understand you fall under the Ministry of Local Government, so the Ministry of Local Government is your line Ministry. Could you give us an idea of your budgetary allocation under your line Ministry for SWMCOL; your human resource component in terms of your staff, and if you would be kind enough to provide your organizational structure, and your remuneration packages for the senior management of SWMCOL? I know that you would not have that answer today but just take down the questions that I am asking and then you might be able to answer them.

So from an administrative perspective what is your budgetary allocation, your human resource component, your organizational structure, your remuneration packages, how many personnel you have within SWMCOL? Have you got a Mission Statement? Have you clearly defined objectives, and could you outline to the nation, through this enquiry, what is the nature of your work of SWMCOL, if you are to enumerate them? You are in the process of waste matter collection and disposal, et cetera, if you would enumerate them what your purpose as a solid waste management company is? How long you have been existing? What your proposed projection is for the future, in terms of where you see yourself going? What is your relationship with the other aspect of Local Government who are also collecting garbage in municipal corporations or in the other corporations and in the cities and so on? Is there any other team of workers within Local Government that also collect garbage or waste? So these are some of the major administrative.

And operations now, their other aspects: You speak about landfill sites and rehabilitation—closure of landfill sites, opening of landfill sites and rehabilitation of landfill sites. What criteria you use to close a landfill site? What do you mean by rehabilitation of a landfill site? How do you determine where to open a site or is

there any desire to open other sites, and therefore, if you are thinking about opening sites, on what basis you determine where you are going to locate a site?

You know that a significant percentage of water is collected by rainwater into dams. Do you select sites with the assistance of the Water And Sewerage Authority in terms of determination of whether it is safe to have a landfill site? When rain falls ingredients from the site will seep into the water tables and get into the main water stream and with toxic pollutants of lead poisoning, mercury poisoning, et cetera, how do you determine where these landfill sites are?

I think I have given you a mouth-full of questions which we would seek some answer for; one, the administrative aspect which I indicated, and then, two, your operational, and based on what you, they, proffer to us, then I may have some other questions for you in the future. Before I close on my questioning, Guanapo site has been a centre of controversy for years—

Mr. Chairman: Sorry, Dr. Gopeesingh, if I can just intervene. I think we actually dealt with that and some of those issues before.

Dr. Gopeesingh: All right.

Mr. Chairman: What we have not dealt with would have been the first issue that you raised with respect to organization and budget and so on, so maybe if you can respond to any of those Mr. Osuji.

11.40 a.m.

Mr. Osuji: I can, but I prefer to supply the detailed information at a later date.

Dr. Gopeesingh: Could you not give an idea?

Mr. Osuji: I do not have the budgetary figures.

Dr. Gopeesingh: But you are the general manager, are you not?

Mr. Osuji: I am the general manager of one—

Dr. Gopeesingh: If you are the general manager you should be operating in the context of something in your head.

Mr. Osuji: Yes.

Dr. Gopeesingh: I am operating with \$50 million or \$80 million so; therefore, I have to decide. I have 150 workers or 200 workers so I have to—

Mr. Osuji: Yes, certainly. If you want specifics I will have to get back to you, but I can give you, from a budgetary standpoint we get from the Government—

Dr. Gopeesingh: I can tell you I have 16,000 teachers, I have 3,000—

Mr. Osuji: Sure, that is fine.

Dr. Gopeesingh:—I have a budget of \$4.2 million—

Mr. Osuji: No problem, no problem. I am venturing down that—

Dr. Gopeesingh:—but you as a manager should be able to—

Mr. Osuji: Sure, certainly. I am going to tell you that now.

Dr. Gopeesingh: Please, do not try to carry us back to try and get answers. We want the answers now.

Mr. Osuji: Right, we operate with a budget, a subvention from the Government that allows us to manage the landfill sites. That is the only commitment that we have from the Government. Everything else we more or less fend for ourselves. We have a staff—

Dr. Gopeesingh: But what is the budget that you get from the Government?

Mr. Osuji: We get a subvention of \$75 million to manage the landfill sites—all three annually.

Dr. Gopeesingh: To manage the sites or to manage the entire garbage collection?

Mr. Osuji: To manage the sites. We are not involved in the collection of garbage. That is something that is handled within the regional corporations.

Dr. Gopeesingh: Alright, so that is the question I am asking. So you do not collect garbage at all?

Mr. Osuji: We do not. No.

Dr. Gopeesingh: So, what is the relationship with the local government garbage collections? How do you associate yourselves with them?

Mr. Osuji: We have some small collection, but it is private sector. Our relationship with the collection services that are obtained within the regional corporations is only from the procurement perspective. We work closely with the Ministry of Local Government in helping them to select appropriate contractors based on ability and pre-established criteria. But we are not involved in nor do we have any relationship with the contractors who are involved in waste collection throughout the regional corporations. Some regional corporations have their own capacity, like Port of Spain, other regional corporations have limited capacity; some have vacuum tankers, for example, that deal with septage, but we have no relationship whatsoever with the actual contractors. Our relationship is via the line Ministry, Ministry of Local Government and is limited to involvement with the procurement process.

Dr. Gopeesingh: What do you mean procurement? Go on, explain that a bit more.

Mr. Osuji: The contractors are selected via tendering process.

Dr. Gopeesingh: So, who selects the contractors for the collection of waste in the 14 regional corporations?

Mr. Osuji: We would make the evaluation based on a committee.

Dr. Gopeesingh: Who invites the tenders? Who evaluates the tenders? Who awards the contracts? Who monitors the performance of the people who have been awarded the contracts?

Mr. Osuji: Okay, I can tell you what has obtained recently.

Dr. Gopeesingh: I do not want what has obtained recently, I want a true picture of what is happening.

Mr. Osuji: Right, this is a true picture: the Ministry of Local Government would ask for our involvement in that procurement process. It is done via a committee that is established—

Dr. Gopeesingh: For all 14?

Mr. Osuji: All 14 regional corporations, yes, and the evaluation committee will—

Dr. Gopeesingh: So you would send out request for proposals?

Mr. Osuji: Yes, publicly.

Dr. Gopeesingh: For collection of waste and disposal of waste?

Mr. Osuji: Yes, open tender.

Dr. Gopeesingh: So, if you have given a contract to a particular company it would be for the collection of garbage and the disposal of the garbage?

Mr. Osuji: Yes, but we do not give contracts, that is left to the regional corporation. What we do is evaluation insofar as it allows a recommendation to be made, but I can allow the—

Dr. Gopeesingh: Come; let us not confuse ourselves. You are the ones who invite the tenders or the regional corporations invite the tenders?

Mr. Osuji: Maybe I should let the Permanent Secretary speak at this point in time.

Mr. Creese: I think I should take that because—and that is why he is a bit hesitant in his answer, because the last time that these contracts were awarded was the first time it was done in that fashion, traditionally it was done through Central Tenders Board, but the Ministry adopted that new policy when the last contracts were due, and therefore—

Dr. Gopeesingh: Well, you know through the Central Tenders Board we are looking at the whole question of procurement, that is another committee, but the Central Tenders Board takes a very long time, so we are looking at that, so while Rome is burning—

Mr. Creese: Right, so that, amongst other reasons, lead to the Ministry taking a note to Cabinet prior to the last tendering process, and Cabinet approved the use of SWMCOL to replace CTB to procure the new contracts.

Dr. Gopeesingh: So, Solid Waste will send out the request for proposals, invite the tenders, evaluate the tenders—

Mr. Creese: That was the first and only time that occurred.

Dr. Gopeesingh:—and you award the tenders. So, now that is the system we are operating on. So, Solid Waste now—so you award the tenders, what do you do with your \$75 million? How many workers do you have within Solid Waste?

Mr. Osuji: We have approximately 250.

Dr. Gopeesingh: Full-time?

Mr. Osuji: Yes, full-time. There is some—what do you call them—

Dr. Gopeesingh: What percentage of your \$75 million goes to filling remuneration packages for SWMCOL and what is for capital expenditure?

Mr. Osuji: \$75 million goes towards managing the landfill sites.

Dr. Gopeesingh: So, that is what you do, managing the lots? So, if you are to tell the nation, Solid Waste Management Company, send out request for proposals for contractors and you help to select the contractors and so on, and you manage the landfill sites, yes?

Mr. Osuji: Yes.

Dr. Gopeesingh: Could you give us some operational aspect of what you mean by managing the landfill sites?

Mr. Osuji: In managing municipal solid waste you have several stages: you have collection; storage treatment; transportation and disposal, disposal is the end stage. We are involved in the end stage, the final disposal. Presently we manage three landfill sites, municipal solid waste comes to us comingled. Is it not sorted and activities that occur on the landfill sites will involve, essentially, burial. You prepare an area, you dispose of the

waste and you cover it with a cover material. That is it in a nutshell.

Dr. Gopeesingh: So, if I am to go through, the municipal corporation's vehicles and so on, collect the garbage from the citizens throughout Trinidad and Tobago and they bring this to the landfill sites throughout the country, and you have three?

Mr. Osuji: Yes, Guanapo, Beetham and Claxton Bay, that is Forres Park.

Mr. Creese: May I, just to make sure that the record is correct; there is a fourth that is privately managed, but the property is owned by the Point Fortin Borough Corporation.

Dr. Gopeesingh: Okay. You said that you also have private sector involved with your company, how is private sector involved with your company?

Mr. Osuji: I did not—

Dr. Gopeesingh: You mentioned the fact that there is a private aspect to it as well.

Mr. Osuji: Oh yes, sorry. We have a couple of compactor trucks and vacuum tankers and we service commercial clients—

Dr. Gopeesingh: So, you do that for a fee for service?

Mr. Osuji: Yes, but in a very limited fashion. We have a small fleet and the clients are commercial.

Dr. Gopeesingh: That would be what type of waste?

Mr. Osuji: General waste. We also deal with septage which is human waste, and I think that is primarily it. General waste and septage.

Dr. Gopeesingh: So, have you found a synergy between solid waste and local government, because local government does that as well, particularly in the non-sewerage systems part of Trinidad—so the local government collects garbage, waste; they also assist in human waste, how do you come in with them? Is that a determination on your own that solid waste would deal with this on their own? Is that something that you decided you can help to increase your revenue?

Mr. Osuji: It is primarily for revenue and we occupy a very small component in the market. In fact, I guess for all intent and purposes, competing with the people who would do it privately and, to an extent, the people who would do it within the regional corporations. But by and large, we accept waste from the regional corporations, either via their independently-owned fleet or private contractors and, also, the private participants within the industry outside the realm of the regional corporations.

Dr. Gopeesingh: I had asked you what percentage of your \$75 million annual budget goes towards recurrent expenditure paying for salary and wages?

Mr. Osuji: I could not tell you that specifically—the \$75 million, as far as I am aware, is a subvention that is used to manage the landfill sites and management implies—

Dr. Gopeesingh: Do not evade the question please.

Mr. Osuji: I am not evading the question, sorry.

Dr. Gopeesingh: If you are not getting it clearly—you are given a budget of \$75 million, you said your management is to operate the landfill sites, you have 250 workers in your organization, what do your workers do in relation to management of—is it the management of the landfill sites? If you cannot answer there is another manager there. Mr. Warren, could you help him?

Mr. Warren: Well, out of the subvention we take like 15 per cent for administrative purposes, so that would contribute to the company's budget for, as you said, remuneration, et cetera. The commercial aspects of our company have to make up any difference.

Dr. Gopeesingh: Make up which difference?

Mr. Warren: Well, the 15 per cent from the budget is not enough to run the whole company.

Dr. Gopeesingh: You are given \$75 million—

Mr. Warren: Yes, and it has to pay for the trackers, the cover material, all the labour involved in the landfill operations and security, et cetera.

Dr. Gopeesingh: What do your 250 workers do?

Mr. Warren: The majority of them are daily paid workers in the waste collection section that, basically service private clients.

Dr. Gopeesingh: I do not think we are getting the answers that we really need.

Mr. Chairman: Could I suggest, Dr. Gopeesingh, that perhaps, because I think some of the things we went through before, if you could raise the question and if we could send it to them and have them submit response to your questions—

Dr. Gopeesingh: Well, it is something they should know off their fingertips.

Mr. Chairman: Well, clearly there is a—

Dr. Gopeesingh: It is sad and unfortunate that you have two managers from Solid Waste Management Company and they cannot give us the answers that should be readily forthcoming. I wonder really whether—forgive me general managers, you seem not to be able to give these answers that any individual in the country will ask you. You are running a major organization of solid waste which the nation depends upon you to manage, and you must have a clear understanding of what your organizational structure is, what you do, what your financial arrangements are. You are two of the managers within the organization.

Mr. Osuji: Right, but we are two of four and based on the—

Dr. Gopeesingh: Well, you do not have two, you have four.

Mr. Osuji: Yes, but based on limitation and what was asked for none of the questions were financial related. If we had known we would have prepared and come with the finance general manager.

Dr. Gopeesingh: Mr. Manager, you are manager in your organization, you should have these answers at your fingertips. You should be able to tell us with your \$75 million this is the amount spent for recurrent expenditure for paying wages; this is the amount for capital expenditure for buying vehicles. Your 250 people are in different areas of the organization, and this is what we would expect you all as managers to come here with the answers there for us, rather than we having to write you and search for it when it should be here [*Points at head*] not in a book somewhere that you have to—if you are managing an organization you should operate as a manager. The corporation secretary has information about finance as well, could you help them with it? You should be able to know what your financial situation, what your human resource management system is, what your operations system is? You are the corporate secretary, could you help them?

Mrs. Gilbert-Bain: No.

Dr. Gopeesingh: No, you cannot? There is another general manager, so you have a general manager, a manager, a general manager, three managers—are you able to provide that information for us? No, unfortunately.

Mr. Chairman: Okay, can I make a suggestion, Dr. Gopeesingh. What we could do, is perhaps—

Dr. Gopeesingh: Mr. Chairman, you see, this is one of the things that we speak about from the question of governance. You have an organization operating as SWMCOL, the country depends upon that organization to manage the waste system of Trinidad and Tobago. That is such a critical thing in the country that they manage the landfill sites and you have three managers here this morning, unfortunately cannot give you the basic information that you require from any organization, are they fit to govern? This is the question we have to ask. I am not casting any aspersions.

11.55 a.m.

Dr. Gopeesingh: Now, if I am to ask you all, what is the total tonnage—permit me, I started asking some questions a few minutes ago. What is the total tonnage of waste that you can tell the country that Solid Waste managed on a yearly basis?

Mr. Osuji: I can tell you it is 700,000 tons per year.

Dr. Gopeesingh: Very good. You know that answer; 700,000 tons. Permit me, Mr. Chairman, there are other Members who asked questions before I came in. How much goes to each site—approximately?

Mr. Osuji: Almost 50 per cent goes to Beetham.

Dr. Gopeesingh: 50 per cent goes to Beetham?

Mr. Osuji: Yes.

Dr. Gopeesingh: And the other 50?

Mr. Osuji: The other two sites will receive the remainder of the 50 per cent.

Dr. Gopeesingh: Do you all do any analysis of the environmental aspect of these sites, in terms of the gases that are liberated in the atmosphere of the sites—each one of the sites? Do you work with WASA to determine the content of whether your sites allowing seepage—whether the closed sites—allowing seepage of material of those sites to go into the water tables? Have you all done any environmental impact assessment in terms of the determination of your sites that you have closed, your sites that you have opened; the air environment and the water environment?

Mr. Osuji: We have not opened any sites, and therefore the EIA would not be relevant and a lot of these sites predate our existence. Our involvement has been to consolidate what have been essentially 20 sites into three. Almost five years ago we did a detailed investigation into the—*[Interruption]*

Dr. Gopeesingh: Five years ago?

Mr. Osuji: About four or five years ago, yes. We did a huge study into the Beetham and the relationship that the leachate might have with, if any, the ground water and surface water. Historically we have done investigations as part of a monitoring programme into the leachate characteristics and analysis. Samples have been taken and analyzed outside of the country, et cetera. But in the very recent past we have not undertaken those. As I said we alluded to the one that was taken, details that were done four years on two of the sites and we have the results from that. So yes, in a nutshell, yes.

Dr. Gopeesingh: So your last analysis of the environmental impact of your dump sites is as long as four years ago?

Mr. Osuji: Yes, and it was very specific.

Dr. Gopeesingh: Have you seen it fit to do it on a yearly basis because of the dangers posed to the national

community by landfill sites.

Mr. Osuji: We see it fit.

Dr. Gopeesingh: Why is there no necessity by your organization to do it on a yearly basis, to understand the atmosphere—the environmental situation in the air and in the water?

Mr. Osuji: Yes, we see it fit. I think that there just have been a number of issues and possibly challenges that we face. But you are correct, it is a requirement and we have up to very recently been in discussion—
[*Interruption*]

Dr. Gopeesingh: We have been told that it was closed down by an administration for 10 years, because people said that it was liberating toxic gases in the air—one school area and, unfortunately, thousands of students were not able to go to that school. You have three landfill sites which are potentially very toxic and you as a Solid Waste Management Company being paid by the State to carry out the operations of management of your landfill sites, and you do not feel it is necessary to do an environment—

[*Interruption*]

Mr. Osuji: I did not say that I felt it was not necessary.

Dr. Gopeesingh: Hold on, Sir. Hold on, please—and you said about taking those samples abroad when CARIRI—and you could work with the Environmental Management Authority and all these agencies in Trinidad. Do you know your nexus? This is part of your work that you are supposed to be doing. How have you been monitoring the sites that have been closed? There are about nine sites that have been closed. Guanapo had been brought into Parliament at one time when they say that there is liberation; there are fires on the surface of the site because of the emission of toxic agents which are combustible.

So you have a certain amount of sites—nine sites which are closed, which should be monitored on a regular basis and you have three sites that are opened and potentially a fourth, and the last monitoring is four years ago? How do the people of this country who are drinking water from the tap feel? Are they comforted by the fact that lead poisoning can go into this site, mercury poisoning can go into the water tables? Why cannot you decide to work with WASA to see your relationship of your sites in relation to their water tables? Can you not do that?

Mr. Osuji: We have worked with WASA. In fact, I do not know—I am not sure that you might be aware, but a lot of these investigations are hugely expensive and involve the establishment of ground water monitoring wells. We have worked with WASA and—
[*Interruption*]

Dr. Gopeesingh: Sir, monitoring of a particular site will not cost you more than a few thousand dollars. So out of \$75,000
[*Interruption*]

Mr. Osuji: On the surface monitoring, yes. But if you are looking at ground water interactions it cost—

[*Interruption*]

Dr. Gopeesingh: WASA will do that for you. You should be working with WASA.

Mr. Osuji: We have worked in the last study—if I would be allowed to answer the question, Mr. Chair—

[*Interruption*]

Dr. Gopeesingh: Please answer.

Mr. Osuji: WASA has been intimately involved in that last exercise.

Dr. Gopeesingh: Four years ago.

Mr. Osuji: Yes. We had to get—
[*Interruption*]

Dr. Gopeesingh: You are proud to say here—*[Interruption]*

Mr. Chairman: Dr. Gopeesingh, please. Could we allow him to answer the question, please? Thank you.

Dr. Gopeesingh: Go ahead. Surprising we have three managers of SWMCOL spending \$75 million and they do not see it fit to monitor whether those sites are pollutants to the water tables in our nation.

Mr. Chairman: Dr. Gopeesingh, I appreciated that—*[Interruption]*

Mr. Osuji: We saw it fit and we have been monitoring it historically—*[Interruption]*

Dr. Gopeesingh: He answered it already. He has answered it that four years ago was the last time he did something—four years ago.

Mr. Chairman: Could you go ahead Mr. Osuji?

Mr. Osuji: We have seen it fit and we have been monitoring as I said as recent as four years ago. And that was a very huge—can I finish please?

Dr. Gopeesingh: And you are proud of that?

Mr. Osuji: Can I finish please? Sorry. Can I finish? This is not whether I am proud of it or not. I am answering your question. As I said there are a number of challenges that we face. We have faced a number of challenges, and a significant one of which is the importance that is given to waste management. It is not hugely important enough for us to have the resources that we need to do what is needed—*[Interruption]*

Dr. Gopeesingh: Am I hearing correctly, Mr. Chairman? He said that they have not been given the importance of—waste management has not been given the importance that was supposed to be.

Mr. Osuji: We have—Mr. Chairman, if I can elaborate—*[Interruption]*

Dr. Gopeesingh: Based on the examination tables by this landfill sites and they believe that it has not been given the significance that it deserves. Am I hearing him correctly?

Mr. Chairman: Yes. What I think we can do is allow him to finish and I think if we need to get further clarification—*[Interruption]*

Dr. Gopeesingh: It is very sad, very sad.

Mr. Chairman: Are you finish?

Mr. Osuji: No, I am just trying to answer the question as comprehensively as possible. As I said, it is not that we never saw it fit, which is what the Member keeps alluding to, we have always seen it fit.

Dr. Gopeesingh: I am not alluding; I am direct in my questions. I am not alluding to something. I am direct in my questions to you which we need—*[Interruption]*

Mr. Osuji: We have always seen it fit—*[Interruption]*

Dr. Gopeesingh: And your direct response has indicated that you do not think that that has been significant enough for you to be considered in terms of the waste management, the environmental impact.

Mr. Osuji: We have always seen it fit and have had historically very stringent monitoring of all the sites. And I would say that as recent—*[Interruption]*

Dr. Gopeesingh: You are repeating yourself. You said the last time you did it in one site was four years ago.

Mr. Osuji: I said historically, historically. Now, very recent—it is recent as four years ago, approximately four years ago. Now the things that—it may not happen—*[Interruption]*

Dr. Gopeesingh: I think I am finished with my question. I feel very saddened.

Mr. Chairman: I think what we can do as I was saying earlier, Dr. Gopeesingh, I think you have raised a number of questions which we will ask the Secretariat to list and we will send them to SWMCOL so we can be sure that we have actually covered all the issues that you have raised.

Dr. Gopeesingh: I just want to raise something within the committee here probably for them. They have a Board of Management, not so? Do these managers work with the Board to have them to determine the way forward on some of these issues because I think we will have to bring this to the attention—*[Interruption]*

Mr. Chairman: Well I think this is something we can bring to the attention of the Board and have them respond. I would like to acknowledge that we have been joined by another Member of the committee, Dr. Lincoln Douglas. Miss. Hospedales you had—*[Ms. Hospedales nod her head indicating no]* Dr. Douglas you had anything that you wanted to *[Dr. Douglas indicated no also]*

Mr. De Coteau: Mr. Chair, I know that I did ask some questions before and I realized that the person was under some tremendous fire. But is it possible just for clarification, as to just how long, I mean, each person probably was in the area? I know that they said that Mr. Warren has been in the particular area. Just for the edification for the records.

Mr. Chairman: Could you?

Mr. Osuji: As I said, Mr. Chairman, I am here in two capacities. The first capacity is acting CEO. I have been in that capacity for two days. In my more substantive capacity of General Manager, Integrated Waste Systems, I have been in that capacity for six months.

Dr. Gopeesingh: And prior to that?

Mr. Osuji: Prior to that I was in a different capacity in the company. The company has recently been restructured. But in that previous capacity I have been there for six months as well.

Mr. De Coteau: Mr. Chairman, I just want to clarify that, because I know that he was under fire and I want to feel that he was really a neophyte, six months and two days is not too much.

Mr. Osuji: Yeah.

Mr. Chairman: Do you need to get the information from the others as well?

Mr. De Coteau: Yes, yes.

Mr. Chairman: So could we go down the line.

Mrs. Gilbert-Bain: I am very new to the company. I have been the Corporate Secretary for five months.

Mr. Chairman: And before that were you also with the company or in another—?

Mrs. Gilbert-Bain: No.

Mr. Chairman: You joined the company five months?

Mrs. Gilbert-Bain: I was at Statutory Authorities before.

Mr. Chairman: Okay, thank you.

Mr. Warren: I have been the Manager of Wastewater for about two and a half to three years, and I have been with the company for many years in various capacities.

Mr. Chairman: Ms. Rogers.

Ms. Rogers: I have been in the capacity of General Manager of Operations for one month.

Mr. Chairman: Where were you before that?

Ms. Rogers: The airline industry, Sir—Evergreen Helicopters.

Mr. Chairman: So you just joined the company as well?

Ms. Rogers: Yes, Sir.

Mr. Chairman: Okay. The CEO actually is not here today; he is away.

Mr. De Coteau: I just wanted for clarification sake, because I realized that the only person on the panel there with institutional memory is really, Mr. Warren.

Mr. Osuji: Mr. Warren has been with the company for almost 30 years.

Dr. Gopeesingh: Mr. Warren, you have been relatively silent.

Mr. De Coteau: Exactly.

Dr. Gopeesingh: You have been there for 30 years and you have been relatively silent.

Mr. De Coteau: What I am saying, Mr. Warren, is that I am not defending anyone, but I listened to Mr. Osuji and I realized that he was under some fire and the knowledge that was really needed to be gained from him, I feel that he would not have had it. You should have come to the defence of your colleague.

Mr. Warren: Unfortunately, there are many things happening above my level that I would not have known about.

Mr. Chairman: There is just one other issue that I wanted to raise with the company. Have you been working in conjunction with the EMA and the Town and Country Planning Division with respect to selection of these sites, closure of these sites and you know how you are going to move in the future? Because I got the impression that SWMCOL might go out and based on certain scientific investigations might propose a site but there are other considerations as well. What sort of collaboration is there?

Mr. Osuji: We have had collaboration. I could even speak to recent collaboration with the TCPD as it relates to the approvals required for one of our transit stations at the time. That is ongoing. We are always in collaboration with EMA. Infact, EMA visited one of our sites not too long ago.

Dr. Gopeesingh: Which one was that?

Mr. Osuji: Guanapo. But these sites predate. We have—in our scientific estimation these sites need to be closed, and the onus is on finding and establishing a new site. That is where we will like to concentrate our efforts.

12.10 p.m.

Mr. Osuji: And the onus is on finding and establishing a new site that is where we would like to concentrate our efforts. So, yes, there is that collaboration—the siting a new site, the significant criteria scientifically that cannot but dispensed with.

So it is a whole process, you have to have a conceptualized understanding of the project. You have to have even sometimes more than conceptual and that is what you use as the basis to go to any one of the agencies to get your relevant permissions and permits. As I alluded to before, there are a number of challenges and the huge one is social, the second one is financial. These are not cheap facilities. So, yes, we have our agencies that we collaborate, with Town and Country Planning Division (TCPD) and the Environmental Management Authority (EMA) but these sites would not have required Environmental Management Authority (EMA) permission because they predate even Environment Management Authority's (EMA) existence. But with the new site we would require significant EMA involvement and we will have to undertake AIA, that is, we would also have to get relevant permission from Town and Country Planning Division (TCPD) to use the land or the site that we select. So it is a process as you are aware.

Mr. Chairman: Just one other point for the Deputy Permanent Secretary to respond to or to clarify. I heard you say that at one point the tenders would go to the Central Tenders Board and that at some point that was changed. When was that and why was that change made?

Mr. Creese: That would have been 2009.

Mr. Chairman: So the tenders were actually what? Sent out evaluated by SWMCOL itself?

Mr. Creese: That is right, a Note was taken to Cabinet asking Cabinet to authorize—

Mr. Chairman: What was the objective, what was the purpose of that?

Mr. Creese: There were three concerns primarily: one, the high cost of scavenging. The figure had climbed to \$400 million annually. And there was a view among some of the CEOs at the Regional Municipal Corporations that we were being held to ransom, and there was a concerted effort within the contractors to put us against the wall, in terms of the fees that were in the marketplace. To put it as simply as possible, the average price around that time for hire of a truck was around \$1,000 day worked for a truck, and the average price was tending to around \$1,800 for a compactor and a lot of the compactors were really locally assembled. In other words, they would go to Miami—although, there are ones that are bought wholesale the Mercedes type trucks and so on. But a lot of them were old trucks which were retrofitted, and they would buy a used compactor unit and place at the back of the truck. When we checked the price of labour, a lot of the labour was cheap labour, immigrant labour and so on. So that the cost analysis of all of this suggested that the prices were generally inflated, good. We had a problem with previous awards where after you would do the preliminary selection, in terms of a price, going with the lowest price and so on, what would happen is that people would decline to take up the award. So that at the initial award situation when you projected the cost, based on the awards done, we would see the figure coming in at \$250 million let us say. But when you write the awardees some would decline and our research indicated that there was logic to the declining.

Mr. Chairman: What I am trying to ascertain really—with more the process—why was it moved from Central Tenders Board, what is the reason for that?

Mr. Creese: Solid Waste Management Company Ltd (SWMCOL) had the expertise in doing that kind of assessment.

Mr. Chairman: I see, okay, which would not have resided in the Central Tenders Board.

Mr. Creese: Because all the senior managers in SWMCOL have expertise, some of them even worked in the industry prior to taking up a position at SWMCOL so they had an intimate knowledge of it, and therefore, could bring that to the table whereas with the tradition Central Tenders Board—

Dr. Gopeesingh: You feel comforted by that statement.

Mr. Creese: Am, yeah.

Mr. Chairman: Having moved from Central Tenders Board to SWMCOL, do you think that Solid Waste Management Co. Ltd (SWMCOL) would the same sort of competence that—

Mr. Creese: To do the evaluation, remember is the evaluation we are talking about.

Mr. Chairman: And the other things that the Central Tenders Board might have had that we would have been concerned about—the process.

Mr. Creese: In my interactions then with the persons from Solid Waste Management Co. Ltd (SWMCOL) who were part of the evaluation team, yes. I have no regrets in terms of their competence and their awareness of the issues that we were grappling with.

Mr. Chairman: Clearly, in evaluating tenders and so on, it would not be simply the technical issues but also the whole transparency issue.

Mr. Creese: Yes, yes.

Mr. Chairman: And there was no concern about that when the Note was sent up to Cabinet?

Mr. Creese: No, we were satisfied that Solid Waste Management Co. Ltd (SWMCOL) was capable on all the different platforms you could assess them on—that they were capable, that they had the historical information.

Mr. Chairman: Not the technical information, I am talking about the transparency of it.

Mr. Creese: Yes, there was no issue of transparency.

Mr. Chairman: Mr. De Couteau.

Mr. De Couteau: I am glad that the Acting Permanent Secretary is here, because I remember just previous to that, he would have been the CEO of the Municipal Corporation Siparia. But would you not say then—the talk was, I was a councillor—“they did it as a job for the boys” and the same main contractor then sub-contracted it to the local person. They disenfranchised the local person, they put them on the breadline, and when the main contractor got it, he sublet it to the same little fella. Is that not true, Mr. Creese?

Mr. Creese: No. There is absolutely no room in that procedure whether you do it with Central Tenders Board or you do it with Solid Waste Management Co. Ltd (SWMCOL) for sub-contracting.

Mr. De Couteau: Let me talk what I know, Princes Town Municipal Corporation. Someone came down there and then his hands were filled to capacity, and then the same little fellas that were disenfranchised had to come back and go cap in hand to that main person. They said it was job for the boys. Does the job for the boys still continue?

Mr. Creese: And, I am saying that there is absolutely no room for subcontracting, you cannot subcontract and Solid Waste Management Co. Ltd (SWMCOL) could tell you that.

Mr. De Couteau: In 2009 when it was initiated, you should really question and go back to that.

Mr. Creese: The fact of the matter is, unlike when you are doing construction work where you hire a main contractor and then he gives out electrical work and so on, this does not operate that way, one of the rules of the contract is absolutely no subcontracting.

Mr. Chairman: Would you be able to verify that in terms of what is being raised by Mr. De Couteau, in terms of who would have received the final contract and whether it would have been the same person that actually had it before? Can the company verify that?

Mr. Creese: The procedures with contracts is once you issue it, if somebody declines, we go back to the award agency—in this case, SWMCOL—to find out who was second or third on the list and then you come down the list, and the new person then comes in to sign the contract. So that is why I am saying, if there are any kind of arrangements it cannot be on paper—it just cannot be, because you have to sign, you have to go into the corporation. So whether it was Central Tenders Board or Solid Waste Management Co. Ltd (SWMCOL) once a

recommendation is made the person is written to and they are required to go to the particular Corporation and sign a contract with the CEO of the corporation. So that the name appearing on the contract has to be the name on a letter coming from the award agency.

Mr. Chairman: I see.

Dr. Gopeesingh: Mr. Chairman, can I just interject just one question here. So, Deputy Permanent Secretary, Mr. Creese, if we are to get it clear, the Solid Waste Management Company does the request for proposal and the tendering and the award and so on for the collection of garbage?

Mr. Creese: Yes.

Dr. Gopeesingh: But I thought that the work of the thing was to management the landfill site as what the general manager said. So how could you be given the authority to look at the award of contracts for collecting garbage when your role as SWMCOL is the management of the landfill site? What is the nexus there? So it then means that you are looking into the collection as well, because you are awarding the contracts for the collection? So where does the regional corporations who collection of garbage come under, how do they fit into this?

So Solid Waste Management Co. Ltd (SWMCOL) gives the contract for 'X' to collect garbage in a particular regional corporation, and the regional corporation chairman and board down there do not have any authority whatsoever in the collection of the garbage, when your role is to manage the landfill site. Is there not interference with the whole issue of the collection of the garbage somewhere?

Mr. Creese: Let us get the first aspect of it clear. It was a Cabinet decision to bring SWMCOL into this aspect to the matter, before that they had no role in that aspect—absolutely no role. So this was the first time that was done and that was a Cabinet decision.

Dr. Gopeesingh: When was that?

Mr. Creese: 2009—when the contracts expired in 2009. Prior to that there were extensions by Cabinet.

Dr. Gopeesingh: In 2009 the decision was made to give the award of contract of garbage to Solid Waste Management Co. Ltd (SWMCOL) which by definition is supposed to be managing landfill sites—but leaving out the regional corporations from managing their own garbage collection, something had to be wrong with that. So it is coming out in 2011 now where we have inherited a system where solid waste is giving out the contracts for the management of garbage collection, when their role is to manage the landfill sites, and the role of the regional corporation chairmen and CEO is abdicated altogether. It has to be pushed away, because you took that responsibility away from them and they cannot manage their own garbage collection, in terms of the award of contracts for their garbage collection. But I find it strange because Deputy Permanent Secretary you have responsibility for both areas. You are responsible for solid waste and you are also for the regional corporations, how are you dealing with this in your own mind as a Deputy Permanent Secretary in your Ministry?

Mr. Creese: Legally the collection of domestic waste is in the Municipal Corporations Act, legally.

Dr. Gopeesingh: So then something illegal has been going on from since 2009?

Mr. Creese: Collection.

Dr. Gopeesingh: So collection has been going on illegally by Solid Waste when it should be the—

Mr. Creese: Solid Waste was not collecting, they performed—

Dr. Gopeesingh: But they were awarding the contracts for collecting.

Mr. Osuji: We do not award contracts either.

Mr. Creese: Solid waste was authorized by Cabinet to conduct the evaluation of these tenders.

Dr. Gopeesingh: Something went wrong there in, 2009.

Mr. Creese: I cannot speak for Cabinet's, thinking I could only say what was in the Cabinet Note and or Minute. That was the Cabinet decision, good. But the other thing I wanted to clarify was on the question of the role or the diminished role of the chairmen and councillors and CEOs of the corporations. Solid Waste Management Co. Ltd (SWMCO) is not established by legislation, the corporations are, so that they have the superior legislative position and that position says that they must collect the garbage but that legislation also creates in them a disposal authority, each corporation is in fact under law a disposal authority. In order words, they can conduct landfill operations or any type of disposal by law. Solid Waste Management Co. Ltd (SWMCO) is a creature of Cabinet as oppose to corporations being a creature of the Parliament, let us be clear on that.

Dr. Gopeesingh: If I could get you right, Deputy Permanent Secretary, the law states by legislation, that the regional corporations are responsible for their garbage collection and so on and even for the disposal. And here it is that Solid Waste Co. Ltd (SWMCO) in 2009 had been given the responsibility for awarding contracts and also for disposal by the landfill sites taking away all that authority from a legislative framework which allowed the regional corporations to do it and they have been emasculated from doing that. So they are just rubber stamping what SWMCO has in fact been doing from since 2009.

12.25 p.m.

Mr. Chairman: I think you got the gist of Dr. Gopeesingh's issue—the question that he raised—so if you can keep that in mind and we will ask you to respond to that. Unfortunately, we will need to bring this meeting to a conclusion right now.

What I would like to remind you of is that you already have a number of documents that you need to submit to us—things having to do with the old landfills; the master plan was something that was mentioned; Maloney Housing Development, you need to respond to that—involvement of the schools and so on. So I hope that you have made a note of those things, and what we will try to do is to gather any additional questions. We know that Dr. Gopeesingh has a number of questions and other Members of the committee. So you can start working on those that you are aware of and we will ask the Secretariat to send you the additional questions, and you can kindly respond to those, and if necessary, we may invite you to come back some time.

I would like to thank you very much for being here and for the information that you have submitted. Thank you very much. Any closing comments by anyone on the—

Mr. Creese: On the question of emasculation of the role of the CEO and the councils and so on and the tendering procedure, what we have to be clear on is that the CTB, by law, has set up a structure for awards, not just for scavengers, for any type of procurement. At the lowest level is the CEO award which recently went from \$100,000 ceiling to \$300,000, and after that, there is the corporation tenders committee which now goes to \$500,000 but in between that, there is an arrangement called "The Small Ministerial Tenders Committee" which picks up awards between the two, and then there is the PS award which goes to \$1 million; and then after that, you go to CTB.

So that any sums beyond—so what happens here now, the awards are done on district basis. So that any given corporation may be somewhere between 10 or 20 districts and each district award is a separate award so that the ceiling has to do with that. Now, in 2009, the CEO's was at \$50,000. So that what usually happens is, let us say the award expired, for whatever reason, the new awards by CTB were not done, a CEO or the Ministry or the corporation tenders committee will fill the breach but to the limit of the authority.

In other words, when the CEO in 2009 was at \$50,000, he could not do much by the way of an award because basically, the Auditor General will come down on you if you do an award where you pay out during the course of a year—a financial year—more than \$50,000 in remuneration for a particular district.

Mr. Chairman: Okay PS, I think we got that point.

Mr. Creese: So that there was no emasculation, at any rate, they all had limits and for the \$400 million that is involved overall in scavenging, you will realize that those sums I was referring to just would not cut it; you had to go to CTB.

Dr. Gopeesingh: PS, I would let today close without indicating that you took away what is under the legislation, the Local Government supposed to be doing their procurement for things that they are supposed to do and you put it to a state enterprise, or solid waste might be a special purpose company, which to no legal clout basically but giving them the management and the ability to evaluate tenders for millions of dollars and where that they have no role for collection of garbage. They are evaluating for collection of garbage and that has been taken away from the regional corporation where they supposed to be collecting their garbage and they cannot determine the methodology for the issuing of contracts. It is very unfortunate that that was done in 2009 and it still continues.

I would like to recommend that perhaps, through you, Permanent Secretary, that you speak with your board and your board will probably decide to regularize that, perhaps they do not even know that the situation exist; and this is the responsibility of Permanent Secretaries in Government Ministries—to give some assistance to boards that may not recognize this, and normally that maybe occurring for years.

Mr. Chairman: Okay, thank you. So you got that point, PS? So you got that point made by Dr. Gopeesingh and we are going to follow up on that as well. Thank you very much for your attendance.

Meeting adjourned at 12.30 p.m.

**VERBATIM NOTES OF THIRTEENTH MEETING HELD IN OFFICE OF THE
PARLIAMENT, TOWER D, PORT OF SPAIN INTERNATIONAL WATERFRONT CENTRE,
#1A WRIGHTSON ROAD, PORT OF SPAIN ON WEDNESDAY, MARCH 28, 2012**

OFFICIALS OF THE SOLID WASTE MANAGEMENT COMPANY LIMITED (SWMCOL)

Mr. SurujBaboolal	Chairman
Mr. Shiva Hardit-Singh	Ag. Chief Executive Officer
Mr. Ricky Ramkissoon	Director
Mr. Josh Peters	Director
Mr. Neil Balgobin	Director
Mr. KavirRamjattan	Deputy Director
Mr. Frank Hernandez	General Manager, Finance
Ms. Keisha Rogers	General Manager, Operations
Mr. Uche Osuji	General Manager, Integrated Waste Systems
Mr. RhyanHanoomansingh	General Manager, Communications

Mr. Chairman: Good morning again, and I would like to call the meeting to order. As you are aware, this is the Joint Select Committee established to enquire into and report to Parliament on Ministries (Group 2) and on Statutory Authorities and State Enterprises. This morning we are very pleased to have with us the board and management of SWMCOL. First, I would like to ask you, one, if we can turn off cell phones and, secondly, when speaking if you can kindly put on your mike.

I would like to start by requesting the members of the SWMCOL team to kindly introduce themselves.

[*Members of SWMCOL introduced themselves*]

[*Members of the committee introduced themselves*]

Mr. Chairman: Again, thank you for coming. You would recall that we actually had SWMCOL here before, and we had to call you back because Members felt that we needed to have further explanations on some of the issues that we raised. You have kindly submitted some additional information and what we would like to do now is to follow up on some new issues, as well as some that came up from the last meeting. I think we will start with Mr. Ramnarine.

Mr. Ramnarine: Good morning. I am going first because I have another engagement I have to be at shortly. We have received or we have been hearing about waste to energy—I know there have been proposals that have been sent to SWMCOL, to the Ministry of Local Government and to the Ministry of Energy and Energy Industries—have we done any sort of analysis to determine whether that is at all feasible for Trinidad?

Mr. Hardit-Singh: To answer your question, Mr. Ramnarine, we have received correspondence from one or two individuals who were interested in the process of waste-to-energy, and right now we have begun initial evaluations based on the information that they submitted and very shortly it is going to be presented to the board of directors and then followed to the Ministry of Local Government on our opinion on the issue.

Mr. Ramnarine: One more question and it has to do with used tyres. We have, I think, approximately 500,000 to 600,000 vehicles in Trinidad now, so we clearly have a huge amount of used tyres circulating in the country. What is SWMCOL's plan to deal with that and is that considered to be part of the whole waste-to-energy project?

Mr. Hardit-Singh: SWMCOL's plans with respect to the tyres to inform the members here, a committee has been formed and we are just waiting for an approval. A note has been sent to Cabinet for approval to deal with the issue of the tyres to see what is the best way forward if it is to be used as a method of waste-to-energy or as a part of recycling for aggregate to be used. So the committee is yet to meet on it but, in the meantime, SWMCOL has been collecting tyres. At a recent meeting that we had at the Ministry of Local Government, it was decided that in the near future the tyres were going to be stock piled until a report coming out of the committee as to the best way forward to deal with these tyres.

Dr. Douglas: Good morning, everyone. Thanks for coming. I personally have had at least two or three

different NGOs, organizations that have in place various kinds of projects for recycling tyres, and I am wondering if what you are considering would be anyway that would involve NGOs and other organizations that could participate in this process?

Mr. Hardit-Singh: We welcome any sort of input from private sectors, NGOs and other ministerial agencies going forward to deal with the issue of tyres. It is something that will be considered in going forward, in how we properly formulate a plan to deal with them.

Dr. Tewarie: Mr. Chairman, thank you very much. Good morning everybody. I have a few questions and I will follow up from Mr. Ramnarine's question. When you say you set up a committee and you are looking at options and so on, do you have in-house the technical competence to be able to make that kind of assessment or do you rely on outside consultants? How do you make those decisions? The technical part of it, I mean.

Mr. Baboolal: We do have that expertise in-house. In fact, we have one of our General Managers here who is responsible for integrated waste.

Dr. Tewarie: Okay. So you have the technical competence in-house?

Mr. Baboolal: Yes, we do have.

Dr. Tewarie: This is a follow-up to a question raised by Dr. Douglas. If I have a private sector investor, an NGO, or whoever it is and I have an idea that has to do with solid waste and I am to engage you in order to make that idea possible, what is the process by which I can enter into a successful collaborative relationship with you and how?

Mr. Baboolal: Well, I expect in the first place we will get a formal letter outlining whatever position the person would like us to take or would like to be involved in and then we take it from there. A formal request outlining whatever—

Dr. Tewarie: I want to do. So if I want to do it I simply share I would like to do this and you would make that possible by a process of engagement.

Mr. Baboolal: Exactly.

Dr. Tewarie: All right! Those were just questions I had responding to those issues, but I have three real questions for you. How much waste do we produce in Trinidad and Tobago per day, or per week, or per a month, whatever? Do you have any idea?

Mr. Hardit-Singh: Yes, we have those figures.

Dr. Tewarie: All right, the number is not important, but you have it?

Mr. Hardit-Singh: Yes, we do have that information.

Dr. Tewarie: Okay. The second thing is what percentage of that do you as a company deal with on a consistent basis over the course of a year?

Mr. Osuji: Member, the waste that is produced annually is 700,000 tons per year, which is approximately 2,000 tons per day. We operate in a narrow band of 33 per cent of what is called the industrial, commercial and institutional waste by virtue of our operations and there are many competitors within that narrow band of 33 per cent. To give you exactly how much of it we deal with, we would not have an accurate size. Our database relies on truck counts and each truck has a certain estimated capacity, but I can provide that information for you.

Dr. Tewarie: So, basically, out of 100 per cent of waste produced, which is a total of 700,000 tons a year, you operate within a structured band that covers about one-third, you have competitors in that and you therefore address some part of that.

Mr. Osuji: Yes.

Dr. Tewarie: What happens to the other two-thirds waste in the country?

Mr. Osuji: The other two-thirds is collected by private contractors contracted by the regional corporations. They are engaged in curb side collection and curb side meaning mostly residential.

Dr. Tewarie: Do you know what percentage that will be roughly? I know you are not—

Mr. Osuji: It is the other two-thirds.

Dr. Tewarie: So they take care of the other two-thirds?

Mr. Osuji: Yes. They collect it but it is disposed of at our site.

Dr. Tewarie: All right. So, basically, then you are saying that the 100 per cent of waste produced in the country is, in fact, covered in some way or the other?

Mr. Osuji: I would not go so far. I would say that the collection rate is about 50 per cent to 60 per cent because you have to cater for illegal dump sites, et cetera; not 100 per cent is taken up. You would probably have 50 per cent to 60 per cent that is taken up; the rest is usually—well, constitutes a lot of the illegal dump sites you find.

Dr. Tewarie: Is that 50 per cent to 60 per cent of the whole or 50 per cent to 60 per cent of what is covered by Local Government?

Mr. Osuji: Fifty to sixty per cent of the whole is collected. The remaining 50 per cent to 40 per cent is not collected.

Dr. Tewarie: All right. So, basically, you are saying, in the system that is meant to cover the 100 per cent, there is a leakage of about 30 per cent to 40 per cent?

Mr. Osuji: Yes.

Dr. Tewarie: Is there any way that we can address that?

Mr. Osuji: Comprehensively, it would rely on putting systems in place and incentives in place that would allow for a more thorough collection—I mean legislative changes, operational changes and things like that. That will take care of all the orphan waste. But, the way the system is organized right now; it would not capture that 30 per cent to 40 per cent.

Dr. Tewarie: Okay. If you say we have 30 per cent to 40 per cent that is sort of not managed by the system, it means that close to 200,000 tons or 300,000 tons, basically, you say, is unmanaged garbage?

Mr. Osuji: Yes.

Dr. Tewarie: Okay. But, I mean, that is a significant amount?

Mr. Osuji: It is, yes.

Dr. Tewarie: Now, if I could go back to Mr. Ramnarine's question again. If we could harness the 700,000 tons properly, do you think that we can create an energy option from that garbage that would be valuable on the grid?

Mr. Osuji: The energy option has been presented to us time and time again. I think one of the greatest arguments against it is the cheap cost of natural gas. When we looked at the entire waste stream, 80 per cent of it is recyclable and if you look at the resource capacity and capability of waste, it would make better sense—

Dr. Tewarie: To recycle.

Mr. Osuji: —and there is greater utility derived in recycling. Then what is left that cannot be recycled, there maybe an argument for other forms of treatment. Okay. Thank you.

Dr. Tewarie: Okay. That would be fine, Mr. Chairman.

Dr. Henry: The member who spoke there just now mentioned that you have competitors in the area in which you operate. Who are these competitors? What is the state of play in terms of your stake compared to the competitors?

Mr. Osuji: The competitors in the likes of waste disposals and other private sector players, we have several of them both operating in the general waste collection and also portable toilets.

State of play, I mean it is fair game; it is an open market, and the market share is really up to the amount that each can command given their resources.

Dr. Henry: In other words, I was trying to get an idea of how competitive you are vis-a-vis these other players?

Mr. Hanoomansingh: With regard to general waste, market share, we command about 50 per cent to 55 per cent of the market right now. Vacuum tanker services, which we compete as well with, is 30 per cent roughly, and the portable toilets is about 50 per cent.

What Mr. Osuji was alluding to, if my memory serves correctly, would be actually waste collection from the regional corporation aspect. Within that domain, there is not really much collection done there from solid waste. Our collection is more of private businesses and state enterprises.

Dr. Henry: Okay.

Dr. Wheeler: Yes, Good Morning. There is a document that was produced: “An Integrated Solid Waste Resource Management Policy for Trinidad and Tobago” and page 13 of that document addresses biomedical waste. You mentioned that this is being addressed by disposal bins. What I was asking, particularly for hospitals where you have certain waste that needs to be incinerated, previously I had asked the expertise that you have, is that being offered to the Regional Health Authorities? Specifically, here addressing the Tobago Regional Health Authority which has a challenge with its incinerators, whereby you have waste from patients, and you also have drugs used in chemotherapy that are being incinerated, but the device that is being used is not really an incinerator. Has there been any collaboration or attempts of collaboration to assist the TRHA particularly in this challenge that it has?

Mr. Osuji: We are, right now, currently in the process of putting a proposal forward to the THA with respect to their landfill site and with respect to addressing some of those issues that you just raised. We intend to have a comprehensive package delivered to them by the middle to end of May, 2012.

Dr. Wheeler: The reason I am asking this is that there is a new hospital that they plan to open in phases very soon, and from the day that it opens, it will be generating waste. I think this is actually very critical to have it addressed because currently there is an incinerator that is referred to as an oven that spews smoke, toxic smoke into the atmosphere and there are residencies there now.

Now, the current hospital site—the new hospital at Signal Hill has communities living around it. So I would certainly hope that you can really accelerate this plan that you have to really assist the people of Tobago.

Mr. Osuji: Well, in light of this, we will definitely try to expedite it even before the end of May 2012, and to work more feverishly on it to get that across to THA.

Dr. Wheeler: I would appreciate it. Thank you.

Mr. Osuji: Sure.

Dr. Tewarie: Mr. Chairman, just one thing. Not a question, Sir. I just got a text, I think, mentioning that the members of SWMCOL are speaking too closely into the microphone and it is affecting the audio sound on the television.

Mr. Chairman: I want to go back to that document that was just mentioned with respect to “An Integrated Solid Waste Resource Management Policy for Trinidad and Tobago.” Now, this is something that came to us, to our attention, since we have had the last meeting.

One, I read through the document and I could not determine exactly what was intended. Could you advise us when was the RFP issued with respect to this policy?

Mr. Osuji: That was issued about approximately six months ago.

Mr. Chairman: About six months ago. All right. Do you recall how many companies responded to the RFP?

Mr. Osuji: If I am not mistaken, it was about 12—a mix of local and foreign and then some joint ventures.

Mr. Chairman: What does EGARR—what company is that?

Mr. Osuji: That stands for Edison Garraway and Associates. That is the name of the company that won the consultancy to undertake the development of the policy.

Mr. Chairman: Is that a local company?

Mr. Osuji: It is a local company, yes.

Mr. Chairman: Any idea what was the cost of the exercise?

Mr. Osuji: No idea. Actually this was done under the auspices of the Ministry of Local Government.

Mr. Chairman: All right. So we will try and get that information later on.

Now, have you reviewed this document? It is going to affect you. Have you reviewed it? What are your impressions on it?

Mr. Osuji: Yes, I have intimate knowledge of the document. The document essentially espouses tenets of recycling, and the creation of a Solid Waste Management Authority to handle aspects of what they see as the way forward.

Mr. Chairman: The client would be the Ministry of Local Government, not yourselves?

Mr. Osuji: Yes.

Mr. Chairman: But it would affect you. Are you happy with the technical content of the—

Mr. Osuji: I think the document is still a work-in-progress because the version that is out now is a final draft, and I think there is going to be some embellishment of it before it emerges as an actual policy, and it will probably undergo some transformation before it is sanctioned by Cabinet. But, by and large, I think the philosophy is one that we agree with, that is that of recycling and deriving the value of the waste.

The document also makes reference to an alternative form of treatment for medical waste, or biomedical waste, and that is, I think, along the lines of incineration. But yes, in a nutshell, we agree with the philosophy espoused in the document.

Mr. Chairman: All right. I was just a little concern because it took a very long time to get around to—you know, I kept looking for what are the policies and where you are going with the document, and it took a very long time to get there.

The document also made reference to Tobago and the implication is that it does not really address the needs of Tobago but there is need for what they called a “Sub Policy.”

Mr. Osuji: Yes.

Mr. Chairman: Where are you on that? Do you know what is happening with that?

Mr. Osuji: The much that I know is that Tobago was treated separately when it came to undertaking a waste characterization and centroid study, and the recommendations would have come out of that. I think Tobago is a little bit of an anomaly because they tend to do things slightly differently. There are other issues that would govern how they ultimately decide to deal with their waste because of their size and because it is managed by THA.

So, I understand what the author is trying to convey but I have no doubt in my mind that it would bear some resemblance ultimately to what eventually gets implemented in Trinidad.

Mr. Chairman: Okay. Dr. Tewarie.

Dr. Tewarie: You said 80 per cent of the waste that we produce is, in fact, recyclable. So we have the capability for developing a reasonable recycling industry in the country from your point of view?

Mr. Osuji: Sorry, can you repeat?

Dr. Tewarie: We have the potential, given that 80 per cent of it—that is 80 per cent of 700,000 tons—is recyclable. Do we have the potential for a viable recycling industry in the country?

Mr. Osuji: The potential is there for recovery not recycling because we can certainly recover the waste, bale it and containerize it, and ship for eventual recycling. We do not have ultimate potential for recycling; we do not have an industry here that can actually adequately deal with turning these resources into new materials.

Dr. Tewarie: Well, that is exactly the question that I want to kind of probe. I am probing it in a friendly constructive way.

Mr. Osuji: Sure.

Dr. Tewarie: Why do you say that we have the potential to basically collect and select, I suspect, the material—are you saying that we do not have a recycling industry or it will not make sense for us to have one?

Mr. Osuji: We do not have one presently, and it may not make sense because we may not be able to, by virtue of economies of scale, sustain it.

10.40 a.m.

Mr. Tewarie: So, the quantity of garbage that we are talking about here, in spite of the fact that it might seem a lot for us, 80 per cent of that providing recyclable material is not enough, it is not sufficient, to build a serious recycling company or capability?

Mr. Osuji: I may not. Most of the literature suggests that it would not. Unless you—because the recycling industries are built with certain throughputs in mind. If the throughputs are inadequate, then the facility would not be optimized.

Mr. Tewarie: So, the best that we can do really is to establish an industry that separates, selects, packages and exports.

Mr. Osuji: Definitely.

Mr. Tewarie: All right, okay.

Mr. Chairman: I would like to indicate that we have been joined by another member, Sen. Oudit and she would now like to ask a few questions as well.

Mrs. Oudit: Good morning, Mr. Chairman, members of the panel and to the Board and Management of SWMCOL welcome back, I should say. It is indeed a pleasure to have you here. I noticed there has been tremendous effort to provide responses for almost everything that we have requested and for which you must be commended. At least as a committee member I do appreciate that.

I do have some concerns, however, with not necessarily things that you may have had any control over

in the short space of time that you have been an existing board. However, as an existing board, if you are looking at your mandate and your purpose for operating then, certainly, one of my considerations would be if we are looking at SWMCOL as, not only the collection and storage but the disposal. I understand that 33 per cent you cover, in terms of your collection. Your storage is less than 33 per cent. That means your disposal, therefore, is probably even less than your storage, which leads me to several questions.

Based on the information that you gave earlier, you indicated that 33 per cent is based on storage or collection, at least. I would like to ask at this point, out of the 33 per cent, what percentage is, therefore, reused or reduced, not yet recycling because other members spoke of recycling?

The other one I would like to look at is your question of disposal and to what extent do you collaborate with the water management systems, because it is critical? Your disposal is critical for the water quality; not only in selected regions but throughout the country. In what way do you negotiate with regional bodies, because a large part of the waste that you do not collect, or even store is managed by local government bodies? So how is your system integrated to work with those local government bodies? Those are my first two questions. I would leave space for more.

Mr. Osuji: The spectrum that is waste, as I mentioned earlier, we operate within the component of the spectrum that is 33 per cent and that is constituted industrial, commercial and institutional waste. Holistically, and this is throughout the spectrum, there is about 17 per cent collection of recyclables by private sector and private sector NGO arrangements.

We have not—there have been various proposals made to us. We are constantly reviewing proposals. Even up to yesterday, we have had proposals to join with or to form some alliance with or to see what synergies can be explored, but we have not, thus far, established an arrangement with an NGO or private sector. That is in the pipeline. [*Interruption*]

Mrs. Oudit: Could I just interrupt you at this point?

Mr. Osuji: Sure.

Mrs. Oudit: I really do not want this committee to probably be seen in the same way that SWMCOL since 1980, because your mandate for SWMCOL, not you per se, but SWMCOL has been from 1980. The reason I have interrupted you, with due respect, is that, what I heard in our first meeting and what I am seeing in the documentation provided are many plans, many proposals, many things that you would like to do. And from 1980, I have just asked two simple questions and I would really like: why, from 1980, you are still planning, you are still meeting, you are still hoping?

I believe the quality of our water is directly linked to the operations of SWMCOL, not only in your solid waste, but in your liquid, biomedical and other types of waste, which may or may not have come under your purview at any point in time. But, certainly the 33 per cent would have been a start in the way that you have addressed the quality of water and, more so—why I brought in the local government bodies is that we have a problem of perennial flooding and unlike some who believe that flooding is caused by rain, I think we all know better. It is poor drainage or at least blockage of sufficient drainage and, therefore, if almost 200,000 tons of our garbage is unaccounted for or uncollected, then how does that treat with the issue of flooding, despite years and I should say decades, of work that should have gone into some integration? I do not mean integration on paper; I mean integration of systems with local regional bodies, and with your agencies under the purview of waste water and infrastructure?

I looked—and this is a particular thing for me. I think from the very first instance I spoke with, not only members of the board but also with the committee and you all know I am very, very concerned about the Guanapo Water Treatment Plant and the Beetham Plant and all of these things and if we have to seriously allow the current board to make tangible differences, then I believe that it is time that a board looks at what has not been done and seek to make redress because, we are dealing with the quality of our water.

Mr. Hardit-Singh: To address your concerns and your question in particular with the Guanapo site, Mrs. Oudit, we are in the process and have been in consultation with members of the Japanese Government to rehabilitate the Guanapo site with a view for eventual closure and to also put in place transfer stations in not being so much of an effect on the communities and environment as currently being faced for the residents and the nation at Guanapo in particular. We have plans and we have begun actual implementation and not just as you mentioned that things are on paper. Actual work is being done.

Mrs. Oudit: Is there a time frame for when you, based on your own current plan that you, foresee some

measure of closure of the site, because that has been a triple recommendation, the closure of the site and the transfer or relocation of a new area with the required infrastructural systems in place?

Mr. Hardit-Singh: With respect to the rehabilitation, we anticipate before the end of the year to have rehabilitation done at the Guanapo site. With respect to closure, it may take some time shortly after that. With respect to setting up of waste transfer stations, we are currently doing that under our PSIP right now to make sure funds have been allocated and are ready to proceed.

Dr. Douglas: I am also particularly concerned about the Guanapo site being someone from Arima myself. I would like a little more information or knowledge on what is the status of where we are, in terms of this dialogue with this Japanese firm. Have we just sent them a letter or are we in serious dialogue? Where are things at? Do they have a proposal and so forth? Could we get a little more detail on where things are with this dialogue?

Mr. Osuji: What my CEO was saying is that we have expressed to the Japanese International Corporation Agency (JAICA) a desire to have technical assistance, as it relates to the rehabilitation of all the landfill sites but with closure in mind, but the feat is not an easy one.

The discussion at some point in time has to happen between government to government. That is the only way to engage the technical assistance. But, we have in principle, agreement from them to become involved. We are looking at utilizing their technical services and their technical assistance to aid in the continued operation of Guanapo, but with rehabilitation and closure in mind.

Having done that and not to impact the moneys spent on collection, which is to the tune of \$400 million, we would have to equip the area with a transfer station to ensure that the contractors involved in collection can still dispose of the waste essentially at the transfer station and then the transfer station now takes the some waste and is destined for an existing landfill site.

Dr. Douglas: Let me ask a more specific question. We have sent a letter to them and they have sent back a letter to us. I am trying to get a clear picture of what is the status, because I do not want to leave with a kind of—we are just talking; like in Trinidad we say: “Ah might come” might is just like the elephant might fly too. I am trying to get a more precise knowledge of where things are at.

Mr. Osuji: We have indicated to our Ministry our intent. The Japanese are also aware of our intent. What we have to do at this point in time is to convene a meeting with the officials of the Japanese Embassy and the Ministry of Local Government to essentially formalize some type of arrangement. That is where we are.

Dr. Douglas: That is very preliminary stages of dialogue.

Mr. Osuji: It is preliminary, yes.

Mr. Chairman: Can I ask a quick follow-up question to something that Mrs. Oudit raised, with respect to the closure of this site? How is that going to affect your waste disposal? Clearly, you have to find other locations or other techniques of disposal and so on.

Assuming that you would then have to look for other sites, have you done any preparatory work, in terms of with Town and Country Planning or with the EMA, in terms of land use implications and environmental impacts from alternative sites once you close one and you are planning to open another? What is the state of those arrangements?

Mr. Osuji: We have not had recent consultations with Town and Country Planning nor EMA, but what I can say is that in 2000, we arrived at, in collaboration with consultants at the time, conceptual plans for a new landfill site at Forres Park adjacent to the existing site and occupying 70 hectares of land.

We have drawings. We have a rapid environmental assessment. In fact, it had gone almost to the point of implementation. I think there was a change in administration and that suffered, but that is the intent. We want to update the study and, based on the updated study, approach Town and Country and the EMA to get the requisite permissions and approvals and follow in that vein.

What we envisage actually, ultimately, is the closure of Guanapo, the closure of Beetham and the island being furnished with only one landfill site; an engineered landfill site, in Forres Park. But to cater for the closure of the sites, we would like to make accommodation for, I think it is five to seven transfer stations

throughout the island.

Mr. Chairman: Sorry. I have just one other follow-up question. Given these discussions that are taking place with respect to land for additional disposal sites or, however, you want to deal with it. Are you satisfied that the current policy document really addresses many of these issues which came up the last time you were here and are coming up now? Because I was trying to see how they deal with some of these issues in the policy document which is about a few months old?

Mr. Osuji: Yes.

Mr. Chairman: Six weeks old. Six weeks off the press so to speak. I could not see what the policy implications are with a number of the things you are talking about? How do you feel about that?

Mr. Osuji: You are right. The policy document does not address those concerns.

Mr. Chairman: And why is that?

Mr. Osuji: I am not certain, but the other documents prior to this policy document, addressed those concerns. I am imagining that the final version of this policy document could possibly address them, because I know that via the public consultations which they had, many of the views had been expressed and I am thinking that the author will eventually make those incorporations. But you are right, I share your concern.

Mr. Chairman: I was wondering whether the terms of reference actually addressed those concerns, because I could not imagine that a document which is this recent, and given the kinds of things we have been discussing, they have not covered those things at all. Now, of course, one would have to really interrogate the terms of reference to see what they might have been requested to do, but I have some concerns about that. I am seeing many documents, plans and studies that were done.

Mr. Osuji: What we have also—*[Interruption]*

Mr. Chairman: A *Request for Proposal* (RFP) from—in fact it is not even dated. A number of things are not dated and that is the other problem I had. Also, your tender rules and procedures, there are two documents but no dates on them, so I have some concerns about that. Mr. Jeffrey?

Mr. Jeffrey: I am getting the impression that the people of Tortuga are the sacrificial lambs in this whole exercise. We are hearing about the closure of the Guanapo, closure of the Beetham but like Forres Park seems to be a done deal. I have a real concern about the location of the Forres Park site: it is adjacent to the main road to go into Tortuga, and I find it untenable that we should have a dump site so close to the main thoroughfare. I think that needs to be addressed. I would like to find out, for example, when they were doing the evaluation for the selection of the Forres Park site, what other sites were considered?

Mr. Osuji: Several other sites were considered, I think three at the time, but Forres Park proved useful: from a hydrogeological standpoint, it lends itself to a landfill. The hydrogeological setting, there is a clay deposit which makes it essentially impervious, the topography also lends itself, the circulation as far as roadways and things around the area are concerned, also lends itself to easy transportation to any facility placed on that site. So there are a number of criteria and, in fact, this is not done ad-hocly, there are a number of scientific criteria that go into determining the suitability of a site for a landfill. So I think we are predisposed to that more than anything else. I mean the social implications can be mitigated to an extent, but there must be some observances of the scientific criteria that go into deciding where a landfill should be sited or not.

Mr. Jeffrey: What were the other sites considered?

Mr. Osuji: They do not come to mind right now, but I know there were two other sites. I can look back in the literature.

Mr. Jeffrey: I find that very unsatisfactory.

Mr. Osuji: We recently embarked on looking at some sites in Torre, but those are still preliminary and we need to do some scientific investigations. But the one which really had the most investigations conducted as I said is Forres Park, and given that there is a facility there already, it is not a difficult transition as far as the social acceptance is concerned to have an expanded facility there, because anywhere you put it people are going to object.

Mr. Jeffrey: Are we going to relocate the residents of Tortuga?

Mr. Osuji: No, no, no. This land is former Caroni (1975) Limited property, and I understand that many of the persons who occupied the land at the time are no longer there, maybe with the exception of one or two persons, for which we will have to undertake some sort of exercise to relocate them, but the land is mostly vacant and unoccupied.

Mr. Jeffrey: When last have you been to the site?

Mr. Osuji: I was there about two weeks ago.

Mr. Jeffrey: And are you comfortable with the location?

Mr. Osuji: I am comfortable with the location, yes.

Mr. Jeffrey: “You do not live down dat side, you live up north?”

Mr. Osuji: Yes, I live up north. That is right.

Dr. Wheeler: Just a follow-up. I think you might have mentioned it before, could you explain what a modern facility would look like? I am not getting the impression that a modern facility would be a dump site. Could you just clarify what a modern facility would look like? I do not get the impression that any facility you construct would be a dump.

Mr. Osuji: No. It would be a well engineered sanitary landfill which makes accommodation for possible contamination with the ground water or surface water. It would have a leachate collection system; possibly a treatment system; it would make accommodation for proper venting of the gas; the methane gas; carbon dioxide; it would make accommodation for a borough essentially an area from where you can naturally derive cover material. It is well engineered from the get-go, so that you have all your concerns dealt with. So there are many civil engineering and hydrogeological considerations which are built into the design.

Dr. Wheeler: What about the aesthetics? What would it look like?

Mr. Osuji: If it is managed properly and if what is ultimately destined for the landfill is just the residue, in other words, what cannot be recycled, it will look aesthetically no different from—it will look almost as if it were not a dump site. You would not be able to discern readily that it is a dump site. There would not be any salvagers, because nothing of economic value is coming to the site, and if just the residue is coming after it has been treated, it would be buried, covered and will look like normal. You will have facilities there maybe to harness some of the gas, maybe to use for the electrical needs of the facility itself. The infrastructure would consist of a facility for housing the workers, staff vehicles, et cetera, maybe a wash facility, so when the vehicles come off the site they will have a Texas Grate so no mud comes off the site and deposit on the roadways. So that is the kind of thing that will emerge eventually, it will not be what we have presently, which is a controlled dump site.

Dr. Tewarie: A couple of things. This site that you are talking about is it going to be a best practice?

Mr. Osuji: It will conform to international best practices, yes.

Dr. Tewarie: And we have precedent for it elsewhere, the same type?

Mr. Osuji: Yes. It is a traditional system.

Dr. Tewarie: Okay. What is the country to use this most recently?

Mr. Osuji: Sanitary landfills are actually used throughout the world. Where we would like to incorporate a slightly different technology, is to adopt a very low-tech approach that the Japanese use which allows for the enhanced treatment of one, the leachate; two, accelerates the decomposition of the waste so that the land can return to good use at the end of the site's lifecycle. The site would be designed for 20—25 years, then it would be closed and returned to good use. The technology also allows us to tap into the facility which is offered by the Kyoto Protocol under the clean development mechanism to allow for us to create carbon credits.

Dr. Tewarie: You mentioned closing the Beetham and the Guanapo landfill sites. Does that mean we are now moving to what is essentially a centralized system?

Mr. Osuji: To be a centralized system, yes.

Dr. Tewarie: Would that cause other problems, transportation issues?

Mr. Osuji: That is why we are suggesting that we have five to seven—the literature suggested five to seven transfer stations, and that is to essentially offset the problems which we could have with collection and transportation. It creates efficiencies with the long distances associated with hauling to one site, so you have these scientifically, mathematically sited transfer stations depending on the population density and the centroids.

Dr. Tewarie: So what ultimately goes to the central site would be waste devoid of recyclable materials and processed waste?

Mr. Osuji: That is what we envisage, yes.

Dr. Tewarie: Okay. So that is how it will work?

Mr. Osuji: Yes. But this must have the support of policy, legislation, the collection has to be revamped to allow for the collection of curbside recyclables, and then there should be a material recovery facility where the recyclables are destined for recovery and being in an export, it is an integrated approach and is not done in isolation.

Dr. Tewarie: Okay. And this is separate and distinct from anything that you are doing in Tobago?

Mr. Osuji: Yes. We are not actually doing anything in Tobago as it relates to the landfill but, as my CEO suggested, we have a proposal which we want to present to them. Tobago is primarily managed by the Tobago House of Assembly (THA).

Dr. Tewarie: Okay. One final question. Right now we take in approximately on the high end about 600,000 tourists a year. There is a strategy in which tourism growth is anticipated, and if we were to take that up to one million persons, and subsequently about 1.5 million tourists coming into the country annually, what you are doing, would it be able to take that into account as well?

Mr. Osuji: Yes. The sanitary landfill is designed with population growth in mind. Usually the projection and the allocation of the land is done with some projection on the demographics which would cater for tourists influx, et cetera.

Mrs. Oudit: Thank you very much. I would just like to follow-up from where Dr. Tewarie just left. The question was, would you be able to prepare for projected increases in tourists? Was there the forecasting at any point in time from 1980 that the Beetham landfill would have created such horrendous problems? Was there any forecasting of that nature to accommodate any growth in Port of Spain, for example?

Mr. Osuji: No.

Mrs. Oudit: Was there any forecasting of the projected interference arising out of population growth in Arima

and downstream areas for the Guanapo location? And have you done any forecasting out of Mr. Jeffrey's question? Have you done forecasting for population growth in the central area where Forres Park landfill is now going to be as per your proposal, the centralized facility? Have you done that? And has anything been done in the past? Could we get those? If they have been done, because you have indicated very clearly that the location of a dump site is not just ad hoc, in fact, I should not say a dump site. We have three landfills in this country, yes?

Mr. Osuji: Yes.

Mrs. Oudit: Okay. I am glad you answered that because I am looking at your definition of a landfill and it says: "an engineered method of disposing solid wastes on land..."

And the specifications in response to Dr. Wheeler's question include siting, site preparation; leachate and gas management; monitoring compaction; complete access, record keeping; daily cover schedules; closure and post closure plans. So if we have three landfills I would imagine that these documentation and records are available since 1980? Because this is a managed landfill, yes?

These sites the genesis of which—they were born out of a need to dispose of waste but not much consideration was given as to where.

Mrs. Oudit: Okay. So therefore, you are saying today that since 1980 we technically do not have any landfills, we simply have dump sites.

Mr. Osuji: Those sites we inherited and converted operationally to landfills at the time. Yes.

Mrs. Oudit: Okay, so then in response to my question, if you are still saying that we have managed landfills, do we have documentation and records to show since 1980—let us say 1990, give you 10 years—from 1990 do you have the proper documentation to show how you manage these landfills?

Mr. Osuji: At that time there were detailed drawings done and the intent was to go to tender for a contractor to operate the sites, that ended. We do not have those now.

Mrs. Oudit: With all due respect, you have no management records, no statistics, nothing—

Mr. Osuji: We have statistics.

Mrs. Oudit:—to show me exactly how you—based on your definition of sanitary and managed landfills you have records to show how you have been monitoring these?

Mr. Osuji: Strictly speaking, we have attempted all aspects of those, but we have not been consistent so I could not tell you that we have a complete data set from then to now. I could not tell you that, no.

Mrs. Oudit: Now, I believe that there is something called precedent, but I believe that you could be doing the wrong thing for 20 years, the precedent is set. I feel that in this country we have made tremendous and significant leaps towards change. I feel that we have a grave responsibility to our country. And if it is that Guanapo has serious concerns with the way its landfill or dump has been managed, the Beetham—

When we pass on that area with the water, I cannot for life imagine how often testing is done on the water that is fed by the Beetham Estate or the Beetham landfill. And now we are proposing to inflict on the region of central Trinidad—so now we have moved from east and west and we are now moving south, so whereas we may be able at this point to contain any contamination—because I believe based on my own research the contamination is already at a critical point.

So we are now saying that we are going to continue the contamination, unmanaged, unrecorded, unsupervised in the best possible manner as a landfill, not as a dump. And we are now moving to Forest Park, probably to continue the same way we have been managing the others. I believe that is a concern that Mr. Jeffrey had. I too.

I wanted to ask you when you were speaking, when did you visit Forres Park, but he jumped the gun and he asked the question, because I drive there, and every time I drive there—in fact I was hurt physically when I drove through a region that for me was pristine and glorious, these are up in the hills. Gran Couva and Forres Park are the last vestiges of hilly areas in our country that have not been so polluted and we are planning

to pollute it.

Mr. Osuji: I would not quite put it that way.

Mrs. Oudit: How would you in the history of the operations of the landfills, how would we say, what we have done, one, to Forres Park, what we have failed to do in the other dump sites. I think there is a general lack of—and not only for you but anybody else who is able to say. I would like to know how has SWMCOL accounted for itself for, what is it now, 30, 40 years? How was it accounted, what have we done—waste water, water, liquid, solid waste, water quality? How have we accounted? If solid waste is the region, the body that is responsible now, and is here in front of this committee, can the country be assured that if you continue in the same way what do we receive.

Mr. Osuji: I assure you, Member, that we would not be continuing the same way, if there is a sanitary landfill constructed at Forres Park, it will not be operated the way these sites have been operated. These old sites have been the beneficiaries of sporadic monitoring for various reasons and for various challenges. We have operated the sites as sanitary landfills at one point in time, but the operation was degenerated into that of a controlled dump site.

We are now embarking on a collaborative exercise with UWI to undertake some baseline monitoring of Guanapo, and that will determine the extent of any migration offsite. The literature seems to suggest that the migration is occurring. We have had discussions with WRA (Water Resources Agencies), they have said that the migration is not affecting the supply on the ground because the supplies are different, they are isolated. So the ground water reserve where WASA gets its potable water is different from the one that Guanapo is sited on. This will reveal itself in the study we are going to embark on.

I can assure you that any attempt at constructing a new site, it is happening in a different era, where there is a lot more respect for the environment, we have custodians such as the EMA, Town and Country Planning, and we have watchdogs so that it would not happen in the same manner as these other sites have been operating. It will be totally well-engineered from the beginning and the operations will allow for best practices and engineering practices to ensure that the leachate and the gases are dealt with in an appropriate manner.

Mrs. Oudit: That is one question. I just want to ask you how—I think in the earlier meeting you all had spoken about the way in which contracts are given. How was that done in the past?

Mr. Osuji: Contracts for?

Mrs. Oudit: For the work that SWMCOL has to issue. What sort of areas do you all get into? How is that—because you do—I understand here based on your information that—service providers?

Mr. Osuji: Yes.

Mrs. Oudit: So how are contracts awarded? Or in the past, how was it awarded and is there any issue with that?

Mr. Baboolal: My understanding is that we award contracts for the landfill for security, for the equipment, and for material for the landfill. Normally these are done by public notices.

Mrs. Oudit: Right. Is there any undertaking to change that for any reason, or has that worked?

Mr. Baboolal: As far as I know, it has worked.

Mrs. Oudit: Okay.

Mr. Baboolal: As a matter of fact, we are in the process of going out shortly to invite for equipment, and landfill and so on. As a fact, recently we awarded for security services.

Mrs. Oudit: Okay, I guess because of the lack of bureaucracy it is easier for you to manage those areas through that type of tendering and that type of contractual arrangements, yes?

Mr. Baboolal: Yes.

Mrs. Oudit: Thank you.

Mr. Chairman: Dr. Tewarie?

Dr. Tewarie: I have a couple of questions and I want to start the questions by reminding you that I asked the question that whether this was best practice if you went down to central Trinidad, and your answer was that it is standard practice, it is best practice, and it is generally the approach taken all over the world. It is enhanced by a Japanese technology that is in keeping with the Kyoto Protocol. And, therefore, that is what really gives integrity to the best practice aspect of it.

Now, what I want to ask is this before going onto a couple of other questions. Is there any other way of dealing with tons of garbage in a country that is an island country really that would be superior and to the advantage of that country? Is there any other technologically, more sophisticated, or advanced system that we can use?

Mr. Osuji: Yes, there are other methods.

Dr. Tewarie: And what would those be?

Mr. Osuji: For example, some other small islands use incineration but only because they themselves have no natural resources and they use it as a mechanism to generate electricity. So they convert the waste to energy and then harness the energy content of that incineration.

Dr. Tewarie: Okay.

Mr. Osuji: But that works for them, as I said because electricity is expensive and they have no natural resources against which they can generate electricity. So incineration is one and there are various ways of incinerating. Mostly, that is it.

Dr. Tewarie: The reason I asked that is this: you said that you are going to have seven strategic sites in the country where I think at each of those seven strategic sites what you are going to end up with are recyclable material and material to reprocess waste to take to central Trinidad. Is that correct? It means then, that it is possible to use those seven sites as collection points for building the export part of recycling industry. Is that correct?

Mr. Osuji: The transfer stations would be used solely for transferring the waste and reducing the long haul distances associated with the collection exercise. That is the primary use.

The facility that will embark on collecting the recyclables and package them for export, will be a material recovery facility.

Dr. Tewarie: Will be?

Mr. Osuji: Material recovery facility. This is where once the waste is separated at source it is destined for facility where it will be baled and containerized for export. So everything is closely integrated. The collections should evolve to facilitate curbside source separated collection. The source separated recyclables are destined for MRF, the rest of the waste should be destined for a transfer station.

Dr. Tewarie: You see the reason I am asking this, you said that 30 per cent of the garbage is the domain within which you operate and that is a competitive zone. You said that two-thirds is then covered by local Government, and you said that there is a 40 per cent loss of the entire system. The 40 per cent loss may very well be contributing to illegal dump sites and illegal dumping. Right?

Mr. Osuji: Yes.

Dr. Tewarie: So we have those kinds of problems that are embedded in the current system we have. Then you have the challenge of getting recyclable materials and separating them, then you have the issue of what to do

with the recyclable material so that it becomes an industry.

And it seems to me that one of the problems we have here which is why Guanapo and East Port of Spain have become so awful as sites for garbage, is because the business side of it is only up to the point where it gets to the dump. And therefore there are efficiencies built into that because there is a business side to it. Once it gets to the dump there is no more economic incentive. And as a result in the absence of economic incentive, anything can happen which is why Beetham has ended up the way that it is, and which is why Guanapo has ended up the way that it is. And unless there is an economic incentive, business incentive to recycling, we are not going to have that either.

So my challenge is, I worry about the decentralization of garbage. I would be quite frank with you, which is why I asked the question. The one comfort that you gave to me makes me skeptical, and that is after 20 years you closed down the site, it became agriculturally productive because it can then be used, and you moved to some other place, but that means you have to set this up at some other place, and that is why I am asking you, is there not a better way than going the way that other countries have gone to have what are essentially dump sites managed?

I really feel in our time in the 21st Century, we have to find a better way to do it, and I feel that the technology is available and we need to probe and see what is possible. In addition, we are a small country, and taking up all of this land for garbage, to me, is really a waste of opportunity.

It seems to me that unless we can incentivize different types of what is, essentially, waste in a garbage industry, we are not going to find a reasonable solution or a long-term solution to it. I believe in two things which are: you need to have a business model for almost anything that you do that will bring in efficiency effectiveness and will demand a competitive edge because success will demand that.

I also believe that on the service side you need to have—and these are usually state driven—a notion of public good that is of a very high and lofty order, so that the idea of delivery of that public good overrides every other consideration, and unless you have those two things built into this business of garbage, we are going to end up with missteps that are going to lead to various versions of Sea Lots again, and what is what I am concerned about.

You see, I do not see a permanent lasting sustainable solution in what you are suggesting. I see a temporary solution, but I do not see a lasting sustainable solution, and I wonder if we cannot rethink this business and, especially, the technologies that are available today.

Now, let us say the energy option which the smaller islands have used, for instance, you say that the reason we cannot convert waste to energy is because natural gas is so cheap, but are we not really creating a very, very, costly option; the option that we are choosing to dispose of garbage? Is there not a serious cost associated with that which could be by and large eliminated by the creation of energy from this thing, and we could then find a source for the acquisition of the energy that we produce?

Mr. Osuji: Yes, I take your points and they are very valid points. I can tell you that in other countries where there is a technological solution they, themselves, still have landfills because regardless of whatever technology you use, there is a residue that needs to be disposed of and it is the bottom mash.

So even Japan, as technologically advanced as they are and with land as a precious commodity, they have resorted to concomitantly finding new land for landfilling, and employing a lot of diversionary strategies, so that they minimize the consumption of the airspace on the landfill. So they use all the mechanisms to ensure what comes to the landfill is what cannot be used anywhere else.

So they do not have natural resources that enable them to generate electricity. They have nuclear power plants and they have incinerators that incinerate waste, but incineration generally is a residue and that residue is landfill.

I agree with you and that is why I say that any attempt at citing a landfill in the central area or elsewhere has to have the concomitant addressing of the amounts of waste generated that are destined for a landfill. So if you take out the 80 per cent that is recyclable, and everything that is recyclable has alternative use or resource value, what goes to the landfill and consumes your airspace is a minimal amount. So while you might have engineered the site for 20 years, you have extended the life now to possibly 30 or 40 years.

The Japanese have realized that the landfill is a necessary feature and with land being a scarce resource, they have actually started creating landfills in the sea. They reclaimed the sea. In fact, they actually have landfills out in the sea, but with that cognizance given the fact that what is ultimately destined for the landfill is the barest minimum. So technology can help to an extent.

I do not think that we in the Caribbean have been the best at maintaining expensive infrastructure; technologically superior infrastructure. I think we always suffer with maintenance issues. In fact, most of the proponents of these technological solutions do not themselves have facilities that they can demonstrate that

have been successfully used in the Caribbean. That has always been a concern for us. They come from UK or elsewhere wanting to sell us the technological solution, but there is no historical example of its use in the Caribbean. Ultimately, it is a mix.

Mr. Hardit-Singh: May I just interject for a second here? Just to let you know that we are also still exploring the option of the proposal that has been put forward from A to Z, which was mentioned earlier on with respect to a question that Mr. Ramnarine had asked about waste to energy proposal, that option is still being explored and we are exploring it actively.

So that even though we do have an abundant supply of natural gas here in Trinidad and Tobago, that resource of turning that waste to energy as a business entity is being explored and it could also have partnership with members of the private sector. So we are currently looking at that and proposals to be sent forward accordingly to the Ministry of Local Government with our findings

Mr. Chairman: I am really having some serious concerns, because some of the issues just raised by Dr. Tewarie, for instance, I recall having seen reference made to some of them in the latest policy document that I was referring to. I imagine that you would probably have a copy of it in front of you. Under “Technologies and Systems Application”, it makes reference to waste management technologies and systems will be used to recover value from waste where economically and environmentally feasible. It goes on to talk about these things, but then as I move along in the document it really does not tell you anything. I say okay, fine, that is fantastic. A number of the things that we spoke about the last time and what we are talking about now, there are hints that they are in here and as you read along, I am not sure what is the policy and what is being recommended. When I get to the back of the document where it talks about the way forward, the impression I am getting is that there is supposed to be more work. In other words, you give me some more work and I would then tell you those things. I do not know, I may be wrong, but that is the impression I am getting.

I also wanted to ask a question. There are some documents that you provided and one is called Request for Proposals (RFP) for the development of a national solid waste management system for Trinidad and Tobago. That was done by SWMCOL I would imagine, and there is no date on it, but I am suspecting that it might have been around 2000. Do you have any idea when this was done and what happened with this document? Did this actually go out and people responded to it? What happened to that RFP? The document that we have now, could it be the result of that RFP?

Mr. Osuji: That request for proposals, I cannot remember exactly what period, but it might have been around 2000.

Mr. Chairman: In the back of it, there is where you are supposed to sign and it does say 2000, and it addresses a lot of those things, so that would have been back in 2000 and we are now in 2012. What happened with it?

Mr. Osuji: Well, it went out to tender and you had many submissions from international companies, et cetera, and it just died a natural death.

Mr. Chairman: It died a natural death, okay.

Mr. Osuji: Yes, I think it might have been a consequence of some administration changes and some changes within the then Ministry of Public Utilities and the Environment. It was an attempt that was ours and it died.

Mr. Chairman: You notice there are some differences between what we have in this RFP and the things that were really addressed in this. Now, did SWMCOL have any input in the RFP the one I believe was issued by, was it Local Government?

Mr. Osuji: Yes.

Mr. Chairman: You had inputs into that?

Mr. Osuji: We did not.

Mr. Chairman: Sorry?

Mr. Osuji: No, we did not.

Mr. Chairman: Tell me again. This has to do with a Solid Waste Resource Management Policy for Trinidad and Tobago.

Mr. Osuji: Yes.

Mr. Chairman: And you had no input into it.

Mr. Osuji: We did not have any input, no.

Mr. Chairman: What was the reason for that?

Mr. Osuji: I know at the time there was a resident expert that was based in the Ministry of Local Government, a foreigner, and he would have provided some expert advice to the Ministry of Local Government, but I know that we did not provide—

Mr. Chairman: Is this not wasting our money really when we are doing things like this? How could you have an organization such as SWMCOL and, clearly, there is evidence from all you have shown us here that you were involved in these issues. It is your responsibility as the agency—the final agency that would be responsible for dealing with this—and you have at the level of the Ministry a contract being issued for work to be done to address the functions that you have to perform and you were not involved in it.

Mr. Osuji: Yes, it is sad to say, but yes. That is what happened.

Mr. Chairman: Are you disturbed by that?

Mr. Osuji: Yes, I am, we are. I think, it is typical of—it is not unique and it speaks to some of the challenges that we are faced with.

Mrs. Oudit: It is typical of what?

Mr. Osuji: It is not an uncommon practice for SWMCOL to be left out of the loop when it comes to soliciting an expert opinion on things that are waste related.

Mr. Chairman: This is why I want to find out what is the cost and what was the process. It is not just an opinion. Clearly, from what I am seeing here, I am almost sure that it involves a significant amount of money, and I think we need to know what was paid for it. What I am concerned about is that you were not involved even in preparing or informing the RFP. You had one earlier which seems to address a lot of issues that we need to know about, but I have not seen the RFP for this one, but it certainly does not address a number of the issues, and that is disturbing me a bit.

Mrs. Oudit: Mr. Chairman, this is a question directed to you and for the Committee Secretariat. Is it possible, because the current board clearly is probably as baffled as we are, in any way that we can call the previous board or management of SWMCOL? I think you have here a 40-year-old organization that has been running literally, and now we have the explanation given that that is typical, and you have proposals for the future that are again typical, but lacking in substance.

Mr. Chairman: That is something that we can consider, but the concern that I have here now really since there is a date on it—it was around 2000, because in the back it does say—if the document had been signed, it would have been signed in 2000 and it is fairly detailed.

Now we have a document here which is a policy, policy guidelines if you will, and this from what I understand—well, it is dated February 10, 2012—which means that it was issued about maybe six months or certainly less than a year ago, right. That is the concern I have. So I think it has to do really with, perhaps, this board and the people in front of us now.

Dr. Wheeler: Mr. Chair.

Mr. Chairman: Dr. Wheeler?

Dr. Wheeler: It sounds to me like we need to ask the Ministry of Local Government, either now that this can really be placed at the feet of this board at all.

Mr. Chairman: Yes.

Dr. Wheeler: I think that would be a bit unfair. The Ministry is the one who should really be answering those questions.

Mr. Chairman: Yes, I think I would agree with that because clearly you were not in the loop. Sorry, you wanted to say something, Sir?—the CEO.

Mr. Hardit-Singh: Just nodding at the comment Dr. Wheeler made.

Mr. Chairman: Yes, Dr. Tewarie?

Dr. Tewarie: What does it cost to run SWMCOL for a year?

Mr. Hardit-Singh: We are provided or given a subvention of TT \$75 million.

Mr. Chairman: How much was that?

Mr. Hardit-Singh: TT \$75 million.

Dr. Tewarie: And how much do you generate on your own?

Mr. Hardit-Singh: Sorry?

Dr. Tewarie: You said you had a marketing unit, how much do you generate on your own? How much income do you generate on your own?

Mr. Hardit-Singh: On our own with our different lines that we operate which would be the portable toilets, bins—Frank—you have my General Manager, Finance.

Mr. Hernandez: Yes. Sorry. We generate a further \$30 to \$40 million from the commercial arm of the organization.

Dr. Tewarie: So you make \$40 million and you are subsidized to the tune of \$75 million; is that it?

Mr. Hernandez: Yes.

Dr. Tewarie: And you cover some part of 30 per cent of the band of wastes in the country which would be some part of about, maybe, 200,000 tons of waste?

Mr. Hernandez: When you say make, I just want to clarify?

Dr. Tewarie: You generate income. No, I know you do not make a profit.

Mr. Hernandez: Okay, all right.

Dr. Tewarie: Yes, I mean you generate income so that you deliver. Is that a good proposition for the country? Can we do it better?

Mr. Hernandez: Yes, I would like to add though, what we have inherited or what we have been dealing with more of less is a business model that has not really embraced the commercial aspect of the waste industry.

Dr. Tewarie: It is a bad model?

Mr. Hernandez: Yes, it is a bad model.

Dr. Tewarie: Okay. So, really, the services you offer are very, very limited and most of the things that you have to do, you have to contract out.

Mr. Hernandez: Yes. Yes.

Dr. Tewarie: It is very, very bad model.

Mr. Hernandez: Yes.

Mr. Chairman: Any other questions?

Mrs. Oudit: Yes, Mr. Chairman. I have a final point to make and it comes from your document submitted, page 17 of the final draft, which looks at your reduce, reuse and recycle. I think what I would personally like to see is the effort of SWMCOL in the reuse aspect, simply because from what you have discussed today your capacity is limited in one way, but your capacity would be greatly enhanced if the reuse options are wider in the way in which the garbage and the waste that you collect is able to go back out to various agencies, so that way not only your storage but your disposal would be greatly reduced.

I hope to see in the near future a tremendous and significant thrust to the reuse element which would call for a far more detailed and in-depth integration with local government, with some of the agencies that are new bodies. In fact, recently, I know that out of the Indian business delegation there has been a tremendous interest in reuse towards a final product and recycling, and I think the opportunity is here so that we can really and genuinely look at the reuse element under SWMCOL. I think there are opportunities that are presenting itself at this time, and maybe it would have presented itself in the past, possibly the capacity, even the will I might add might not have been there at the time, but certainly my best wishes for the current board because there is a lot of work that you have to do.

Mr. Chairman: Okay, one more from Dr. Wheeler.

Dr. Wheeler: I think I would like to direct this to the Chairman. SWMCOL is a state agency; is it not?

Mr. Baboolal: Yes, it is.

Dr. Wheeler: That is supposed to carry out the policies of the Government and the Cabinet.

Mr. Baboolal: Of course.

Dr. Wheeler: I am at a loss to understand how come you do not seem to be involved in the carrying out of government policy related to solid waste and resource management. Is this something that you intend to address with the Minister under which who has—?

Mr. Baboolal: Yes, that is the Minister of Local Government.

Dr. Wheeler: Yes.

Mr. Baboolal: Yes, of course, I intend to do so.

Dr. Wheeler: Do you have a strategy for addressing it because it seems as if it needs to be done—?

Mr. Baboolal: Coming out of our meeting today and in light of that document that was prepared by the Ministry of Local Government, of course, I had raised it with him already. I intend to meet with him again because, actually, there is a consultation going on now that we were not involved in also to deal with solid waste, and I think I need to at least address that also.

Mr. Chairman: I should hasten to add that you did not send us the document that is something that we picked up from reading the papers and did a bit of searching and found the document. They would make it look as if were you?

Mr. Baboolal: Yes, of course.

Mr. Chairman: Dr. Tewarie?

Dr. Tewarie: Yes, just a couple of questions. The proposal that you have in mind which you say is best practice with these seven sites: separation of recycling and process garbage and then a main centralized dump, what is that likely to cost?

Mr. Osuji: A costing was—

Dr. Tewarie: This would be a new investment, right?

Mr. Osuji: Sorry? A costing was done in 2000, but those figures as I said the study needs to be updated and the costing recomputed.

Dr. Tewarie: We would probably have to add 50 per cent to that?

Mr. Osuji: Yes. Yes.

Dr. Tewarie: But what was the costing then?

Mr. Osuji: I think, if I am not mistaken, it might have been US \$20 per ton. I am not precisely sure. I can always get that information for you.

Dr. Tewarie: So that is, \$700,000 x 20.

Mr. Osuji: Yes.

Dr. Tewarie: That investment was supposed to come from whom, the State or from SWMCOL?

Mr. Osuji: It would have to come from the State, we could not do that. I mean, we are actually exploring funding mechanisms for going forward. Actually, we have gotten in principle agreement from the IDB to come up with a sector strategy as the first step. We are also looking at the Infrastructure Development Fund to see what the criteria are for tapping into the fund and to the extent in which that can facilitate—

Dr. Tewarie: That would be loan funding, right?

Mr. Osuji: IDB is grant funding, thus far.

Dr. Tewarie: Okay. So they are prepared to give a grant to solve a problem?

Mr. Osuji: Yes, administrative funds. We are scouting around to see which Government agencies might be able to lend a further—but yes.

Dr. Tewarie: But if you have a borrowed proportion how are you going to pay it back?

Mr. Osuji: We could maintain to an agreement to borrow that would have to be a Government to Government arrangement.

Dr. Tewarie: But who is going to pay it back, the State or you, or will the State have to give you a subvention to pay it back?

Mr. Osuji: I am not so sure.

Dr. Tewarie: Are you going to generate enough money to pay it back? That is what I am saying.

Mr. Osuji: Well, it would have to be along those lines.

Dr. Tewarie: Yes. All right, you know, I mean—

Mr. Hernandez: Sorry. I would like to add though, given what is available to us right now we would always start with what is available to us, so we have a minimum start of which is \$75 million of the subvention. We also have access through the PSIP programme depending on the justification of the project and we can see that this project would be a project that could meet the criteria of justification. And what we have embarked upon is the embracing, as I said earlier, of the commercial aspect of the business, so we expect that revenues/funding could be accessed from those three areas, primarily, and then, thereafter, is when we would look external.

Dr. Tewarie: Chair, I just wanted to make a comment because I think it is important in terms of the psychology of the country, you know, how we address these issues. The whole business of garbage and waste disposal is a fundamental and essential requirement for any country. Even with what we have now, I think none of us around this table and the members of SWMCOL themselves would be happy with the state of sanitation and cleanliness in the country. We do have a problem. We are not as bad as some countries but we have a problem, it could be better.

I am not, in any way, questioning the value of SWMCOL and the other institutions involved in this and their contribution to dealing with the issue of sanitation, garbage, waste and so on. But garbage and waste are really big business in the world, and the way we approach the business of garbage and waste really determines whether it is a value proposition or a cost proposition.

I would like to suggest that as we address this issue that we look at it as a value proposition, and we have to design the business model that is required to turn garbage and waste into a business opportunity. I really think that the way that you all have operated in the past, I know the model was not created by you, that model is obsolete, it is irrelevant, it is costly, and I want to say it is costly not to the Treasury, it is costly to the taxpayer; the ordinary citizen of the country. That is the problem with a lot of these State entities that have to be subsidized by what is essentially the citizen of the country.

I really feel, going forward, we have to rethink this model entirely. For instance, if you gave a private sector investor, the site that you want as your centralized site and you asked him to come up with a solution for which you are prepared to either give the land to him or her, or provide the land as equity, it would cost the taxpayer nothing, except the land that you gave and you might even get equity for the land. So that it is possible to find a model given what we have already inherited, what we have created, what we have done, the expertise that has been built up, that would be cost free to the taxpayer.

I really feel that going forward we have to think about that rather than thinking about continued Government subvention for something like garbage and waste which, essentially, is big business in the world. Okay? So I want to close on that from my point of view because I am concerned about it. I really do not feel that that is something that needs to be subsidized because it can pay its way. I know it pays its way in almost—well, certainly instances that I can use as examples it can pay its way.

Mr. Chairman: Thank you.

Dr. Douglas: That would be able to pay for itself, I on the other hand is concerned more with aesthetics. I did not even mind paying for this and I am getting a country that is clean, green and serene, and I am wondering, what is the nexus between SWMCOL and what happens on the streets of Trinidad and Tobago or the communities of Trinidad and Tobago.

Hon. Dr. Douglas: As far as I am concerned this is a nasty country, in my pure folk way of thinking. This is just a “dutty” place to live. Places smell; I am passing on the Beetham, places smelly, drains are dirty, no garbage cans, garbage in a lot of places. Of course, we are better than a lot of places, but in many ways this is a kind of nasty place.

So in my case, even if we were paying for it, it was not a business model, but I was getting value for the money in terms of an aesthetically pleasing place to be, I could say, “I could live with that.” I could say, “I am paying and at least the place is really nice and clean,” whatever, whatever. I do not know if it is your responsibility or whose, but I am wondering what is the nexus or the relationship between the streets of Trinidad and Tobago, the communities and their cleanliness and SWMCOL.

Mr. Hanoomansingh: With regard to the streets, it would lie within the boroughs and regional corporations to maintain the cleanliness and so on. What members would be happy to hear is that from SWMCOL's perspective, we are actively engaging in a public education programme where we target school kids, primary and secondary, where we enlighten the nation's kids about keeping the environment clean, throwing away their trash and those sorts of things.

Dr. Douglas: Let me ask a follow-up question. So besides the \$100 million, whatever subvention or whatever money is being spent, you make or whatever, there is still a next pile of money being spent in local government on keeping places clean too, or supposed to be keeping places clean?

Mr. Hanoomansingh: From my knowledge, the \$75 million is to manage the land fill.

Dr. Douglas: Well it gets worse then? As I said, my general concern really is what happens on the ground here, whether it is SWMCOL or— So who has control? Is there like a, well—. Local Government is officially responsible for the cleanliness of Trinidad and Tobago period, and SWMCOL's ultimate responsibility is where it reaches—it only manages the land fill?

Mr. Jeffrey: I have a very sneaky feeling that all is not well with this Forres Park site, given the serious consequences that could emerge from any fallout.any mistake with this selection. How could we get a copy of that evaluation report of the Forres Park and the alternative site that you all had considered?

Mr. Chairman: Do you have that information, that document?

Mr. Osuji: I can make it available.

Mr. Hardit-Singh: We can make that information available to the members of the panel in due course.

Mr. Chairman: I think we would have to conclude here for today.

I just wanted to say however in fairness to the company, and a number of things that Sen. Dr. Tewarie also suggested or talked about, that reference is in fact made to that requirement in the documentation which we have here. So I think it is really a question of getting your act together with the Ministry and striving really for efficiency and effectiveness.

I would like to thank you however for returning here today. I know it is the second time we are meeting. Thank you also for the information you have provided; it is very useful. The additional information that we require, we will be in touch. There are some concerns expressed by the members of the committee, and these will be tabled in our report in due course.

Thank you very much. This meeting is adjourned.

11.59 a.m.: *Meeting adjourned.*

APPENDIX IV

PRE-DESIGN FOR BEETHAM SANITARY LANDFILL AND GUANAPO LANDFILL

SOLID WASTE MANAGEMENT PLAN TRINIDAD AND TOBAGO.

for
THE MINISTRY OF HEALTH

BENCHMARK EVENT VIII

PREDESIGN PACKAGE—LANDFILLS AND TRANSFER STATIONS

AUG. 1980

Prepared by:

Planning Associates Ltd.
Stanley Associates Engineering Ltd.

A joint venture.

² Excerpt from the Solid Waste Management Plan for Trinidad and Tobago. Benchmark Event VIII Pre-design Package on Landfills and Transfer Stations.. Planning and Stanley Associates. August 1980

SOLID WASTE MANAGEMENT PLAN
FOR
TRINIDAD AND TOBAGO

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A Joint Venture

PLANNING ASSOCIATES LIMITED
STANLEY ASSOCIATES ENGINEERING LIMITED

PLANNING & STANLEY ASSOCIATES

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Phone: 62-43857/42448

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Trinidad

LETTER OF TRANSMITTAL

21 August 1980

Ministry of Health
49 Jerningham Avenue
Belmont
Port of Spain

Attn: Mr. W. Thomas, Director
Public Health Engineering

Gentlemen

Re: Comprehensive Solid Waste Master Plan for Trinidad and Tobago
Predesign Package for Landfills and Transfer Station

We are pleased to submit this predesign package. It provides details on the landfill and transfer station facilities which have been recommended for Trinidad and Tobago. These facilities are as follows:

North Trinidad

- Bestham Landfill
- Guanapo Landfill
- Toco Road Landfill
- Sangre Grande Transfer Station

South Trinidad

- Tarouba Landfill
- Rio Claro Transfer Station
- Point Fortin Transfer Station

Tobago

- Bacolet Landfill
- Roxborough Transfer Station.

Where necessary field surveys and sub-soil investigations were undertaken, prior to carrying out this predesign assignment. This is the final submission under the Terms of Reference for Benchmark Event VIII.

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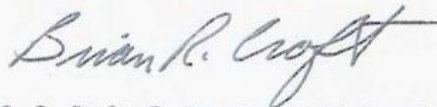
Page 2

The Technical Memorandum and drawings contained herein provide a basis for moving ahead with detailed designs of these facilities and for closing old sites. In some cases the detailed designs need to be initiated immediately (i.e. Tarouba, Beetham and Guanapo Landfills) and in other cases detailed design is not required until 1984 (i.e. Sangre Grande Transfer Station).

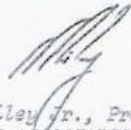
The Final Master Plan Report provides a schedule for implementing these new facilities and closing old operations. It should be referred to for details on timing of these activities.

Yours faithfully

PLANNING & STANLEY ASSOCIATES



B. R. Croft, P. Eng. Technical Co-ordinator
STANLEY ASSOCIATES ENGINEERING LIMITED



M. A. Riley Jr., Project Co-ordinator
PLANNING ASSOCIATES LIMITED

Encl.

INTRODUCTION

This Predesign Package satisfies the following Terms of Reference which are included in Benchmark Event VIII:

- If Sanitary landfill is the disposal method for the site, perform a detailed sub-surface investigation with borings, as necessary.
- If the site is planned as a sanitary landfill, prepare a schematic plan showing the location of physical facilities for weighing, landfill, office, equipment maintenance, recovered materials storage, fueling facility, fill area, employee sanitary facilities, point of access and develop estimated quantities of cover material and fill volume.
- If the site is planned for processing and/or transfer, prepare a schematic plan showing the location of the facility on the site, points of access and a basic facility layout, including all relevant items from above.

Prior to undertaking this predesign work it was necessary to carry out topographic surveys and drilling at selected landfill sites. These investigations were carried out at the following sites:

Guanapo
Toco Road
Tarouba
Carapo
Beetham

Existing topographic and soils/geological maps were used for the other landfill site at Bacolet.

In addition, existing mapping was used during predesign of the four transfer stations:

- Sangre Grande
- Rio Claro
- Point Fortin
- Roxborough

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The results of each predesign were documented in a Technical Memorandum (TM). These TM's make up the bulk of this Package. In addition, a Technical Memorandum which deals with the closure of open dumps has been prepared and is included at the end of this document.

TM's on the five landfills (the sixth, Carapo, will not be needed for 20 years therefore a TM was not prepared for it) were organized as follows:

General Introduction

- role of facility in the overall Plan

Waste Quantity and Landfill Capacity

- existing area
- topographic survey
- cross-sections
- contours for completed fill
- calculated capacity
- waste quantity
- site life

Cover Material

- amount required
- source

Site Development Plan

- buildings
- roads
- fencing/lighting/signs
- drainage
- wet weather operation

Site Equipment

Environmental Monitoring

The TM's on transfer stations dealt with equipment and labour requirements rather than landfill capacity and cover material. They also provide a site development plan.

TM's on facilities serving the country's three regions have been grouped together and the attachments appear in the following order:

- North Trinidad
- South Trinidad
- Tobago
- Closure of Dumps

PLANNING & STANLEY ASSOCIATES
 TRINIDAD AND TOBAGO SOLID WASTE STUDY

TECHNICAL MEMORANDUM (TA29/TM 19)

Activity Description: INTEGRATED PROCESSING AND DISPOSAL SYSTEM
 Task Assignment No: 29 Activity No: A10-14
 Task Leader: B. R. Croft Date Assigned: _____
 Scheduled Finish: _____

Subject: PREDESIGN FOR BEETHAM SANITARY LANDFILL

This memorandum provides the design basis and rationale for predesign of the Beetham Sanitary Landfill.

WASTE QUANTITY AND LANDFILL CAPACITY

Table 1 gives the projected waste quantity from each of the contributing waste source areas at five-year intervals. Table 2 provides the estimated capacity required to receive these quantities.

TABLE 1. WASTE QUANTITY PROJECTIONS (tonnes/year)

WASTE SOURCE AREA	1980	1985	1990	1995	2000
1. Chaguaramas/Diego Martin	13,737	17,040	22,812	27,672	32,670
2. Greater Port-of-Spain	73,891	86,612	96,089	105,196	115,615
3. San Juan	31,759	39,238	51,161	59,393	69,228
4. Tunapuna & Caura (not Arouca and Lopinot)	9,820	13,481	18,101	22,075	26,228
5. North Coast	637	783	960	1,092	1,250
	129,844	157,154	189,123	215,428	245,149

20-year total = 3,746,000 tonnes

TABLE 2 BEETHAM LANDFILL CAPACITY REQUIRED

YEAR	TOTAL WASTE (tonnes) (year)	5-YEAR CAPACITY *
1980	130,000	
1985	157,000	1.4 million cu.m.
1990	189,000	1.7 million cu.m.
1995	215,000	2.0 million cu.m.
2000	245,000	2.3 million cu.m.
	Total	7.4 million cu.m.

*Based on in-place density of 500 kg/cu.m.

From Table 2 it is estimated that total capacity (less final cover volume) of the site must be 7.4 million cu.m.

The area required will depend upon the fill depth. It has been suggested that at the Beetham site, a 2.5 m. (8ft.) lift height should be used (Beetham Sanitary Landfill - Operational Plan, Planning and Stanley Associates, March 1980). This lift height minimises the quantity of earth material required for daily covering.

It is further recommended here that a total of three (3) lifts be applied to the site - as an overall average. This will allow the site to be put to a final use within a reasonably short time (i.e. approximately 10 to 20 years). Time limits on construction on filled areas would depend upon both gas generation and fill settlement. Proper gas venting can be provided for during detailed design and operation to shorten the waiting period. Similarly, settlement can be minimised by good daily compaction but will still occur over at least the first five years after final covering. Annual surveying of the completed area should be used to determine the rate of settling.

With an average fill depth of 7.5 m. (25ft.) the required fill area is calculated as follows:

Total fill area = 1 million sq. m.
 = 100 hectares
 = 250 acres

COVER MATERIAL

The cover material required over the period 1980 to 2000 is provided on the attached schematic site plan. The total required to be hauled to the site is as follows:

PERIOD	DAILY COVER	TOTAL COVER REQUIRED *
1981 - 85	110 cu.m.	192,000 cu.m.
1986 - 90	132	350,000
1991 - 95	155	410,000
1996 - 2000	177	468,000
2001 - 2005	200	528,000
		<u>1,948,000 cu.m.</u>

* Including final cover.

This is equivalent to nearly 0.40 cu.m. per tonne of waste.

SITE ACCESS

Site access is currently expensive because trucks coming from either the east or west must travel the complete distance from the Barataria Roundabout to the Central Market Roundabout or vice versa. Considering the new interchange south of the Barataria Roundabout the extra distance travelled is approximately as follows:

Vehicles coming from Port of Spain - 4.4 km (2.8 mi.)
 Vehicles coming from San Juan - 3.7 km (2.3 mi.)

With a general changeover from 1-tonne roll-top trucks (\$0.67/tonne.min) to 2-tonne packer trucks (\$0.34/tonne.min.) it is estimated that the extra haul costs (1980) for this distance is as follows:

Vehicles from West:	$\frac{87,700 \text{ tonnes}}{\text{Year}}$	$\times \frac{\$0.34}{\text{tonne.min}}$	$\times 4.4\text{km}$	$\times \frac{60 \text{ min.}}{45 \text{ km}}$	= \$174,900
Vehicles from East:	$\frac{42,200 \text{ tonnes}}{\text{Year}}$	$\times \frac{\$0.34}{\text{tonne.min}}$	$\times 3.7\text{km}$	$\times \frac{60 \text{ min.}}{45 \text{ km}}$	= \$ 70,800
				Total	= \$245,700/yr.

With continued use of roll-top trucks over the next few years, this cost would be doubled to nearly \$0.5 million per year.

This cost analysis shows the economic savings which could be achieved by providing an access method which eliminates this extra haul distance.

There are three alternatives for improving access to the expanding Beetham site as follows:

1. Construction of a grade separated interchange in the general vicinity of the existing access road.
2. Construction of a traffic light controlled intersection at the existing access road.
3. Access the site at the western end by using the existing Central Market Roundabout. A new access road from near the WASA Pumping Station would be needed.

General comments on each of these alternatives are as follows:

INTERCHANGE

- Existing buildings can still be used.
- Provides access near the middle of the site which minimises on-site travel and on-site roads.
- Highest capital cost (preliminary estimate is \$7.5 million)
- Safest alternative.
- Does not affect traffic flow on highway.

INTERSECTION

- Existing buildings can still be used.
- Provides access near the middle of the site thus minimising on-site travel and need for on-site roads.
- Lowest relative capital cost.
- Disrupts free flow of traffic on highway but in a controlled manner.

CENTRAL MARKET ROUNDABOUT

- Cannot use existing site buildings.
- Access at end, maximises on-site travel and need for on-site roads.
- Low relative capital cost.
- Disturbs free flow of traffic by increased crossing traffic at the Roundabout.
- Minimizes overall haul distance for trucks coming from west but increases distance for trucks coming from the east.

RECOMMENDED ALTERNATIVE

Considering all factors, the preferred alternative is to construct a traffic-light controlled intersection. This would require widening the east-bound highway to provide a turning lane (estimated access cost, see Annex 1)

The recommended site development plan (i.e. development of the 5-year areas) has been based on use of this intersection for improved access.

SITE FACILITIES

The existing site buildings need to be improved as described below:

- The employee and equipment facilities have become run down. As well junk and unwanted material have been left lying inside and outside the building. The site management should implement a building clean-up including painting inside and out.
- Sanitary facilities (toilets, showers and locker room) need to be brought up to standard. This should be carried out by a contractor.
- The area immediately west of the main building should be paved with asphalt. Gravel should be provided in front of the equipment maintenance shed area.
- A shed roof structure should be constructed immediately to the south of the building (dimensions - same length as the building, 65ft. and 20 ft. wide). This is needed as a parking location for landfill equipment.
- Two elevated diesel fuel tanks should be located at the east end of this shed.
- A weigh scale should be installed at the location shown. This location allows ample queuing capacity for incoming vehicles so they will not be parked on the Beetham Highway during peak periods of site use. Digital readout would be located in an adjacent booth. The scaleman would use remote controlled red and green lights for vehicle control.
- A new chain link fence is needed along the site boundary nearest the Beetham Highway as shown in the schematic plan. A gate is also required at the access road.
- The permanent site access road should be asphalt paved.

SITE DEVELOPMENT PLAN

The attached site plan provides for five areas, each having a five-year capacity. Existing drainage channels in the Laventille Swamp were used to provide a natural site boundary. Landfilling would stop about 10 to 20m. (30-60ft.) away from these drains and mangrove trees would be left in this buffer space.

SITE DEVELOPMENT PLAN (cont'd)

Similarly a major buffer of mangrove trees is proposed to be left between the Beetham Highway and the drain channel which is about 130m. (400ft) to the south. This will provide an effective buffer to residents in Beetham Estates and to motorists on the Beetham Highway.

The first areas to be developed, as shown, should be to the east. This is so that site activity can proceed "with the wind", which prevails from the east. Furthermore, this would be the first area of future final use and this too would benefit by being located up-wind of future operations.

In addition, detailed design should consider placing temporary access roads where future permanent roads would be located, thus providing a well compacted road base for future construction.

RESOURCE RECOVERY

A resource recovery facility has been recommended to be constructed at the Beetham site. The proposed location for this facility is also shown in the Schematic site layout.

EQUIPMENT

The existing site equipment consists of three D-6 crawler tractors (ages 1, 7 and 17 years), one front-end loader (age 7 years) and one water truck. In the immediate future the following changes need to be made.

- Retire the 17 year old D-6.
- Assign the 7-year old D-6 as a spare and purchase one new landfill compactor (Cat. 816 or equivalent).
- Reassign the front-end loader to another use with Transport and Cleansing Division and purchase a new wheeled loader (Cat. 950 or equivalent).
- Continue using the new D-6.

ENVIRONMENTAL MONITORING

A baseline monitoring programme should be undertaken to determine the present water quality in the Laventille Swamp and the proposed site boundary drainage channels. As well, boreholes for sampling groundwater should be placed within the existing site and to the east and to the south. A detailed hydrogeological study is needed to determine leachate movement direction.

A routine water quality sampling, analysis and reporting procedure should be established along the lines presented in Working Document VIII, Appendix 2.

The above discussion and the attached site drawing provide the predesign information which should be used as a basis for a detailed operational plan for the site. An important consideration in the operational plan would be final use of the site, i.e. location of roads or buildings.

Prepared by

Brian R. Croft
B. R. Croft, P. Eng.

Approved by

W. A. Rimmer

Date

14 July 1980

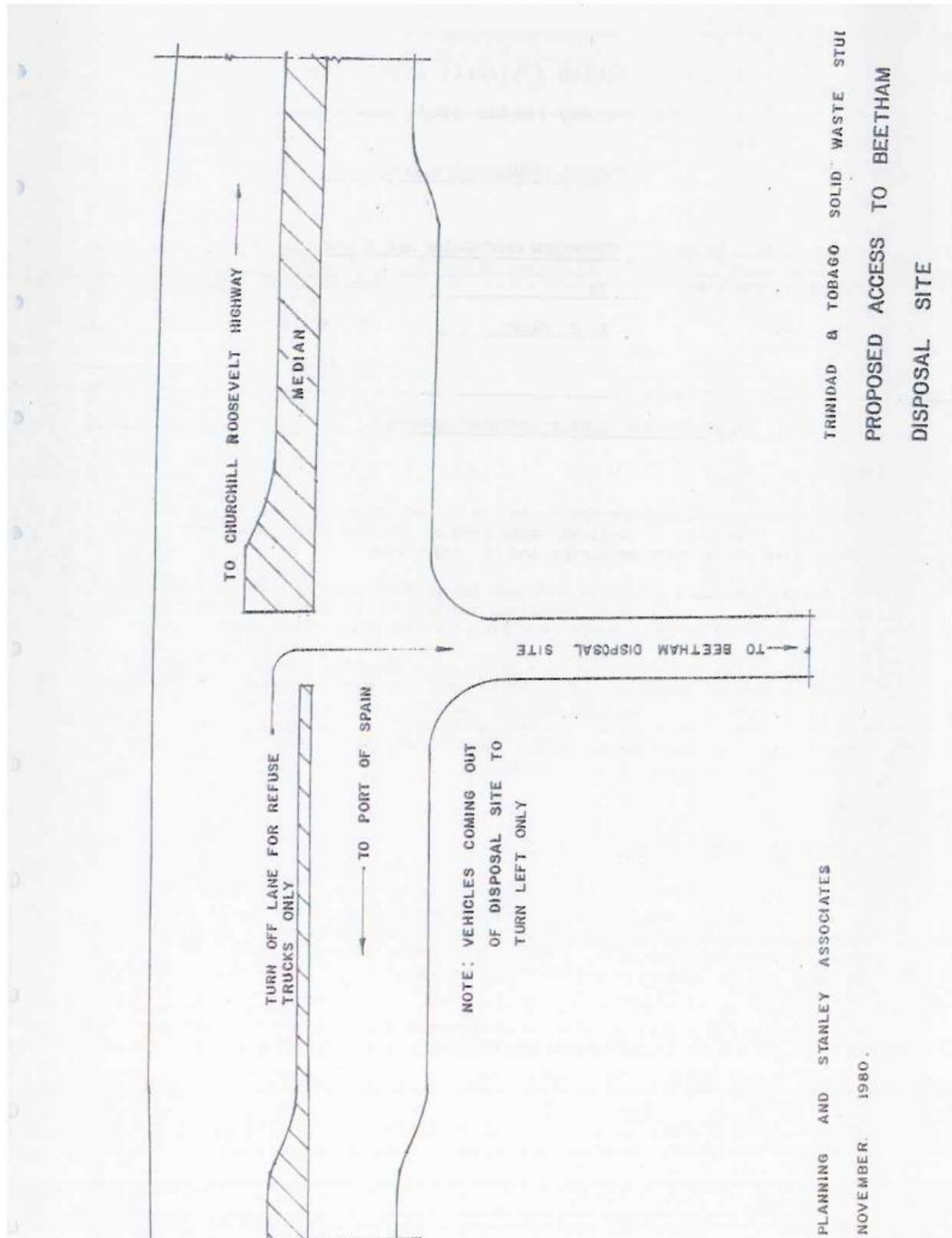
Date

18 Aug., 1980

ANNEX 1

BEETHAM ACCESS

(1)	Filter Lanes 2 No. 600' each x 24'	
	Costing \$100/sq.yd.	
	$\frac{2 \times 600 \times 24}{9} \times 100$	= 320.000
(2)	Improvement to Beetham Entrance	
	$\frac{400 \times 36}{9} \times 100$	= 160.000
(3)	Erect, Install and Commission Traffic Lights	= 200.000
		<hr/>
		680.000
	Engineering Fees	50.000
		<hr/>
	TOTAL	\$730.000
		<hr/>



PLANNING & STANLEY ASSOCIATES
TRINIDAD AND TOBAGO SOLID WASTE STUDY

TECHNICAL MEMORANDUM (TA29/TM 20)

Activity Description: INTEGRATED PROCESSING AND DISPOSAL SYSTEM
Task Assignment No: 29 Activity No: A10-14
Task Leader: B. R. Croft Date Assigned: _____
Scheduled Finish: _____

Subject: PREDESIGN FOR GUANAPO SANITARY LANDFILL

The Guanapo site is recommended to be one of the three major landfills serving Trinidad. Presently it receives waste from St. George (East) with some wastes coming from as far west as Curepe and St. Augustine.

The new system would generally continue the present service area but with some refinement in the vicinity of Tacarigua and Arouca to determine whether the Beetham landfill or the Guanapo landfill provides the shortest travel time.

Furthermore, the recommended system calls for a transfer station at Sangre Grande to replace the Toco Road Landfill when that small disposal site reaches the end of its life. Pre-design work on the Toco Road site has determined its remaining life to be 5 years. By the end of 1985 it is expected to be filled to capacity. At that time all wastes from St. Andrew/St. David will be transferred to the Guanapo Site for disposal.

WASTE QUANTITY AND LANDFILL CAPACITY

A topographic survey was undertaken at the Guanapo site. In addition to the existing operation, the survey was extended east to an existing road and north part way up the Northern Range hills. These features provided a natural boundary to an envisioned larger site. A creek to the west already provides the site boundary in that direction and the existing access road constrains extension to the south.

The projected waste quantities to be received by the Guanapo site over the next 20 years are provided in the Table below.

WASTE QUANTITY PROJECTIONS (tonnes/year)

WASTE SOURCE AREA	1980	1985	1990	1995	2000
4. Arouca and Lopinot	2,637	3,703	5,598	8,413	12,403
6. Arima	12,145	17,502	26,022	34,537	44,812
7. San Rafael	410	491	561	657	782
8. St. David *	-	715	774	801	887
9. Valencia Matura *	-	858	995	1,205	1,406
10. Sangre Grande *	-	6,882	8,839	10,459	12,486
TOTAL	15,192	30,151	42,789	56,072	72,776
Tonnes/day (312 d/yr)	49	97	137	180	233

20-year Total = 844,000 tonnes

* Waste from these areas go to Guanapo beginning in 1986.

The volume occupied by these wastes will depend upon compaction density. For this predesign it is assumed that a landfill density of 540 kg/cu.m. (900 lbs/cu.yd.) will be achieved. Note: Landfill density is the weight of a unit volume of in-place solid waste divided by the volume of the solid waste and the volume of its cover.

At this landfill density, the volume capacity required to dispose of the 20-year quantity is calculated as follows:

$$\begin{aligned} \text{Required Volume} &= 844,000 \text{ tonnes} \times \frac{1 \text{ cu.m.}}{540 \text{ kg.}} \times \frac{1000 \text{ kg}}{\text{tonne}} \\ &= 1.56 \text{ million cu.m.} \end{aligned}$$

With high hills north of the existing Guanapo site it will be possible to cut fill material from the hills and then later dispose of wastes in the cut areas. Through this cut and fill approach the site life will be maximized.

The attached site plan shows final elevation contours which give more than the total 20-year capacity which is required (1.7 million cu.m. are estimated). Figure 1 which follows shows the 'AA' cross-section and illustrates the cut and fill design.

During detailed design of the site an earth balance must be carried out to balance the area cut against the cover required.

COVER MATERIAL

The cover required will be available on site throughout the life of the landfill. The quantity required is estimated as follows:

Average Daily Waste Quantity over 20 years:

$$\frac{844,000 \text{ tonnes}}{20 \text{ yrs.} \times 312 \text{ d}} = 135 \text{ tonnes/day}$$

$$\text{Average Size of Working Face} = 3\text{m (10 ft.) high} \\ \text{by } 30\text{m (100 ft.) long}$$

$$\text{Slope of Cell} = 2 \text{ to } 1$$

$$\text{Thickness of Cell} = 2.8 \text{ m} \\ \text{Perpendicular to Slope}$$

$$\begin{aligned} \text{Average Area to Cover Daily: Face} &= 90 \text{ sq.m.} \\ \text{Top} &= 120 \text{ sq.m.} \\ &210 \text{ sq.m.} \end{aligned}$$

$$\begin{aligned} \text{Average Daily Volume of Cover} &= \text{Area} \times \text{Thickness} \\ &210 \text{ sq.m.} \times 0.15 \text{ m} \\ &= 31.5 \text{ cu.m./day} \end{aligned}$$

$$\begin{aligned} \text{20-year Total Daily Cover} &= 31.5 \times 312 \times 20 \\ &= 197,000 \text{ cu.m.} \\ \text{(Rounded) Use} &200,000 \end{aligned}$$

$$\begin{aligned} \text{Final Cover over Site} &= \text{Area} \times \text{Thickness} \\ &= 200,000 \text{ sq.m.} \times 0.6 \text{ m.} \\ &= 120,000 \text{ cu.m.} \end{aligned}$$

$$\text{Total Cover} = 200,000 + 120,000 = 320,000 \text{ cu.m.}$$

This is equivalent to a waste to cover ratio of about 5:1 (by volume)

SITE DEVELOPMENT PLAN

The existing site building is not adequate for long-term operation. It should be replaced in the near future with a new building with an area of 200 sq.m. (2,200 sq.ft.). This building would contain an office, a lunchroom, sanitary facilities, and space for equipment storage. The building should be serviced with electricity, telephone, tank water storage and a septic tank. A weigh scale should be installed at the site in 1985 so that accurate waste quantity information is available for the larger area which will be served at that time. Weighing

allows costs to be better assessed, provides data for future planning of the site and assists in the refinement of collection system operations. Digital readout from the scale would be located in the site building office.

The present access road needs to be upgraded. The access road from the Eastern Main Road is paved only for a portion of the distance to the site. The remaining section needs to be graded and paved to a width of about 7.3 m (24 ft.).

A sign should be erected, providing details such as:

- Name of facility
- Owner/Operator
- Hours of Opening
- Instructions for users to "Obey Supervisor"

Lighting should be provided at the site building and weigh scale.

Drainage of the site is provided by a channel to a nearby creek at the northwest corner of the existing operation and by a depression south of the site. In the short term these will continue to provide drainage. However, the final site contours would direct runoff water westward to the creek and eastward to the drainage area on the east side of the enlarged site.

Wet weather operation would require a tipping location near the south side of the fill to minimize on-site travel. The area used will vary from year to year. Graveling of on-site roads is required to minimize the possibility of trucks becoming stuck during wet weather.

Although the area covered by the survey is all state owned land (Cadastral Sheet 14F) it was noted that three wooden houses have been built in the area. The exact nature of the land tenure of these residents is unknown at this time and needs to be determined at the time of final design.

SITE EQUIPMENT

The existing dozer should be continued in use over the rest of its useful life. It should be immediately supplemented with a new crawler loader (Cat. 955 or equivalent) which is outfitted with a sanitary landfill option package. The crawler loader is more versatile than a dozer because it can excavate and move cover as well as operate on the working face.

ENVIRONMENTAL MONITORING

The creek to the west should be sampled once every two months both upstream and downstream of the landfill to check for leachate contamination. Similarly, the El Cedros River to the east should also be sampled both upstream and downstream, once every two months.

In addition, three groundwater monitoring wells should be established at the site.

ENVIRONMENTAL MONITORING (cont'd)

One should be upgradient and two downgradient. These need not be sampled as often as the creeks because of the relatively slow movement of groundwater - they should be sampled every six months.

The location of these three wells should be specified by a hydrogeologist who is familiar with the geology of the area.

The above discussion and the attached site plan provide predesign information for the Guanapo site. A detailed design is now required so that this site can properly meet the disposal needs of East St. George and St. Andrew/St. David over the next 20 years. A detailed operational plan is also required so that on-going site operation will be properly controlled and guided.

Prepared By

Simon R. Knight

Approved By

[Signature]

Date

15 July 1980

Date

18 Aug. 1980

APPENDIX V

WASTE DISPOSAL OPTIONS – LANDFILLS & TRANSFER STATIONS

RECOMMENDED WASTE MANAGEMENT STRATEGY



TRINIDAD

Solid Waste Management

PRELIMINARY STATUS REPORT #1

November 1999

Prepared by:



In association with:

**Trinidad and Tobago Solid Waste
Management Company Limited**

3

³ Excerpt from the Preliminary Report #1 Solid Waste Management Study of Trinidad. Canadian International Development Agency. November 1999.

**PRELIMINARY REPORT #1
SOLID WASTE MANAGEMENT STUDY
ISLAND OF TRINIDAD**

Prepared for
**CANADIAN INTERNATIONAL
DEVELOPMENT AGENCY**

**Marshall Macklin Monaghan Limited
Trinidad and Tobago Solid Waste Management Corporation Limited
14-99002-01-MOB
November 1999**

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EXECUTIVE SUMMARY

The Government of Trinidad and Tobago has identified an impending need to develop and implement an integrated strategy for the management of solid waste on the islands of Trinidad and Tobago. The current system does not offer an environmentally sound long-term solution to Trinidad & Tobago's disposal requirements. The Tobago House of Assembly (THA) is at present actively pursuing the establishment of an improved solid waste management system which includes a waste-to-energy plant. Marshall Macklin Monaghan Limited (MMM) in association with SWMCOL are assessing the current waste management operations of Trinidad to establish an integrated waste disposal program for the island of Trinidad.

There are various environmental issues associated with many of the sites instigating the necessity to develop appropriate facilities to dispose solid waste on the island. Many of the facilities are poorly managed, and salvaging is common. The sites may be contaminating the natural environment and there is the potential that vultures and dogs are spreading disease. Leachate may be impacting sensitive environments, such as the Caroni Swamp and fires are common.

MMM and SWMCOL staff inspected several of the landfill sites on the island, conducted interviews of persons operating the facilities and performed a detailed document review outlining the site conditions to develop this report outlining a conceptual waste management strategy to manage wastes for the island of Trinidad.

A waste generation rate was evaluated for the island. MMM reviewed the estimated and measured waste collected by all 8 operating landfills and used this data to develop centroids of waste generation.

Based on population and distribution of the wastes, as well as other economic and practical considerations, it was evaluated that one landfill, serviced by multiple transfer stations would be the most effective means of managing solid waste for the island. The capital costs associated with construction of an engineered landfill are estimated to be approximately \$US 10 to 15 million. Expansion of the existing Forres Park landfill site was selected as the preferred alternative. The landfill may contain the following facilities:

1. A Material Recovery Facility (MRF) (engineered environmentally friendly picking stations with conveyors), to conserve landfill airspace and provide socio-economic benefits to the local community.
2. Bio-reactor facilities for handling compostable materials, to conserve landfill air space.
3. Separate disposal area to accommodate wastes that are already sorted and compacted (arriving from other transfer sites.)

For the island as a whole, the economics and the need for transfer stations was assessed based on the landfill located at Forres Park and the quantity of waste generated within each county. A set of criteria was developed for each of the transfer stations, based on size and activities.

Based on waste generation rates, access, and social economic considerations, a large single large transfer station is recommended for the combined wards of Diego Martin and St. Ann's within the County of St. George. This could be located at the current Beetham landfill site.

Marshall Macklin Monaghan Limited
Trinidad and Tobago Solid Waste Management Company Limited

Based on waste generation, and access, a medium transfer station is recommended for the County of St. Patrick. This transfer station would be located near the town of Siparia.

Because of the small volumes of waste managed, a transfer station is not recommended for the ward of Blanchisseuse within the County of St. George. Waste should be hauled to the site located in St. George utilizing proper garbage compactor trucks and emphasis should be placed on recycling within this ward.

A large transfer station is recommended to service the wards of Tacarigua and Arima, within the county of St. George. At a large transfer station, waste would be processed and shipped to Forres Park directly. An economic analysis is required to confirm that this transfer station is the correct size. If a small transfer station is constructed, waste could be consolidated and transferred to Beetham for processing.

A small transfer station is recommended to service the wards of Cedros, Erin and Los Bajos (County of St. Patrick) and a single small transfer station is recommended for the combined counties of St. David and St. Andrew.

Because of the proximity to the proposed new Forres Park landfill, a transfer station is not recommended for the County of Caroni or the County of Victoria.

Because of the difficult access roads and the distance from the proposed Forres Park expansion area, a small transfer station is recommended for the counties of Nariva and Mayaro.

A detailed economic analysis is required to confirm this concept. The cost projections are estimated to be between \$US 18 to 32 M.

4 WASTE DISPOSAL OPTIONS – LANDFILLS

MMM considered the requirements for waste disposal on the island of Trinidad. It was evaluated that one landfill, serviced by multiple transfer stations would be the most effective means of managing solid waste for the island. This evaluation was based on the following:

1. The capital costs associated with construction of an engineered landfill are estimated to be approximately \$US 10 to 15 million. The construction of additional landfills may reduce travel distances for some areas by an estimated 15 to 30 kilometers. Assuming a conservative travel cost of \$US10 per tonne per 100 km (which would be reduced using large transfer vehicles where applicable), and bearing in mind that most of the large waste generation areas (POS, San Fernando) are accessible by highways, the additional cost for added landfills cannot be justified.
2. The development of one landfill would allow for state of the art technology and design to be utilized at the site because costs would not be divided between two or more facilities. Staff would be able to focus on the one landfill and ensure that it was operating effectively and efficiently.

4.1 Discussion

Three potential sites were considered for location of the landfill. These sites were the existing Beetham site, the existing Forres Park site and a third site to be located in the ward of Siparia.

Expansion of the existing Forres Park landfill site was selected as the preferred alternative for the following reasons:

1. The Forres Park site is located near the centroid of the waste for the entire island,
2. The geology at the Forres Park supports landfill construction. Borehole logs obtained for the area indicate that soils are clayey and geologic mapping indicates that the soils are calcareous siltstone with some clay shale. Soils in the Siparia district are alluvial in origin and contain many sand deposits. The current Beetham site is in the Caroni Swamp and the cost of constructing and operating a sanitary landfill in the swamp would be exorbitant. Additionally, there is some concern amongst environmental groups that impacts from landfill operation may effect the sensitive mangrove crops.
3. The Forres Park site is located within 1 kilometer of the Solomon Hochoy highway, making access to the site relatively good. The Beetham site is also located adjacent to the Beetham highway. Road access into the Siparia ward is via 2nd class roads.
4. Infrastructure, (leachate lagoons, buildings, monitoring wells) is already present at the Forres Park site, and utilizing these existing facilities would reduce construction costs.
5. The Forres Park site is located near the Point Lisas Industrial Port and shipping area, and would therefore be a convenient location for implementing MARPOL conventions.
6. Lands are available at the Forres Park site. We understand that the cane farmers who have previously occupied the land have been provided with alternative arrangements. At the time of the site visit, one squatter house was observed within the proposed long-term

expansion area, however, the status of this individual is unknown. Therefore, the site has the available property.

7. The amount of waste currently arriving at the Beetham landfill site exceeds the original design capacity. In order to expand the site, encroachment into the mangrove swamp would be required. The size of the Forres Park expansion area (80 ha) is sufficient to handle the waste for the next 20 years. Assuming total waste projections as indicated on Table 4, the volume of waste entering the landfill over the next 20 years would be 9,700,000 tonnes. Assuming a waste compacted density of 800 kg per cubic metre and a waste to cover ratio of 4:1, the average waste depth over an 80 ha area would be approximately 20 metres. This amount of fill seems reasonable given the topography and other constraints in the area. Detailed design contours will be required to confirm this number.

The engineering design address the following identified constraints associated with the selection of the Forres Park site.

1. The area available for expansion is hilly and a detailed site plan and a detailed design will have to be developed and **adhered to**, to maximize disposal efficiency.
2. By constructing just one landfill, there is the potential that various local governments could develop illegal landfills to service their own community. The presence of transfer stations will deter this activity, however, additional control will be required to eliminate the potential.
3. Roads running from the Solomon Hochoy highway to the landfill will require upgrading and continued maintenance.

Table 4 contains information on the volume of waste that would be received by the landfill. The landfill may contain the following facilities:

1. A Material Recovery Facility (MRF) (engineered environmentally friendly picking stations with conveyors), to conserve landfill airspace and provide socio-economic benefits to the local community.
2. Bioreactor facilities for handling compostable materials, to conserve landfill air space.
3. Separate disposal area to accommodate wastes which are already sorted and compacted (arriving from other transfer sites.)

Currently, hazardous waste will not be managed in the landfill.

The order of magnitude cost for the design and construction of a new landfill at the Forres Park location is \$US 10 to 15 M.

5 WASTE DISPOSAL OPTIONS – TRANSFER STATIONS

Based on the concept of one landfill to service the needs of Trinidad, it will be necessary to manage the waste through a series of transfer stations. In order to evaluate the need and suggested location for transfer stations, waste generation rates in each county was evaluated. The attached Tables 5 to 10 contain a review for the following counties/wards.

- Counties of St. David and St. Andrew (Grouped together based on location and population)
- County of St. George
 - St. George County was further subdivided into wards
- County of Mayaro/Nariva (Grouped together based on location and population)
- County of Victoria
- County of Caroni
- County of St. Patrick
 - St. Patrick County was further subdivided into wards

The discussion of transfer station is on a county by county (or ward) basis, however, this was done for evaluation purposes and does not mean that waste should necessarily be managed in this manner. For instance, the ward of San Rafael, which is located in St. George County, may elect to manage its waste in a similar method to Caroni County, because of its proximity to this County.

For the island as a whole, the economics and the need for transfer stations was assessed based on the landfill located at Forres Park and the quantity of waste generated within each county.

A set of criteria was developed for each of the transfer stations, based on size and activities. This criterion is Trinidad-specific, based on the islands own specific situation and may not apply to every Country or area. The criteria assist in evaluation of the site; however, an interpretation on the total site requirements was also conducted to establish the individual requirements. The following options were evaluated:

Large Transfer Station:

A large transfer station will contain the following facilities:

1. Transfer building with concrete floor and distinct loading and unloading bays.
2. Consolidation capabilities, to reduce volume prior to shipping.
3. A MRF (engineered environmentally friendly picking stations with conveyors), to conserve landfill airspace and provide socio-economic benefits to the local community.
4. Bioreactor facilities for handling compostable materials, to conserve landfill air space.

Large trailers with walking floors, or similar loading and unloading features would be utilized in the large transfer station to transport the wastes from the transfer station to the landfill. For estimation purposes, we have assumed that a 40-foot trailer (100 cubic yard) could hold approximately 23 tonnes of uncompacted waste. If compaction devices are constructed at the transfer station, this volume could be increased.

In order for a large transfer station to be considered feasible, the service area must meet the following criteria:

1. **Size:** The transfer station must service an area that will receive sufficient waste to support the equipment. It is estimated that a facility must receive a minimum of 300 tonnes per day (110,000 tonnes per year) for compactors and picking stations to be cost effective.
2. **Distance:** The transfer station must be located a sufficient distance from landfills or proposed transfer stations so that bulking and reloading of wastes is economical. The centroid of the service area must be located more than 30 to 50 kilometers from landfill or 30 to 50 kilometers from another proposed large transfer station. Less than this distance and it may be more economical to haul with smaller collection trucks or consider a smaller style of transfer station.
3. **Access:** In order to facilitate the use of large transfer vehicles, large trailers must access the transfer station. The transfer station must be located near highways or class 1 roads and must not result in excessive trucking through densely populated areas.
4. **Socio-economic-** Consideration must be given to the social and economic value of a transfer station within the community.

The order of magnitude cost for the design and construction of a large transfer station is approximately \$US 7 M.

Medium Transfer Station:

A medium transfer station will contain the following facilities:

1. Transfer area with concrete floor and distinct loading and unloading bays. A canopy would be installed over the area to permit activities during the rainy season, however, a building will not be constructed.
2. Consolidation capabilities, to reduce volume prior to shipping.
3. Engineered environmentally friendly picking areas, to conserve landfill airspace and provide socio-economic benefits to the local community.

Medium sized transfer trucks or large roll off containers would be required to transport the waste from this transfer station to the proposed landfill. Large roll-off containers or medium transfer trucks are assumed to contain approximately 12 tonnes of waste.

In order for a medium transfer station to be considered feasible, the service area must meet the following criteria:

1. **Size:** It must service an area that will receive sufficient waste to support the equipment. It is estimated that the facility must receive a minimum of 100 tonnes per day to be cost effective.

2. **Distance:** The transfer station must be located a sufficient distance from landfills or proposed transfer stations so that bulking and reloading of wastes is economical. The centroid of the service area must be located more than 15 to 40 kilometers from the landfill or 30 to 50 kilometers from a medium or large transfer station. Less than this distance and it is more economical to haul with small collection trucks.
3. **Access:** In order to facilitate the use of large transfer vehicles, the transfer station must be accessed by medium to large trucks. The transfer station must be located near class 1 or class 2 roads and must not result in excessive trucking through densely populated areas.
4. **Socio-economic-** Consideration must be given to the social and economic value of a transfer station within the community.

The order of magnitude cost for a medium transfer station is estimated to be \$US 3 M.

Small Transfer Station:

A small transfer station will contain the following facilities:

1. Ramp style transfer area with drop off area for roll-off containers.

Large to medium sized roll-off containers would be required to transport the waste from this transfer station to the proposed landfill or nearest larger transfer station. A large roll-off container is estimated to hold 12 tonnes of uncompacted waste whereas a medium roll-off container will contain approximately 6 tonnes.

The service area should meet the following criteria:

1. **Size:** It must service an area that will receive sufficient waste to support the equipment. It is estimated that the facility must receive a minimum of 50 tonnes per day to be cost effective.
2. **Distance:** The transfer station must be located a sufficient distance from landfills or proposed transfer stations so that bulking and reloading of wastes is economical. The centroid of the service area must be located more than 15 to 30 kilometers from the landfill or transfer station. Located more than 15 to 30 kilometers from a medium or large transfer. Less than this distance and it is more economical to haul with small collection trucks.
3. **Access:** In order to facilitate the use of transfer vehicles, trucks must access the transfer station. The transfer station must be located near class 1 roads or class 2 roads and must not result in excessive trucking through densely populated areas.
4. **Socio-economic-** There will be no economic value for a small transfer station within a community, because there will be little to no job generation or income.
5. **Convenience -** A small transfer station may be considered in an area which does not meet all or any of the above criteria, just because a small transfer station is considered convenient for the area.

The order of magnitude cost for a small transfer station is estimated to be \$US 0.15 M.

5.1 Options For Transfer Stations

Tables 5 to 10 contain a description of the rationale for the recommendations made herein. Based on waste generation rates, access, and social economic considerations, a large single large transfer station is recommended for the combined wards of Diego Martin and St. Ann's within the County of St. George. This could be located at the current Beetham landfill site.

Based on waste generation, and access, a medium transfer station is recommended for the County of St. Patrick. This transfer station would be located near the town of Siparia.

Because of the small volumes of waste managed, a transfer station is not recommended for the ward of Blanchisseuse within the County of St. George. Waste should be hauled to the site located in St. George utilizing proper garbage compactor trucks and emphasis should be placed on recycling within this ward.

A large transfer station is recommended to service the wards of Tacarigua and Arima, within the county of St. George. At a large transfer station, waste would be processed and shipped to Forres Park directly. An economic analysis is required to confirm that this transfer station is the correct size. If a small transfer station is constructed, waste could be consolidated and transferred to Beetham for processing.

A small transfer station is recommended to service the wards of Cedros, Erin and Los Bajos (County of St. Patrick) and a single small transfer station is recommended for the combined counties of St. David and St. Andrew. An economic analysis is required to evaluate whether the wastes should be transferred to a large or medium transfer station for processing, or if the waste should be trucked directly to Forres Park.

Because of the proximity to the proposed new Forres Park landfill, a transfer station is not recommended for the County of Caroni or the County of Victoria.

Because of the difficult access roads and the distance from the proposed Forres Park expansion area, a small transfer station is recommended for the counties of Nariva and Mayaro.

6 RECOMMENDED WASTE MANAGEMENT STRATEGY

The recommended strategy consists of 1 landfill and several transfer stations strategically located throughout the island. The recommended layout for waste management is shown on Figure 3. Sorted and compacted waste would arrive at the proposed Forres Park expansion landfill from transfer stations and from small collection vehicles.

Transfer stations should be constructed in the following areas:

- wards of St. Ann's (Beetham), county of St. George,
- ward of Arima (Guanapo), county of St. George,
- ward of Cocal, county of Mayaro/Nariva,
- ward of Manzanilla, county of St. Andrews
- ward of Siparia, county of St. Patrick, and the
- ward of La Brea, county of St. Patrick.

The St. Ann's transfer station would be a large transfer station.

The transfer stations at La Brea and Manzanilla will be small transfer stations. Economic evaluation is required to evaluate whether waste from these sites should be trucked directly to Forres Park, or to a neighbouring transfer station located within the county.

A large transfer station is recommended for ward of Arima. An economic evaluation is required to confirm that the large station is the most economic.

6.1 Cost Projections

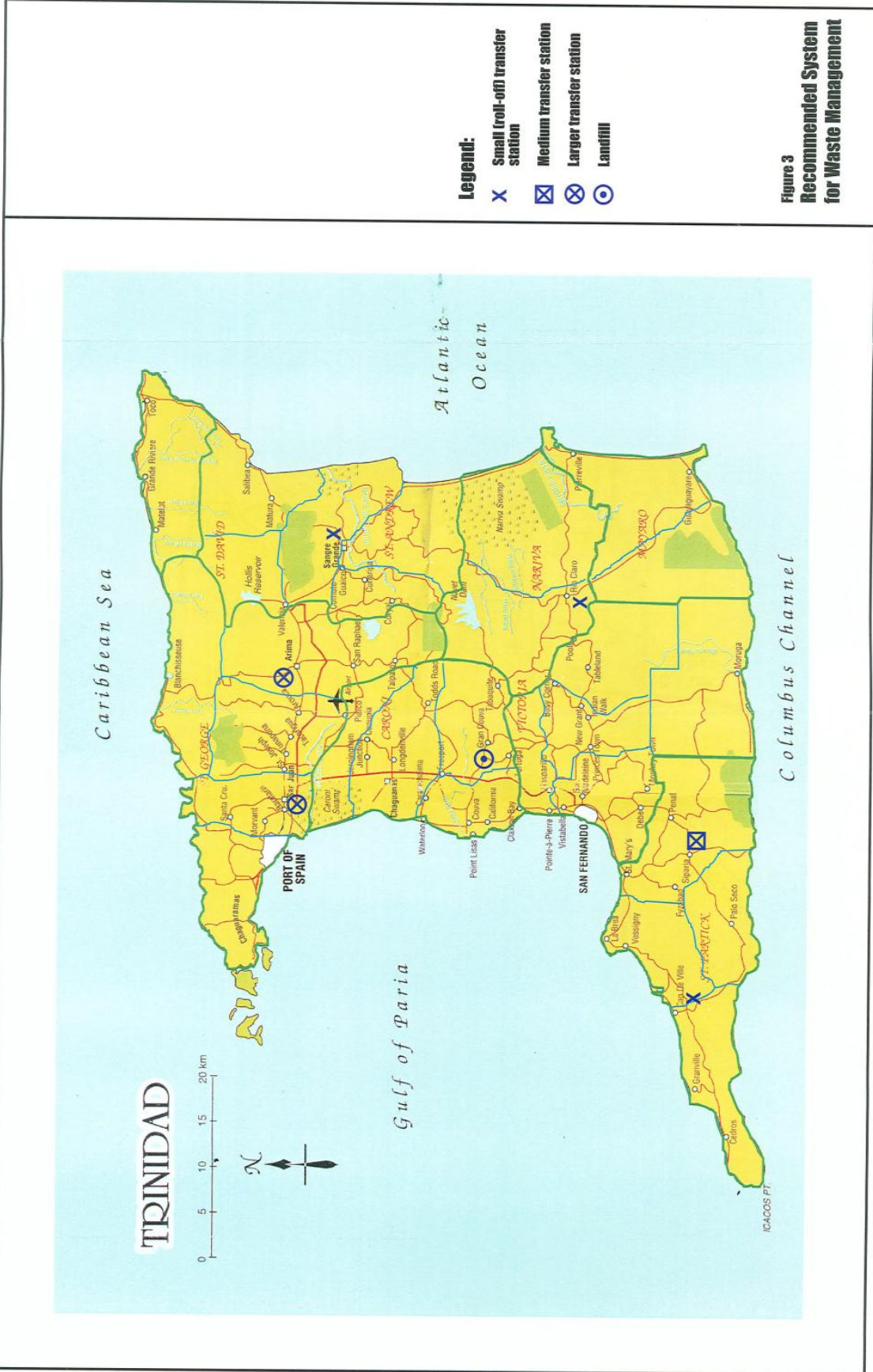
The assumed order of magnitude high-end capital cost for the construction of the waste management system is:

1 landfill.....	\$US 15 M
2 large transfer station	\$US 14 M
1 medium transfer station	\$US 3 M
3 small transfer stations	\$US .5M
TOTAL	\$US 32.5M

The assumed order of magnitude low-end capital cost for the construction of the waste management system is:

1 landfill.....	\$US 10 M
1 large transfer station	\$US 7 M
5 small transfer stations	\$US .8M
TOTAL	\$US 17.8M

Projected annual operating costs for the sites are estimated to be \$US 10 M. These numbers will be confirmed during the economic analysis.



APPENDIX VI

DETAILED COMMERCIAL INCOME

	2009-2010	2010-2011
Details	Total	
Operations - Trinidad		
<u>110 - General Waste</u>		
Revenue	6,421,594	6,058,367
<u>112-Central Business District Project</u>		
Revenue	1,491,900	
<u>120 - Vacuum Tanker</u>		
Revenue	460,810	627,599
<u>130 - Portable Toilets</u>		
Revenue	4,082,500	3,155,840
Sub-total Ops - Trinidad	12,456,804	9,841,806
Operations - Tobago		
<u>110 - General Waste</u>		
Revenue	589,783	594,785
<u>120 - Vacuum Tanker</u>		
Revenue	157,454	161,981
<u>130 - Portable Toilets</u>		
Revenue	463,763	544,909
Sub-total Ops - Tobago	1,211,000	1301,675
Total Operations	13,667,804	11,143,480
IWS		
<u>140 - Special Disposal</u>		
Revenue	10,205,266	7,155,117
<u>150 - Recycling</u>		
Revenue	-	105,409
<u>160-Oil Collection</u>		
Revenue	1,880	300
<u>170 - Faecal Ponds</u>		
Revenue	978,420	942,434
<u>180- Ministry of Education</u>		
Revenue	10,998,999	7997,567
<u>181 – Commercial Waste Water</u>		
Revenue	831,410	389,400
Total IWS	23,015,975	16,589,927
Total SWMCOL Profit Lines	36,683,780	27,733,706