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JOINT SELECT COMMITTEE OF LAND AND PHYSICAL  
INFRASTRUCTURE

Ministry of Public Utilities Response to Recommendations of  
the Fourth Report of the Joint Select Committee on Land and  
Physical Infrastructure on an Inquiry into the Impact of Landfills  
on the Environment of Trinidad and Tobago

FEBRUARY 16, 2023

**Response to Recommendations of the Fourth Report of the Joint  
Select Committee on Land and Physical Infrastructure on an  
Inquiry into the Impact of Landfills on the Environment of Trinidad  
and Tobago**

## **Overview**

The Solid Waste Management Company Limited (SWMCOL) is a key Agency under the purview of the Ministry of Public Utilities (MPU) with specific responsibility to manage the collection, handling, treatment, and disposal of solid waste, the Trinidad & Tobago. This Agency manages Trinidad's three (3) largest landfills, the Beetham, Forres Park, and Guanapo landfills and operates a Beverage Container Recovery and Recycling Facility at NAMDEVCO, Sea Lots, Port of Spain.

The Ministry of Public Utilities (MPU) is cognizant of the critical role it is expected to perform under Goal V of the National Development Strategy for Trinidad and Tobago (Vision 2030). Goal V aims "to place the environment at the centre of social and economic development in a manner that would minimize waste generation and promote greater recycling and environmental awareness amongst the citizens of Trinidad and Tobago".

An inquiry into the impact of landfills on the environment conducted by the Joint Select Committee (JSC) of Land and Physical Infrastructure was conducted between Q3 and Q4, 2022. This inquiry focused on the following three (3) objectives: to examine the waste disposal operations at the landfills; to identify the challenges in addressing environmental issues brought on by waste disposal at the landfills; and to determine the measures required to reduce the negative impact of waste disposal at the landfills on the environment.

The following brief thus provides key updates, other pertinent information for the consideration of the JSC and other key stakeholders within the waste management system.

## **THE OPERATIONS OF WASTE DISPOSAL AT LANDFILLS IN T&T**

### **Summary of Key Findings**

The findings of the committee highlighted an urgent need to improve waste disposal operations at the five (5) landfill sites in Trinidad and Tobago. Some fundamental concerns identified were, all SWMCOL managed landfills have exceeded their original design capacity, the current methods used to manage the landfills are proving to be a challenge and there is a need for adequate security at the landfills. Furthermore, funding amounting to TT\$578.0M over the period 2020-2025 for the design and construction of an engineered landfill is required to concurrently reduce the amount of waste entering the landfills by 50%.

### **Summary of Key Recommendations**

Many of the recommendations forwarded by the JSC to improve the waste disposal operations at the nation's landfills have also been outlined in SWMCOL's Strategic Plan 2021-2025. Amongst the most critical recommendations were the closure of SWMCOL's landfills, the implementation of the engineered landfill at Forres Park, the completion of the Beverage Container Bill, which is needed to reduce waste entering the landfills and the establishment of designated drop off points for recyclables throughout Trinidad.

The MPU endorses and will work towards implementing the JSC's recommendations aimed at strengthening collaboration with other agencies. Discussions on logistics to successfully implement a system that encourages source separation, creation of a recycling database, environmental assessments and remediation plans for the landfills are required.

Moreover, the MPU supports the recommendations of the Committee to engage key stakeholders to assist with the development and roll out of a nationwide public education campaign on waste separation at the household level to inculcate behavioural change amongst the citizens.

### **Status of Key Recommendations**

Currently, an Integrated Sustainable Solid Waste Management System (ISSWMS) that involves five (5) phases is being rolled out. Phase 1 entails the completion of technical, financial, social,

environmental and economic studies, inclusive of a Waste Characterization Study, which is expected to be completed in Q3 2022/23. These studies are a prerequisite for Phase 2: the Establishment of a Centralized, Engineered Landfill at Forres Park, which is expected to commence in 2025.

Work is also underway on Phase 5, Institutional Strengthening, Capacity Building and Public Education and Awareness. SWMCOL partnered with the Ministry of Public Utilities in the revision of three (3) existing waste sector polices, in an attempt to strengthen the governance framework for the sector and support enabling legislation, including the proposed Beverage Containers Regulations. These policies were resubmitted for ministerial approval in Q2 2022/23.

Moreover, it is envisaged that the Ministry and SWMCOL will work closely with Municipal Corporations and the private sector to facilitate the establishment of redemption depots, which would create an additional source of income for those actors. It is also the intention to develop a road map in collaboration with public and private sector players to create a recycling database that produces accurate and reliable waste statistics and supports evidence-based decision making. Additionally, in the area of landfill security, SWMCOL continues to engage the Trinidad and Tobago Police Service (TTPS) and Municipal Police to augment the presence of security to reduce crime and incidents at the landfill sites.

## **THE CHALLENGES FACING THE AUTHORITIES WITH ADDRESSING ENVIRONMENTAL ISSUES BROUGHT ON BY WASTE DISPOSAL AT LANDFILLS.**

### **Summary of Key Findings**

The need for updated legislation targeting critical aspects of waste collection and management was identified as a critical challenge that waste management bodies, such as SWMCOL continue to encounter. The JSC report also highlighted the need for enforcement and penalties for non-compliance with existing laws.

SWMCOL's landfills were constructed prior to the Environmental Management Authority (EMA)'s Certificate of Environmental Clearance (CEC) Rules 2001, and as a result they are not compliant with global best practices. There are instances in which surface water sources continue to be contaminated by leachate from the Beetham and Guanapo landfills. Further, salvaging continues to be a persistent issue and the unfortunate practice by contractors of dumping waste oil into the faecal pond has contributed to the occurrence of landfill fires. Trinidad landfills are not equipped with truck scales, which are necessary to obtain accurate information on tonnage of waste entering the respective landfills.

### **Summary of Key Recommendations.**

The Committee's recommendation for collaboration between the MPU and SWMCOL to update relevant waste sector legislation is acknowledged. In this regard, the MPU agrees with the Committee advice that collaboration amongst key stakeholders is necessary to undertake risks assessments at landfills and that SWMCOL ought to share its findings of such studies with the Ministry of Agriculture, Land and Fisheries.

### **Status of Key Recommendations**

The MPU through SWMCOL pursued and successfully obtained international grant funding from the United Nations Industrial Development Organization (UNIDO) for an approved technical expert to implement an environmental assessment of the landfill on the Caroni Swamp. The draft report has been completed and a mitigation plan will be appended to the report to seek further funding for the installation of pollution mitigation and treatment options. SWMCOL plans to share

the findings with all key stakeholders, including the Ministry of Agriculture, Land and Fisheries, Forestry Division, the EMA, and Institute of Marine Affairs (IMA) when the report is finalized. Further, SWMCOL intends to review its MOU with EMA to ensure that access to data on the waste type, characteristic and quantity of each type of waste material generated or handled by permit holders are acquired.

Other notable developments include the implementation of security measures to restrict the dumping of flammable waste into the faecal pond with 24/7 security on site to control its operations. Further, gate controls are currently being installed at the faecal ponds and random sampling and testing of the incoming faecal waste trucks has commenced. Trucks found to contain contaminated petroleum (oil) will be informed of a course of action that can include prohibited use of the landfill.

Moreover, it should also be noted that the roads leading to SWMCOL's Forres Park Landfill are under the remit of the Couva/Tabaquite/Talparo Regional Corporation. SWMCOL has been doing its part to address the issue of littering by continuously liaising with the respective Municipal Corporations for assistance in deploying litter wardens and Municipal Police.

## **THE MEASURES REQUIRED TO REDUCE THE NEGATIVE IMPACT OF WASTE DISPOSAL AT LANDFILLS ON THE ENVIRONMENT.**

### **Summary of Key Findings**

The report observed that remediation measures are required to reduce the risk of environmental degradation before and after landfills halt operation. These remediation plans ought to be informed by extensive site testing and investigations, which need to be tailored to each landfill site.

Furthermore, the JSC endorsed renewable natural gas from landfills as potential source of natural gas to supplement the NGC's natural gas supply. The establishment of a robust recycling programme and a deposit refund system for beverage containers, tyres and e-waste and facilities for the sorting of waste were also identified as priorities.

### **Summary of Key Recommendations.**

The critical recommendations put forward by the Committee is consistent with SWMCOL's Strategic Plan and prevailing initiatives, such as the need for SWMCOL to share environmental mitigation plans for the extraction of landfill gases with the EMA for their consideration prior to implementation. Plans are also underway to investigate the economic viability of waste to energy initiatives and share relevant reports.

In this regard, the MPU agrees with the Committee's recommendation that the private sector can be encouraged to use reverse vending machines (RVM) by way of stakeholder consultations to retrieve empty beverage containers.

### **Status of Key Recommendations**

The prefeasibility study for the landfill gas capture and utilization project has been completed in collaboration with the NGC Group and therefore it can be reported to the Committee.

Moreover, to support the introduction of the BCDRS, SWMCOL also plans to host information sessions with the private sector with a view to encouraging the establishment of redemption depots. At these sessions, emphasis will be placed on the benefits of incorporating collection technologies such as RVMs. SWMCOL via the Empowering Sustainable Communities project will also target communities on a phased basis to introduce composting at the household level.

## **CONCLUDING REMARKS**

The Ministry of Public Utilities thanks the Committee for sharing its recommendations/comments and are pleased to append detailed responses and general comments/updates for each respective recommendation in the table below for the Committee's perusal.

**1. The Operations of Waste Disposal at Landfills in T&T**

<b>JSC RECOMMENDATION</b>	<b>SWMCOL'S ACCEPT/AMEND</b>	<b>STATUS OF RECOMMENDATION (PLANNING STAGE) (ONGOING) (COMPLETED)</b>	<b>GENERAL COMMENTS</b>
<p>(1) The closure of SWMCOL's landfills, and the implementation of the engineered landfill at Forres Park.</p>	<p>Accepted.</p>	<p>Ongoing.</p>	<p>The GORTT, through SWMCOL, is rolling-out an Integrated Sustainable Solid Waste Management System (ISSWMS) to transform the waste sector that includes the closure of and implementation of an engineered landfill. The ISSWMS involves five (5) phases:</p> <ul style="list-style-type: none"> <li>• Phase 1: Technical, Financial, Social, Environmental and Economic Studies: <ul style="list-style-type: none"> <li>○ Topographic and Hydrographic Surveys (Completed in 2020).</li> <li>○ Draft Cadastral Survey (Completed in 2020).</li> <li>○ Geotechnical Study (Completed in 2020).</li> <li>○ Groundwater Studies (Completed in 2020).</li> <li>○ Traffic Flow Analysis (Completed in 2022).</li> <li>○ Waste Characterisation Study: (Ongoing. The Final Report is expected to be submitted to SWMCOL in the 3<sup>rd</sup> Quarter 2023); and</li> <li>○ Environmental Impact Assessment (EIA): (SWMCOL) is in the process of finalizing the draft Terms of Reference (TOR) with the Environmental Management Authority (EMA) which is expected to be completed by the end of the 2<sup>nd</sup> Quarter FY2023. Subsequently,</li> </ul> </li> </ul>

			<p>an open tender will be issued to engage a consultant to undertake the (EIA).</p> <p>The completion of Phase 1 is a critical step towards the establishment of the engineered landfill;</p> <ul style="list-style-type: none"> <li>• Phase 2: Establishment of a Centralized, Engineered Landfill at Forres Park. This Phase involves the construction of a new engineered landfill cell on an unused portion of the Forres Park Site. It is expected that construction will commence in 2025.</li> <li>• Phase 3: Creation of Transfer Stations and Materials Recovery Facilities at the Beetham, Forres Park and Guanapo sites and other appropriately identified sites. Commencement of this phase is intended to coincide with the roll-out of Phase 2;</li> <li>• Phase 4: Closure and Rehabilitation of existing landfills at Beetham, Guanapo and Forres Park</li> </ul> <p><b><u>Closure and Remediation of the existing Beetham and Guanapo Landfills</u></b></p> <p>This Phase involves:</p> <p>1) Phased closure and rehabilitation of the existing Beetham and Guanapo landfills.</p> <p>These landfills have been in operation for more than forty (40) years and have exceeded their lifespan and capacity. Closure activities are estimated to be completed within three (3) to five (5) years. However, the rehabilitation of these sites would be a longer process and site specific based on waste</p>
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			<p>types, volumes and existing infrastructure.</p> <p>In respect of the Guanapo Landfill Site:</p> <ul style="list-style-type: none"> <li>• Site Assessment for Contaminants (Completed in FY2017);</li> <li>• Remediation Plans (Completed in FY2019);</li> <li>• Environmental Risk Management Plan (Completed in F2021);</li> <li>• Request for Proposal (RFP) for the design, supply, installation and commissioning of a Leachate Treatment Plant based on reverse osmosis technology, at Guanapo Landfill to facilitate the rehabilitation works outlined in the Remediation Plan (Issued in FY2022).</li> </ul> <p><b><u>Closure and Remediation of the current cell at Forres Park</u></b></p> <p>The closure and rehabilitation of the current cell at Forres Park will commence in FY2025.; and</p> <ul style="list-style-type: none"> <li>• Phase 5: Institutional Strengthening, Capacity Building and Public Awareness and Education. This Phase is on-going. Work has commenced with the revision of the overarching sector policy and key subsidiary policies which is expected to be submitted shortly to Cabinet for approval: <ul style="list-style-type: none"> <li>○ National Integrated Solid Waste/ Resource Management Policy for Trinidad and Tobago, (NISWRMP) 2023;</li> <li>○ National Recycling Policy (NRP), 2023; and</li> <li>○ Beverage Containers Deposit Return Policy for Trinidad and Tobago (BCDRP), 2023.</li> </ul> </li> </ul>
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			The approval of these policies will lead to the strengthening of the governance framework for the sector as well as support enabling legislation including the proposed Beverage Containers Regulations.
(2) That the Point Fortin Borough Corporation implement measures to reduce waste coming into the Guapo Landfill. Consideration should be given to measures being implemented by SWMCOL. It may be necessary for the PFBC to meet with SWMCOL to determine those measures.	Accepted.	Planning Stage	A meeting between both parties is scheduled for the second quarter of fiscal 2023.
(3) The expansion of the Studley Park Landfill to provide additional capacity	Accepted	N/A	It should be noted that the related actions for this recommendation fall under the purview of the Division of Health, Wellness and Social Protection
(4) A nationwide public education campaign on waste separation at the household level and recycling initiatives including opportunities for involvement in lucrative recycling businesses.	Accepted	Ongoing.	SWMCOL via its: Curbside collection project; No Pollution Resolution; and Earth Defenders campaign educate the population on the benefits of source separation and recycling. However, the relevant infrastructure such as depots, specific collections day(s) for recyclables and the absence of a downstream industry acts as a disincentive.
(5) That all landfills engage in frequent compacting in accordance with international standards.	Accepted.	Ongoing.	We engage in frequent compacting as much as possible in keeping with international standards.
(6) MPU and SWMCOL undertake to create legislation to enact the procedures for the	Accepted.	Planning Stage.	The operations of SWMCOL's landfills are already guided by international standards, guidelines and best practices, mainly from: 1) International Solid Waste (ISWA) – Landfill Operational Guidelines.

adequate control of landfills, which should be guided by international standards.			<p>2) Solid Waste Association of North America (SWANA)  3) United States Environmental Protection Agency (USEPA)- Best Practices for Solid Waste Management  4) Basel Convention Guidelines for the best practice treatment and disposal of special and other waste.</p> <p>SWMCOL will continue to have dialogue with the relevant agencies to consider development of appropriate legislation.</p>
(7) Contained in the proposed Beverage Container legislation should be a provision to enforce proper habits and incentives to encourage separation of waste including penalties for failure to do same.	Accepted.	Ongoing.	It is anticipated that the legislation will contain a provision to prohibit containers, which fall under the legislation to be disposed at the landfill sites. It will also contain associated penalties for violations. In that regard, the intent is to both incentivize proper waste management habits and disincentivize through the imposition of penalties, improper practices.
(8) SWMCOL, MPU and the MoRDLG together with the Municipal Corporations meet to discuss the logistics required to successfully implement a system that encourages separation at source with an aim to achieving the 90% goal of recycled waste by 2025.	Amend.	Ongoing.	<p>It is accepted that SWMCOL will work with MPU and the MoRDLG, together with the Municipal Corporations to discuss the development and implementation of a system for separation at source.</p> <p>However, given the revisions to the overarching sector policy and key subsidiary policies, it is suggested that the JSC’s recommendation, in particular, the goal be amended for consistency with the draft revised NISWRMP, 2023 and the NRP, 2023.</p>
(9) SWMCOL together with its line Ministry meet with representatives from the TTPS to assist in providing the required security as needed.	Accepted	Ongoing	<p>SWMCOL has quarterly meetings with the TTPS and the Security Companies to ensure that all security issues are dealt with as needed.</p> <p>SWMCOL presently has two (2) Police Officers working 12 hours shifts at all three Landfills.</p>

<p>(10) SWMCOL meet with the MoRDLG and the Municipal Corporations to adequately ventilate the issue regarding the hours of operation at SWMCOL's landfills. However, we advise the need to be mindful of the security implications involved in extending SWMCOL's working hours beyond 6p.m. and before 6a.m. A solution might be the use of Municipal Officers to accompany trucks during the off-loading exercise.</p>	<p>Accepted</p>	<p>Ongoing</p>	<p>Presently two of the Landfills open at 5am and close at 8pm. These hours are changed based on the requests from the various Municipal Corporations for instance Christmas season, floods and cleanups.</p> <p>SWMCOL is constantly communicating with the Municipal Police for assistance where needed.</p> <p>Using the Municipal Police is a good idea however, due to their depleted strength it may not be possible to accompany the trucks.</p>
<p>11) MPU and SWMCOL meet with the MPD to discuss the feasibility of engaging in similar studies to the Global Environmental Facility (Project ID: GEF 5558) on the other landfills in Trinidad with an aim of establishing a remediation plan for these landfills with short-, medium- and long-term measures directed at reducing the landfills impact on the environment and plans for the phased closure of these landfills.</p>	<p>Accepted.</p>	<p>Ongoing</p> <p>Beetham Environmental Assessment: 55% completed.</p>	<p>Beetham Environmental Assessment: Further to the GEF 5558 project, SWMCOL pursued and successfully obtained international grant funding from a UNIDO approved technical expert to implement an environmental assessment of the landfill on the surroundings and in particular the Caroni Swamp.</p> <p>Project Duration: March 2022 to March 2023.</p> <p>Activities Completed:  Sampling and Testing  Draft Report Completed.</p> <p>Mitigation Plan: The project will deliver a Mitigation Plan and Package to seek further funding on the international market for the installation of pollution mitigation and treatment options. March 2023 – tbd.</p> <p>SWMCOL and MPU have plans to conduct a proposed meeting with the MPD to discuss opportunities for conducting an environmental assessment and remediation plan for the Forres Park landfill.</p>

<p>(12) SWMCOL provide the Parliament with a status report of the Installation of a Landfill Leachate System by the end of 2024.</p>	<p>Accepted.</p>	<p>Planning.</p>	<p>In FY2022, SWMCOL issued a Request for Proposal (RFP) for the design, supply, installation and commissioning of a Leachate Treatment Plant based on reverse osmosis technology, at Guanapo Landfill to facilitate the rehabilitation works outlined in the Remediation Plan completed in FY2019.</p> <p>The procurement phase is expected to be completed by the end of Quarter 2 FY2023.</p>
<p>(13) SWMCOL establish designated drop off points throughout Trinidad to receive special disposals such as electronic waste and tyres which can be received by SWMCOL or any other approved agency.</p>	<p>Accepted.</p>	<p>Planning.</p>	<p>SWMCOL was mandated with the responsibility to implement a National Municipal Solid Waste (MSW) Recycling System for recyclables such as Tyres, Waste Electrical and Electronic Equipment (WEEE), Used Lubricating Oil, Organic Wastes, Paper and Cardboard, Glass and Metals. The model for collection of special waste which will determine if SWMCOL establishes or SWMCOL encourages the private sector to establish the designated drop off points would be dependent upon the direction of the policy framework. As such, Cabinet approval of the revised NRP, 2023 is the first step in managing these waste streams.</p>
<p>(14) SWMCOL outline in its plans, the required funding and submit same to the MPU for onward submission to the Ministry of Finance for funding.</p>	<p>Accepted.</p>	<p>Completed.</p>	<p>Completed.</p>

<p>(15) The installation of air quality stations in close proximity to all landfills which will provide the EMA with almost immediate real-time results from any untoward activities that take place at landfill sites. The stations can be relocated for other uses when the landfills become decommissioned.</p>	<p>Accepted.</p>	<p>Ongoing  Project duration: 2022-2024 18% Complete</p>	<p>SWMCOL has initiated comprehensive Air Quality Assessments at all Landfills in fulfillment of the EMA Air Pollution Rules 2014, Source Registration. These assessments are done in accordance with the Terms of Reference as provided by the EMA and will inform the most appropriate monitoring locations.</p> <p>The Air Quality Assessment is being conducted on a phased basis starting with the Beetham landfill followed by Forres Park and Guanapo.</p>
<p>(16) The completion of the Beverage Container Bill in this fiscal year, 2022.</p>	<p>Amend.</p>	<p>Ongoing.</p>	<p>It is anticipated that subsequent to the approval of the revised BCDRP 2023 by Cabinet, the Chief Parliamentary Counsel (CPC) would begin the legislative drafting process in FY2023.</p>
<p>(17) MPU/SWMCOL keep the Committee up to date with stakeholder consultations and the progress via a status report 6 months subsequent to the laying of this report with regard to the following:</p> <ul style="list-style-type: none"> <li>- The Beverage Container Bill.</li> <li>- The National Integrated Solid Waste Resource Management Policy; and</li> <li>- The National Waste Recycling Policy.</li> </ul>	<p>Accepted.</p>	<p>Not yet started.</p>	
<p>(18) That all Municipal Corporations establish redemption</p>	<p>Amend.</p>	<p>Ongoing.</p>	<p>A key underlying principle of the revised BCDRP 2023 and BCDRS is that of Extended Producer Responsibility (EPR) where manufacturers,</p>

depot centres in preparation for the Beverage Container Bill.			<p>importers and distributors of beverages would be required to manage the lifecycle of the post-consumer used beverage containers.</p> <p>The intent is to foster private sector involvement in the BCDRS, including in the setting-up of redemption depots. In this regard, the State and by extension Municipal Corporations will not be mandated to establish redemption depots. However, the Corporations may choose to establish depots to earn supplemental income.</p>
(19) SWMCOL consider virtual stakeholder consultations given that some residents may be more amendable to attending consultations remotely.	Accepted.	Ongoing.	SWMCOL has been conducting virtual consultations and will continue to utilize same.
(20) SWMCOL submit to the Parliament a copy of the Waste Characterization Study when completed.	Accepted.	Ongoing.	The Consultant is expected to submit the final report to SWMCOL in the 3 <sup>rd</sup> Quarter FY2023.
(21) SWMCOL and the MPU meet with the MoRDLG and all the Municipal Corporation to inform of its plans for the decommissioning of the existing landfills and establishment of the engineered landfill.	Accepted.	Ongoing.	<p>In FY2022, SWMCOL engaged in stakeholder consultations with key stakeholders including the MoRDLG and the fourteen (14) Municipal Corporations via requests for comments on the draft Terms of Reference (TOR) prepared by the EMA for the EIA.</p> <p>It should also be noted that as part of the governance framework of the Establishment of the Integrated Sustainable Solid Waste Management System (ISSWMS) Project, a Project Steering Committee will be established as an advisory body to provide technical and operational guidance for project implementation and to ensure coordination and</p>

			synergy among key Ministries and Agencies. In that regard, the membership of the Committee will comprise representatives of key Ministries, State Agencies and Municipal Corporations that have existing or proposed landfill sites.
(22) The development of a transition plan and other measures by way of consultation with all stakeholders.	Accepted	Ongoing.	SWMCOL recognizes the need to ensure the continuity of disposal during the development of the engineered landfill and auxiliary infrastructure.  SWMCOL is currently finalizing the draft Terms of Reference (ToR) for the EIA which is expected to commence in FY2023. The EIA Report is intended to identify several mitigation strategies which will need to be considered in the transition plan.
(23) SWMCOL keep the MoRDLG updated with its plans regarding its landfills.	Accepted	Ongoing.	Refer to the response for 21 above.
(24) MORDLG together with the Municipal Corporations engage in a mass advertising campaign to inform the public of the municipal curbside recycling project using all mediums of communications including the popular Social Media Platforms.	Accepted	N/A	It should be noted that the related actions for this recommendation fall under the purview of the Ministry of Rural Development and Local Government

<p>(25) The creation of a recycling database to be spearheaded by the SWMCOL, MPU in collaboration with the MoRDLG.</p>	<p>Accepted.</p>	<p>Planning has not commenced.</p>	<p>SWMCOL has been supportive and continues to pursue the recommendations outlined in the National Waste Recycling Policy 2015 and the National Integrated Solid Waste/Resource Management Policy 2013. Both policies advocated for the establishment of a waste statistics database that would support evidenced based decisions.</p> <p>Presently, the Ministry of Public Utilities is working with SWMCOL, Ministry of Planning and Development, and other key stakeholders to refine the above-mentioned policies and build the necessary capacity to develop and sustain a recycling database.</p> <p>The approval of the revised NISWRMP 2023 and the NRP 2023 are critical to the establishment of a national repository system to classify, collect, evaluate and publish data and information on sources, composition, quantities and methods in respect to recovered and recycled materials.</p> <p>Subsequent to the approval of the revised Policies, an Integrated Solid Waste/Resource Management Plan (ISWRMP) to guide the implementation of the NISWRMP 2023 will be prepared.</p>
<p>(26) The creation of a recycling database in Tobago to capture information on waste collected from the TRRI initiative</p>	<p>Accepted</p>	<p>N/A</p>	<p>It should be noted that the related actions for this recommendation fall under the purview of the Tobago House of Assembly (THA)</p>



<p>(27) The Municipal Corporations and SWMCOL engage in compiling statistics on waste collected from its recycling programmes.</p>	<p>Accepted.</p>	<p>Ongoing</p>	<p>Currently SWMCOL continues to collaborate with the municipal corporations to collect data on the tonnage/volume and type of recyclable materials processed at its recovery and recycling facilities. Further SWMCOL has installed a weighbridge at its Recycling Facilities to improve the accuracy of the data collection process.</p> <p>SWMCOL conducted an evaluation of its recycling programmes, inclusive of the municipal corporation recycling programmes. The evaluation covered the period 2018 to 2021 and was designed to collect and analyze information about programmes' activities, administration, outcomes, sustainability, impact, relevance, effectiveness, and cost efficiencies.</p> <p>SWMCOL will also continue to consult with corporations to obtain statistics on their waste recycling programmes and work towards building the capacity (internally and within corporations) to collect and report information consistently and accurately.</p>
<p>(28) SWMCOL encourage private partners to begin compiling information on waste collected from its recycling programmes to inform the recycling database.</p>	<p>Accepted.</p>	<p>Planning has not commenced</p>	<p>The EMA, Waste Management Rules 2021 requires permit holders to report on the type, characteristic and quantity of each type of waste generated or handled each month and accumulated on the facility at the end of the reporting period.</p> <p>It is our intention to work closely with the EMA to obtain access to information on recyclable waste generated by waste generators and the waste transported by waste haulers.</p> <p>SWMCOL will therefore have discussions with private sector partners with the view to offer our assistance and help build their capacity to collect and report accurate and consistent data generated from their private programmes.</p>

<p>(29) SWMCOL and the MPU meet with the Trinidad and Tobago Bureau of Standards regarding the possible use of recyclable tyres in construction aggregate and the implications for same.</p>	<p>Accepted</p>	<p>Planning Stage.</p>	<p>SWMCOL will continue to assess alternative applications for the recycling of tyres as part of its waste management plan.</p>
<p>(30) SWMCOL and the Division meet with the Ministry of Education regarding the integration of education on how to treat with waste at all levels in the education system.</p>	<p>Accepted.</p>	<p>Ongoing.</p>	<p>Research indicates that the Ministry of Education has waste management as part of their syllabus for schools. As such, SWMCOL via its Community Youth Outreach Programme (CYOP) is currently facilitating public education as it relates to waste management and diversion throughout schools in Trinidad.</p>

**2. The Challenges Facing the Authorities With Addressing Environmental Issues Brought on By Waste Disposal at Landfills.**

JSC RECOMMENDATION	SWMCOL'S ACCEPT/AMEND	STATUS OF RECOMMENDATION (PLANNING STAGE) (ONGOING) (COMPLETED)	GENERAL COMMENTS
<p>(31) The use of volunteers including students to supplement human resources for the TRRI initiative and a call for volunteers be published on the THA's website and popular Social Media Platforms to encourage volunteers and partners in this initiative.</p>	<p>Accepted</p>	<p>N/A</p>	<p>It should be noted that the related actions for this recommendation fall under the purview of the Tobago House of Assembly</p>
<p>(32) SWMCOL and the MPU update the relevant legislation with a view of including critical aspects of waste collection and management including as it relates to the engineered landfill.</p>	<p>Accepted.</p>	<p>Planning.</p>	<p>The approval of the revised NISWRMP 2023 is a critical first step towards the updating of relevant waste management legislation.</p> <p>Updating the relevant legislation would facilitate the separation and collection of waste at source to remove recyclables, and final disposal of non-recyclables will be done at the engineered landfill.</p> <p>The engineered landfill is earmarked to only accept non-recyclables.</p>

<p>(33) SWMCOL in collaboration with MOPD and other stakeholders continue with studies related to risks from landfills.</p>	<p>Accepted.</p>	<p>Guanapo Landfill: Completed          Beetham Landfill: 55%          Forres Park Landfill: Not Started.</p>	<p>Beetham Environmental Assessment: Further to the GEF 5558 project, SWMCOL pursued and successfully obtained international grant funding from a UNIDO approved technical expert to implement an environmental assessment of the landfill on surroundings and in particular the Caroni Swamp.          Project Duration: March 2022 to March 2023.          Activities Completed:          Sampling and Testing          Draft Report Completed.          Mitigation Plan: The project will deliver a Mitigation Plan and Package to seek further funding on the international market for the installation of pollution mitigation and treatment options. March 2023 – tbd.</p>
<p>(34) SWMCOL share its Risk Assessment with the Ministry of Agriculture, Land and Fisheries to treat with the issue of agricultural farms and animals which are impacting on the environment/ waterways.</p>	<p>Accepted.</p>	<p>Ongoing</p>	<p>Beetham: Key Stakeholders including the Ministry of Agriculture, Land and Fisheries, Forestry Division, the EMA, and IMA have been engaged in the environmental assessment process at the Beetham Landfill. Final Report will be presented to key Stakeholders 2023.</p>
<p>(35) In future, that no final permission or outline planning permission be granted for residential developments surrounding landfills in Trinidad or Tobago by the relevant authorities.</p>	<p>Accepted.</p>		<p>SWMCOL supports this recommendation going forward.</p>

(36) The Division utilize the services of the Trinidad and Tobago Scrap Iron Dealers Association to assist with the disposal of scrap iron metals to reduce this type of waste at landfills.	Accepted	N/A	It should be noted that the related actions for this recommendation may require a whole of govenment approach
(37) Adequate access roads in the development of all landfill sites. In this regard, provision for same should be provided for in revised estimates for fiscal 2022/2023.	Accepted	Completed.	Submitted to the Ministry of Public Utilities.
(38) MPU, SWMCOL and EMA meet with the MTI regarding the management and monitoring of chemicals being imported to Trinidad and Tobago with an aim of ensuring the proper disposal of same.	Accepted.	Completed.	Under a component of the GEF 5558 project led by the MPD, SWMCOL collaborated with key stakeholders to develop a Regional Model for an Integrated Chemicals Management Act; “AN ACT to provide for the allocation of administrative responsibilities for the management of chemicals; the prohibition, restriction and regulation of the import and export, production, transportation, storage, distribution, sale, use and disposal of chemicals and related activities; the incorporation of international treaty obligations with respect to the management of chemicals into national law and related matters.” Further discussions can be facilitated and led by the MPD.
(39) The establishment of a joint agency network for waste disposal in Trinidad and Tobago to be coordinated by the EMA.			The recommendation cannot be accepted or amended in light of the need for clarification from the EMA with regard to the responsibility of the Committee as it relates to the management of municipal solid waste.

(40) The use of the information from Annual Reports of permit holders which is a requirement under the Waste Management Rules to assist in providing statistics on waste generation and its management.	Accepted.	Planning has not commenced.	SWMCOL intends to review the MOU between SWMCOL and EMA to ensure that this recommendation is covered.
(41) The procurement of weigh bridges for all landfill sites to record accurate data on tonnage of waste entering landfills.	Accepted.	Planning.	SWMCOL is currently assessing the best available technology for purchase, bearing in mind that key infrastructure of the engineered landfill will include a weighbridge.
(42) The placement of appropriate signage at all watercourses in close proximity to landfills in Trinidad.	Accepted.	Ongoing	Installation in F2023.Q2.  Signage installed at some watercourses in close proximity to the landfills.  Additional signage is being updated and installed in collaboration with the relevant Agencies: MoRDLG and Water Resources.
(43) Signage in close proximity to surrounds of all landfills in Trinidad and Tobago to ensure that the public is adequately informed about any potential water, air, or land pollution from landfills that may affect their health.	Accepted.	Planning.	Signage would be installed subsequent to the Air Quality and Environmental Assessments. These assessments would inform the appropriate precautions and placement of the signs.  Requires collaboration with MoRDLG and Water Resources.
(44) That SWMCOL provide suitable and adequate personal protective equipment (PPE) to its employees.	Accepted.	Completed.	SWMCOL provides suitable and adequate PPE to all its employees monthly as is required and annually as per our collective agreement.

<p>(45) In the Policy to treat with salvaging at Recommendation 50 that a provision be included to mandate that all salvagers be adequately equipped with PPE as a condition for entry into landfills.</p>	<p>Accepted.</p>	<p>Ongoing</p>	<p>SWMCOL has provided PPE, however, OSHA has advised against such actions. SWMCOL continues to re-evaluate our approach concerning the same.</p>
<p>(47) SWMCOL engage in consultations with residents surrounding its landfills to keep them well-informed about the possible health concerns that may arise from their close proximity to landfills especially at the Guanapo Landfill and precautions that can be taken to reduce any further risks.</p>	<p>Accepted.</p>	<p>Guanapo Landfill – Completed and ongoing. Planning: Beetham and Forres Park.</p>	<p>Consultation with the Guanapo Community was held to sensitize persons on the potential effects of the landfill and other sources of pollution on the nearby watercourse during and following the completion of the GEF 5558 Project. Similarly, on completion of the Air Quality and Environmental Assessments, consultation sessions for the other Landfill sites will be arranged: Beetham: 2023/2024 Forres Park: 2024 Guanapo: 2024 – Updated.</p>
<p>(48) MPU and SWMCOL keep the Committee updated with consultations on the issue of salvaging.</p>	<p>Accepted.</p>	<p>Not yet started.</p>	
<p>(49) The use of salvagers to staff proposed material recovery facilities provided that they are given the necessary training.</p>	<p>Accepted.</p>	<p>Planning stage.</p>	

<p>(50) MPU meet with SWMCOL to develop a policy to guide salvaging acts on landfills which should be shared with salvagers for feedback and revision via stakeholder consultation.</p>	<p>Accepted.</p>	<p>Planning stage</p>	<p>This is an item to be incorporated into the overall plans for the Engineered Landfill.</p>
<p>(52) The immediate implementation of the approved plans by SWMCOL's Board to treat with salvagers at SWMCOL's landfills.</p>	<p>Accept</p>	<p>Ongoing</p>	<p>This item is tied to the overall plans for the Engineered Landfill. SWMCOL recognizes the value of salvagers as unofficial recyclers due to their removal of recyclables from the landfills. As such there are designated areas within the landfills whereby salvagers can perform their trade.</p>
<p>(53) The use of litter wardens at the Forres Park landfill to assist in treating with littering on the roadways in this area.</p>	<p>Accept</p>		<p>Please be advised that the roads leading to SWMCOLs Forres Park Landfill is under the remit of the Couva/Tabaquite/Talparo Regional Corporation.</p> <p>Considering the above, SWMCOL has been doing its part by continuously liaise with the respective Municipal Corporations for assistance in deploying litter wardens and municipal police to treat with littering on the roadways in this area.</p> <p>On several occasions SWMCOL has also reported indiscriminate dumping on the roadways leading to the landfill to the TTFS.</p>
<p>(54) SWMCOL liaise with the TTFS and Trinidad and Tobago Air Guard regarding the use of the bucket</p>	<p>Accepted.</p>	<p>Completed.</p>	<p>Sessions are conducted to sensitize and inform key stakeholders on SWMCOL's Emergency Management Plan and the resources that may be required to assist with landfill fires. Stakeholders include the: TTFS, TTAir</p>



service to promptly attend to fires at its landfills when they occur.			Guard, ODPM, DMUs, WASA, EMA, Other Municipal Support Functions, Vulnerable Receptors and Fenceline Community Members. Further discussions will held with the Ministry of National Security for the use of the bucket.
(55) SWMCOL implement security measures to restrict the dumping of flammable waste into the faecal pond by contractors.	Accepted.	Ongoing	SWMCOL has 24/7 Security on site to control its operations. Further gate controls are currently being installed at the faecal ponds through random sampling and testing of the incoming faecal waste trucks. Trucks found to contain contaminated petroleum (oil) will be informed of a course of action that can include prohibited use of the landfill.
(56) SWMCOL collaborate with its Line Ministry regarding enforcing the restriction of the dumping of flammable waste into the faecal pond at landfills via legislation.	Accepted	Ongoing	SWMCOL has retained CARIRI to undertake random sampling on the vacuum tankers entering the premises, to determine if they are depositing flammable waste into the faecal pond. The results provided by CARIRI will enable SWMCOL to pursue the best course of action.

**3. The Measures Required to Reduce the Negative Impact Of Waste Disposal at Landfills on the Environment.**

JSC RECOMMENDATION	SWMCOL'S ACCEPT/AMEND	STATUS OF RECOMMENDATION (PLANNING STAGE) (ONGOING) (COMPLETED)	GENERAL COMMENTS
<p>(57) Refer to Recommendation 11. i.e. MPU and SWMCOL meet with the MPD to discuss the feasibility of engaging in similar studies to the Global Environmental Facility (Project ID: GEF 5558) on the other landfills in Trinidad with an aim of establishing a remediation plan for these landfills with short, medium and long term measures directed at reducing the landfills impact on the environment and plans for the phased closure of these landfills.</p>	<p>Accepted.</p>	<p>Ongoing</p> <p>Beetham Environmental Assessment: 55% completed.</p>	<p>Beetham Environmental Assessment: Further to the GEF 5558 project, SWMCOL pursued and successfully obtained international grant funding from a UNIDO approved technical expert to implement an environmental assessment of the landfill on the surroundings and in particular the Caroni Swamp.</p> <p>Project Duration: March 2022 to March 2023.</p> <p>Activities Completed:                      Sampling and Testing                      Draft Report Completed.</p> <p>Mitigation Plan: The project will deliver a Mitigation Plan and Package to seek further funding on the international market for the installation of pollution mitigation and treatment options. March 2023 – tbd.</p> <p>SWMCOL and MPU have plans to conduct a proposed meeting with the MPD to discuss opportunities for</p>

			conducting an environmental assessment and remediation plan for the Forres Park landfill.
(58) The development of environmental mitigation plans for the extraction of landfill gases which should be shared with the EMA for consideration prior to being implemented for feedback on limiting the negative impact on the environment that may arise from the MOU.	Accepted	Ongoing.	The project with the NGC Group which involves the capture and utilization of domestic landfill gas advances the Green Agenda as it seeks to reduce the carbon footprint through the reduction of greenhouse gas emissions. In that regard, in developing the project, environmental mitigation strategies will have to be developed to achieve the objectives of the projects as well as the green agenda.
(59) That a progress Report on the Landfill Leachate Treatment System proposed for the Guanapo Landfill be submitted to the Parliament six (6) months subsequent to the laying of this report.	Accepted	Not yet started.	
(60) The alignment of plans for the Landfill Leachate Treatment System and the proposed MOU for the use of landfill gases from the Guanapo Landfill.	Accepted.	Ongoing.	
(61) The private sector be encouraged to use Reverse Vending Machines (RVM) by way of stakeholder consultation to retrieve empty beverage containers particularly those involved in the production and/or distribution of	Accepted.	Planning Stage.	To support the introduction of the BCDRS, SWMCOL will host information sessions with the private sector with a view to encouraging the establishment of redemption depots.

beverage containers which should be strategically placed throughout Trinidad and Tobago to obtain maximum collection.			While redemption depots may be manual or automated, the benefits of incorporating collection technologies such as RVMs are recognized and will therefore be encouraged.
(62) SWMCOL share its studies with the MORDLG and its Corporations regarding the feasibility of incineration as a model for implementation in Trinidad and Tobago.	Accepted.	Not yet started.	The importance of knowledge sharing among SWMCOL, MORDLG and the Municipal Corporations have been recognized.  Any available studies will be shared accordingly.
(63) The use of composting which can be considered at the household level to fuel new foods as a recycling mechanism.	Accepted.	Ongoing	SWMCOL via our Empowering Sustainable Communities project will be targeting communities on a phased basis to introduce this recycling initiative.
(64) SWMCOL examines the economic viability of waste to energy initiatives being considered and reports same to the Committee.	Accepted.	Ongoing.	One of the waste to energy initiatives which SWMCOL is undertaking is the assessment of the capture and utilization of landfill gas in collaboration with the NGC Group. The prefeasibility study has been completed and can be reported to the Committee.
(65) MoH liaise with the THA regarding the possible implementation of the Sterilwave System for the treatment of medical waste at all hospitals in Trinidad	Accepted	N/A	It should be noted that the related actions for this recommendation fall under the purview of the Ministry of Health and the Tobago House of Assembly
(66) That the frequency of covering of waste at all landfills be in accordance with international standards.	Accepted.	Planning Stage.	International standards guidelines and best practices for the design and operation of landfills recommends the regular application of daily cover soil or similar alternatives. SWMCOL provides frequent covering of waste within budgetary constraints and site conditions.