Assessment and Recommendations Report

Testing the Technical Guidelines on the Environmentally Sound Management (ESM) of Plastic Waste in Suriname

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Team SUWAMA

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Abbreviations

ABS	General Statistics Bureau (Algemeen Bureau voor de Statistiek Suriname)
5Rs	Refuse, reduce, reuse, repurpose and recycle
AMRECO NV	Amazon Recycling Company NV
BAT	Beste Available Techniques
BC COP	Basel Convention, Conference of Parties
BCRC-Caribbean	Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean
BEP	Best Environmental Practices
BRS Secretariat	Basel, Rotterdam, and Stockholm Secretariat
DM	Directoraat Milieu van ROM (Directorate of Environment of ROM)
ELVs	End-of-life vehicles
EPR	Extended Producer Responsibility
ESIA	Environmental and Social Impacts Assessment
ESM	Environmentally Sound Management
EZOTI	Ministerie van Econmische Zaken, Ondernemerschap en Technologische Innovatie (Ministry of Economic Affairs, Entrepreneurship, and Technological Innovation)
GDP	Gross Domestic Product
HDPE	High Density Polyethylene
ILO	International Labor Organization
IWMP	Integrated Waste Management Plan
LDPE	Low Density Polyethylene
MGD	Milieu en Gezondheidsdienst (Environmental and Health Services Department)
MICS	Multiple Indicator Cluster Surveys
Ministry of Labor	Ministry of Labor, Employment, and Youth Affairs
MinOWC	Ministry of Education, Science, and Culture
MSW	Municipal Solid Waste
NGO	Non-Governmental Organization
NIMOS	National Institute for Environment and Development
NMA	Nationale Milieu Authoriteit (National Environment Authority)
NTT	National Technical Team
NWG	National Working Group
OGA	Onderdirectoraat Openbaar Groen en Afvalbeheer (Sub-directorate Public Green Areas and Wastemanagement)
OW	Ministerie van Openbare Werken (Ministry of Public Works)
PCBs	Polychlorinated biphenyls
PET	Polyethylene Terephthalate
PFS	Plastic Footprint Suriname (project)
PLM	Product Lifespan Methodology
POM	Put On Market
POPs	Persistent Organic Pollutants

PoW	Programme of Work
PP	Polypropylene
PPE	Personal protective equipment
PVC	Polyvinyl chloride
PWC	Presidential Waste Commission
PWP	Plastic Waste Partnership
ROM	Ministerie van Ruimtelijke Ordening en Milieu (Ministry of Spatial Planning and Environment)
SC	Stockholm Convention
SDGs	Sustainable Development Goals
SUPs	Single Use Plastics
SURESUR	Support Recycling Suriname Foundation
SUWAMA	Suriname Waste Management Foundation
The Secretariat	Secretariat of the Basel Convention
UNICEF	United Nations Children's Fund
UNITAR	United Nations Institute for Training and Research
WEEE	Waste electrical and electronic equipment

Executive Summary

The project titled **"Testing of Guidance on the Development of Plastic Waste Inventories and the Technical Guidelines on the Environmentally Sound Management (ESM) of Plastic Waste"** was initiated by the Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean (BCRC – Caribbean) in January 2024. It was implemented by the Suriname Waste Management Foundation (SUWAMA), under the supervision of the Ministry of Spatial Planning and Environment (ROM), Directorate for the Environment (DM), and ran from January 2024 to January 2025.

This report outlines the testing of the Technical Guidelines on the ESM of plastic waste in Suriname. The primary goal was to evaluate the status and applicability of selected modules (B, C, D, F, G, and J), which were prioritized based on Suriname's national needs. These modules address various aspects such as legal frameworks, waste prevention, inventory management, processing, collection, transportation, environmentally sound disposal, and public awareness. The objective was to generate findings and recommendations, identifying gaps and barriers in the implementation of the Technical Guidelines, and proposing practical solutions to address them.

To achieve this, desk research of existing laws, policies, national plans and reports and research reports and consultations with key stakeholders were conducted between February and June 2024. A total of twenty-seven (27) stakeholders provided detailed insights on the current status of the modules and shared their views on how to improve the ESM of plastic waste in Suriname.

General plastic waste situation

Currently, Suriname manages only 3% of its plastic waste, leaving 97% mismanaged. Recycling initiatives and awareness programs are driven by the private sector and NGOs especially and are not integrated into the government's official waste management system. However, there have been recent developments from the governments end, such as the expansion of the 'Koni Doti' recycling project to new areas, the 'Krin Birti' initiative focused on plastic recycling and awareness, and efforts to phase out single-use plastic bags by the first quarter of 2025.

Key gaps in Suriname's plastic waste management practices compared to the Technical Guidelines:

1. Lack of legislation for the ESM of plastic waste. Existing laws are outdated and focus mainly on health and safety, with minimal enforcement and monitoring for compliance.
2. No policies for plastic prevention or minimization, although ROM has adopted the '5Rs' principle (refuse, reduce, reuse, repurpose, recycle).
3. Unorganized and inconsistent data collection on plastic waste, imports/exports, and local production of both hazardous and non-hazardous plastic waste.
4. Outdated health and safety plans at recycling facilities.

5. Inadequate systems and capacity to inspect recycling facilities for compliance with government regulations.
6. No supporting systems for recycling facilities.
7. No policies for environmentally sound disposal of both hazardous and non-hazardous plastic waste.
8. Limited awareness and educational programs, particularly in rural and hinterland areas, with no ongoing official public awareness campaigns.

Recommendations for improving ESM of plastic waste in Suriname:

1. Develop national and subnational legislation for ESM of plastic waste, incorporating a circular economy approach and differentiating between hazardous and non-hazardous waste. This should include enforcement and monitoring mechanisms.
2. Update existing laws and strengthen institutional capacities for enforcement.
3. Develop policies to prevent and minimize plastic waste generation, actively involving and educating the private sector including importers, exporters, and producers throughout the process.
4. Establish structured systems for data collection, registry, and monitoring of plastic waste, imports/exports, local production, and recycling rates.
5. Enhance monitoring systems to ensure compliance with:
    - Existing health and safety laws and
    - Health, safety and environmental requirements of the National Environment Authority (NMA) at recycling facilities. These requirements are included in the permits of recycling companies.
6. Introduce Extended Producer Responsibility (EPR) schemes and create waste funds to support recycling and awareness initiatives.
7. Provide tax exemptions or reduced electricity costs to support recycling companies.
8. Encourage private sector innovation in producing finished goods from recycled plastic waste.
9. Implement ongoing public awareness programs and expand education efforts nationwide.

1 Introduction

Plastic, derived from fossil fuels, has had a profound impact on the environment since its widespread adoption in the 1950s. By 2018, global plastic production had soared to 359 million metric tons annually. Despite its widespread use in various industries, many plastic products have short lifespans yet can take up to 400 years to decompose fully. This has resulted in an annual accumulation of over 400,000 metric tons of plastic waste worldwide, with at least 8 million metric tons ending up in the ocean from land sources each year, posing a significant threat to marine life and coastal communities like Suriname (Diez, et al., 2019). Currently, Suriname faces challenges in managing plastic waste due to poor waste management practices. Municipal waste, including plastics, is not sorted systematically; instead, it is commingled and dumped at open dumps throughout the country. Reports from 2018 revealed that in 2017, plastic constituted 16.7% of waste in Paramaribo Suriname, with less than 3% being recycled (ILACO NV & Royal Haskoning DHV, 2018). This means that most of the plastic waste (97%) is either dumped at open dumps if waste collection is available, or illegally disposed of or burned. Once in the environment, plastic waste often accumulates in unused public lands, waterways, and rivers, contributing to marine pollution (Heidbreder, Bablok, Drews, & Menzel, 2019; Clayton, Walker, Bezerra, & Adam, 2021).

In response to these challenges, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal has implemented various instruments, including the "Plastic Waste Partnership" and the "Technical Guidelines on the Environmentally Sound Management (ESM) of Plastic Waste (the Technical Guidelines)[1]." These guidelines, initially published in 2002 and updated in 2023, consist of ten modules aimed at assisting countries in controlling the generation of plastic waste and effectively managing it.

As part of the Basel Convention's Program of Work (PoW), the Secretariat of the Basel, Rotterdam, and Stockholm Conventions (BRS Secretariat) collaborates with Regional Centers of the Basel Convention (BCRCs) in the Caribbean, China, and Slovakia to demonstrate the applicability of the Technical Guidelines in various regions. Specifically, the BCRC-Caribbean, with support from the Secretariat, launched the project named 'Testing of Guidance on Development of Plastic Waste Inventories and Testing the Technical Guidelines on the Environmentally Sound Management of Plastic Waste' in three Caribbean countries: Antigua and Barbuda, Saint Lucia, and Suriname.

[1] The Technical Guidelines can be accessed via the following link https://www.basel.int/Implementation/Plasticwaste/Technicalguidelines/Overview/tabid/7992/Default.aspx.

As part of this initiative, the project was launched in Suriname in January 2024 by the BCRC-Caribbean. The Suriname Waste Management Foundation (SUWAMA), serving as the National Technical Team (NTT) since January 2024, successfully implemented the project from January 2024 to January 2025. This effort was carried out under the supervision of the Ministry of Spatial Planning and Environment (ROM), Directorate for the Environment in Suriname

The project encompassed two main activities:

1. Assessment of the status and applicability of the technical guidelines as developed for the ESM of plastic waste: This involved assessing the status and applicability of the Technical Guidelines developed for the ESM of plastic waste, as adopted at the Conference of the Parties to the Basel Convention in Suriname. The Surinamese government selected modules of the Technical Guidelines based on national context and priorities for improving plastic waste management. Modules B, C, D, F, G, and J were chosen, focusing on (b) legal and regulatory frameworks, (c) waste prevention, (d) identification and inventory, (f) processing, collection, transportation, (g) environmentally sound disposal and (j) public awareness and participation. The objective was to prepare an assessment and recommendations report based on the findings, including barriers to implementing the guidelines and recommendations on measures to address these barriers.
2. Development of National Plastic Waste Inventory: Utilizing the "Product Lifespan Methodology (PLM)" toolkit developed by the BRS Secretariat, the project aimed to develop a national inventory of plastic waste for Suriname. This involved utilizing statistics on the import and export of plastic, as well as local production data. The goal was to gain insight into the quantities and types of plastic waste generated in Suriname, enabling the development of appropriate management measures.

This report addresses the first goal, assessing the status and applicability of the Technical Guidelines developed for the ESM of plastic waste. The subsequent chapters delve into the methods used to obtain information and data, the results of the assessment, and recommendations to bridge identified gaps resulting from the assessment.

This report is structured as follows:

Chapter 1 Introduction: Introduces the project, its purpose and partners and an overview of the report’s structure.

Chapter 2 Country Overview: Presents socio-demographic information about Suriname.

Chapter 3 Methodology: Describes the methodology used to collect data and how the data was processed and analyzed.

Chapters 4 General plastic waste management situation Suriname: Provides an overview of the plastic waste management situation and actors nationwide, together with the results of challenges the different districts in Suriname face regarding plastic waste management and their needs.

Chapter 5, 6, 7, 8, 9 and 10: In chapters 5 through 10 each module (B, C, D, F, G and J) is assessed separately. The assessment includes a summary of the module, a description and evaluation of the current state of plastic waste management related to the module including key findings from stakeholders and proposed recommendations for improvement.

Chapter 11 Gap Analysis of existing plastic waste management practices in Suriname against the Technical Guidelines: Provides and overview of the identified gaps, actions to be taken to bridge these gaps and their priority.

Chapter 12 Recommendations for Addressing Barriers to Effective Plastic Waste Management in Suriname: In this chapter recommendations are done to address the gaps and barriers to effectively manage plastic waste, based on the recommendations done by stakeholders and desk research.

Chapter 13 provides conclusions, highlighting the main gaps identified and recommendations for addressing these gaps.

2 Country overview

2.1 Socio-demographic information

Location

The Republic of Suriname, situated in the northeastern part of South America, stands out as the only country in the region where Dutch is the official language. Encompassing an area of 163,820 km², approximately 93% of Suriname's territory is covered by forests. Suriname is divided into ten (10) districts, with eight (8), namely Paramaribo, Wanica, Commewijne, Para, Marowijne, Saramacca, Coronie, Nickerie located along the coast and Paramaribo serving as the capital. The districts of Brokopondo and Sipaliwini, located in the southern part of Suriname, are categorized as respectively rural interior and interior (or hinterland). Suriname shares borders with Brazil to the south, Guyana to the west, and French Guiana to the east. The figure below provides an overview of the ten (10) districts of Suriname and bordering countries.

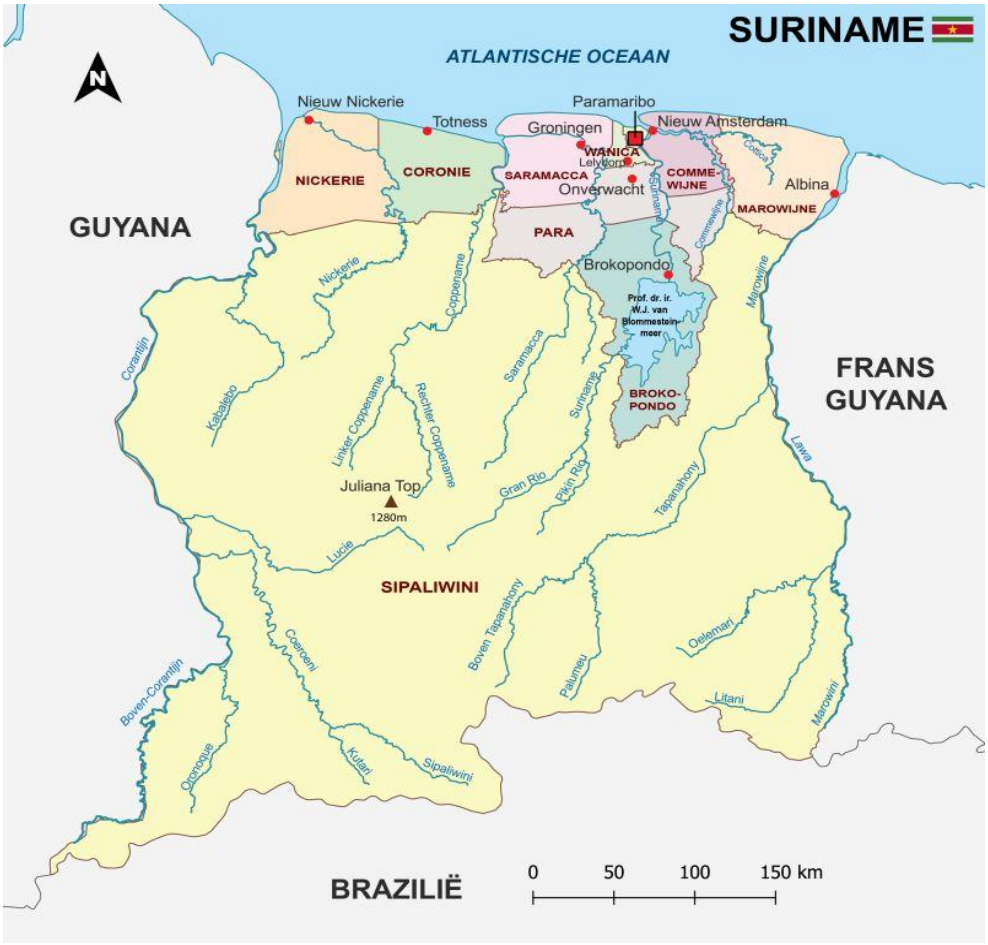

Figure 1 Map of Suriname with districts (source: linkedin.com/in/kaartvansuriname)

Population

According to the updated General Bureau of Statistics (ABS) report of 2022 on population and demographics, Suriname's average population was 602,500 in 2020 (General Bureau of Statistics, 2022). Surinamese population shows an increasing trend from 590,100 in 2018 to 602,500 in 2020 with a slight difference between the number of males (49.88%) and females (50.12%), as depicted in the figure below:

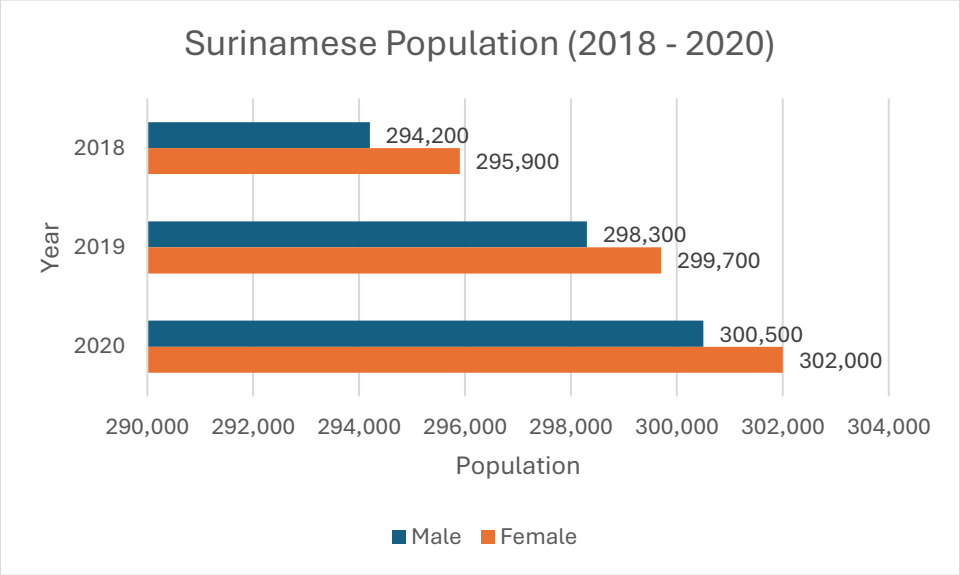

Figure 2 Population of Suriname from 2018 – 2020

Economy

Suriname is classified as an upper-middle-income country with an economy heavily reliant on its abundant natural resources, such as gold, oil, and timber. Mining contributes nearly half of the public sector revenue, and gold constitutes more than three-quarters of the country's total exports. Another significant income source is from the agriculture sector. In 2022, Suriname ranked 124th out of 193 countries on the United Nations Human Development Index, with a score of 0.690, placing it in the medium human development category. Preliminary findings from a new poverty assessment indicated that in 2022, about 17.5 percent of the population lived below the World Bank's upper middle-income poverty line of US$6.85 per day (The World Bank, 2024).

In 2022 Suriname experienced a moderate economic recovery (Gross Domestic Product (GDP) expanding by 2.4%) due to the successful implementation of its macroeconomic stabilization program. High inflation and currency instability however remain challenges for Suriname.

Employment

According to the World Bank (2024), the active labor force in Suriname in 2023 constituted 50 percent of the total population. This workforce is primarily concentrated in the coastal urban

areas, where about 75 percent of the economically active population resides. Although recent data on the employment rate among Surinamese males and females is unavailable, World Bank data from 2016, modeled on International Labor Organization (ILO) estimates, indicated that the employment rate was 40.3 percent for females and 63.5 percent for males.

Education

The literacy rate in Suriname for adults was 95 percent in 2021, with 93 percent for females and 97 percent for males (World Bank, 2023).

The United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys (MICS) findings from 2019 in Suriname, state that 85 percent of Surinamese children complete primary school. At higher levels however, completion rates decline drastically with 23 percent of all children completing upper secondary education. Across all levels, female completion rates are higher than male completion rates. Adding to this, the report also states that children from higher income households and urban areas have a higher completion rate when compared to those from lower income households and from rural areas and the hinterland (UNICEF, 2019).

3 Methodology

This chapter outlines the methodology employed for data collection and processing used in the assessment of the Technical Guidelines for the ESM of plastic waste in Suriname.

Research method and data collection

The data collection method employed was qualitative and consisted of two main components:

1. *Desk Research:* This phase involved gathering available data relevant to the selected modules. Existing laws, research reports, government plans, and other pertinent documents were consulted. A summary of the consulted documents (amongst others) is presented in Table 1.

Table 1 Overview of documents consulted

Document title	Information
Environmental Framework Act of May 21st, 2024 (Milieu Raamwet S.B. 2020 no. 97 z.l.g. bij S.B. 2024 no. 56):	Published May 2024
Draft Nationaal Milieubeleidsplan 2024 - 2028	Version 2023
Politiestrafwet GLD-RT-SB1990no24	Published 1990
Eindrapport Geïntegreerd Afvalbeheer Plan voor Suriname (Final report Integrated Waste Management Plan for Suriname)	Prepared by ILACO NV for ROM, 17 October 2022
Standaard voor vuilophaal en -verwerking Deel 1: Collectie van Huishoudelijk, Medisch, Industrieel en Grof Afval en Gescheiden Ophaal	Published by Suriname Standard Bureau, 17 January 2019
Beleidsnota Ministerie van Ruimtelijke Ordening en Milieu	Published: September 2020
Final Report, Waste Separation Pilot Project in Greater Paramaribo	Prepared by Ilaco NV for ROM, 12 October 2022
Baseline Report vs02 BAT-BEP Demonstration Project Paramaribo, Suriname	Prepared by Ilaco NV in association with Haskoning BV for UNIDO and the Surinamese Government, 20 February 2018

During this phase, relevant stakeholders were also identified and added to the stakeholders list.

2. *Interviews/Consultations with Key Stakeholders:* Key stakeholders were interviewed to obtain in-depth information on the status of the different modules and their opinions on recommendations for the ESM of plastic waste. Stakeholders were selected through a

stakeholder analysis. A total of 27 stakeholders were interviewed and an overview of the stakeholders consulted is included in Appendix 1. Interviews were conducted using a semi-structured topic list, which was shared with stakeholders in the form of a concept note prior to the interview. The interviews were conducted in person, virtually, and occasionally by telephone. The concept note is included in Appendix 2. Interviews were recorded with prior consent of stakeholders and for the sole purpose of writing up the interview notes.

Ethical considerations

In the context of 'informed consent', stakeholders were informed about the purpose of the research and their role within the research before taking interviews via the concept note provided in Appendix 2.

Data processing

Recordings from the interviews were transcribed non-verbatim into detailed notes for analysis. The notes of these interviews were analyzed using the program ATLAS.ti, a qualitative data analysis software, that is utilized to analyze qualitative data via text coding, data categorization and data visualization amongst others. Before analyzing the notes, codes were developed using both the deductive and inductive approaches. Using the deductive approach, apriori codes were derived from the semi – structured topic list that was formulated in advance to guide the interviews. In the inductive approach, new relevant codes were identified while reading and analyzing the notes. The notes were read and analyzed thoroughly and texts relevant to each code were categorized under respected codes. Examples of codes are current plastic waste management projects, policies in preparation, measures taken to minimize/reduce plastic waste, capacity of recyclers, plans for expanding recycling operations, reporting to the government, health and safety measures, challenges faced within recycling branch, recommendations for improvement.

Constraints and limitations

The following constraints and limitations were experienced during the stakeholder consultations:

1. Stakeholders from the informal recycling sector asked to remain anonymous and were reluctant to share information about what is done with plastic after disassembly of for e.g. electronic and electrical waste and old vehicles for example.
2. Accurate and reliable data on waste generation is Suriname would be best obtained via a national waste audit, considering different environmental and social contexts. This was however not possible within the timeframe of the project and due to budgetary constraints. As a result, existing data on plastic waste generation was used.

4 Current plastic waste management situation Suriname

4.1 Institutional provisions for plastic waste management in Suriname

In Suriname, waste management falls under the jurisdiction of the Ministry of Public Works (OW), specifically its sub-directorate 'Openbaar Groen en Afvalbeheer' (OGA).

The sub-directorate 'Afvalbeheer' (Waste Management) oversees nationwide waste collection, excluding the Coronie district and remote inland areas inaccessible by road. Waste is processed at four designated dumps across the country: Ornamibo (the largest) in Wanica, and smaller dumps in Albina (Marowijne), Brokopondo, and Southdrain (Nickerie). Coordination of waste collection and dumping is closely managed in collaboration with the 'Milieu en Gezondheid Dienst' (Environment and Health Services) of each District Commissioner's office. 'Afvalbeheer' also operates and manages these dumps, which involves dumping, compacting, and covering waste with layers of sand to minimize disturbance.

The sub-directorate 'Openbaar Groen' is responsible for nationwide public cleaning activities, including carcass removal, tree maintenance in public areas, setting up public squares and buildings for community use, and maintaining public streets and premises.

Household waste collection and processing are fully funded by the central government, while companies and organizations pay fixed fees for these services. Waste collection and processing costs the government an average of 458 million Surinamese dollars on yearly basis. Plans have been proposed for household pay systems or tax systems, which will allow for the sub-directorate to operate financially independently, however these have not been approved (Representative sub-directorate Afvalbeheer, personal communication, 10 May 2024).

The Ministry of Spatial Planning and Environment (ROM), Directorate of Environment (DM), plays a pivotal role in policy development aimed at enhancing the quality of the living environment. The DM also serves as Suriname's focal point for the Basel Convention. In 2022, ROM developed a framework for an integrated waste management plan based on the principles of refuse, reduce, reuse, repurpose, and recycle (ILACO NV, 2022), although its implementation is pending.

In 2021, OW and ROM launched the 'Koni Doti' plastic recycling pilot project in the Blauwgrond district of Paramaribo, with plans for expansion in the district Wanica and several resorts in Paramaribo. ROM has also initiated the 'Krin Birti' project to promote a cleaner environment across districts Paramaribo, Commewijne, Saramacca and Nickerie, focusing on educating communities about littering, reducing PET bottle use, promoting reusable alternatives, and addressing pesticide use and pollution of water, air, and soil. This initiative is done in close collaboration with District Commissioners and local communities.

Suriname currently lacks an official segregated waste collection system except in Blauwgrond. Consequently, all waste is collected together and deposited at various dumps nationwide. Recycling efforts for plastic and other recyclable materials are driven by private enterprises and Non-Governmental Organizations (NGOs), primarily in coastal urban areas, and depend on household and organizational willingness to participate. These efforts are funded by private funds or grants received from both local and international donor organizations.

In August 2023, a Presidential Waste Commission (PWC) was established to evaluate Suriname's waste management system, review existing laws, and propose recommendations for sustainable and environmentally sound waste management including appropriate policies and legislation. The commission is revising the Draft Waste Act of 2007.

4.2 Private actors in plastic waste management in Suriname

Support Recycling Suriname Foundation (SURESUR)

SURESUR is an NGO established in 2015 and focuses on awareness raising and promotion of recycling. They have installed more than 117 recycling containers in the districts Paramaribo, Wanica, Para, Commewijne, Nickerie, Coronie, Brokopondo and Sipaliwini for the collection of plastic waste and aluminum cans. They also provide paid collection/transportation services to companies and organizations.

The Suriname Waste Management Foundation (SUWAMA)

SUWAMA was established in 2008 and is operational nationwide. SUWAMA has since her establishment focused on the promotion of recycling, environmental education programs and research and development initiatives. In recent years SUWAMA has made a shift focusing on a circular economy approach and waste prevention/reduction.

Green Heritage Fund (GHF) Suriname

The Green Heritage Fund Suriname was established in 2005 and promotes plastic, especially single use plastic (SUP), prevention/reduction. GHF focuses on awareness raising and educational programs.

Amazona Recycling Company NV (Amreco NV)

Amreco NV was established in 2009 and recycles all plastic types (except for hazardous and contaminated), cardboard, paper and aluminum can and provides specialized waste services. Amreco NV has its own collection system with 3 trucks and charges a fee for both the collection and processing of recyclable waste. The recycling fee is USD 50.00 per ton and collection costs range from SRD 10 to SRD 60 per trip. Amreco NV currently processes an average of 2 to 3 tons of plastic waste per day.

Green Circle Recycling NV

Green Circle Recycling N.V. collects, processes, and trades waste streams such as paper, cardboard, foils, plastics, beverage cans, and rubber. They provide a full service in the form of placement of recycling containers and paid collection; however, the processing of recyclables is free of charge. Green Circle Recycling NV processes an average of 1 to 2 tons of plastic waste a day. The collection is done in collaboration with SURESUR, and companies/individuals are also allowed to drop off their recyclables.

Clear Packaging and Recycling NV

Clear Packaging and Recycling NV is a recycling company that recycles plastic wraps into garbage bags. They provide collection services for which they collaborate with SURESUR, but also allow companies/individuals to drop off their recyclables.

The informal sector also plays a role in recycling of electrical/electronic waste and waste from the transportation sector. This waste is disassembled, but not for the plastic components, however. Plastic components are discarded at the landfill and are not recycled.

COBO Holding NV

Cobo Holding NV is a scrap metal dealer in Suriname. Metals are sourced from both industries and households, either through door-to-door collection or by waste scavengers retrieving metal from the Ornamibo dumpsite. The collected metals are processed into new products, such as concrete reinforcement steel bars, which are reused in the construction sector.

4.3 Stakeholder’s opinion on plastic pollution

The technical guidelines distinguish between various sectors that introduce plastic into the market and generate plastic waste. These sectors include transportation, packaging, building and construction, electrical/electronics, consumer and institutional products, industrial machinery, and textiles. Stakeholders were asked to identify which of these sectors' plastic waste poses the most significant problems and the responses differed.

Two (2) recycling companies responded that plastic waste from the packaging sector and consumer and institutional products does not pose a problem, as they have sufficient recycling capacities. However, eight (8) stakeholders from NGOs, government, and other sectors stated that plastics from the packaging sector and consumer and institutional products form the most significant problem because they are widely used and frequently found dumped in the environment throughout the country.

Plastic waste from the transportation and electrical/electronic sectors was identified as the second most problematic. These types of waste are not commonly found as litter alongside roads but are often found at scrap dealers or landfills throughout the country. The informal sector plays a key

role in dismantling waste from these sectors. However, as previously mentioned, more valuable metal and mineral components are retrieved, while plastic components are discarded at landfills.

Plastic waste from the building and construction sector, textiles, and industrial machinery were considered the least problematic, as these are minimal and often reused or sold for parts.

4.4. The situation regarding plastic waste management per district

The situation in Suriname with regards to plastic waste management per district is presented in the table below.

Table 2 Overview of nationwide situation regarding plastic waste management

District	Status plastic waste management	Challenges	Needs/recommendations
Paramaribo	- Segregated plastic waste collection is currently available in the Blauwgrond resort through the Koni Doti project. However, other resorts in Paramaribo do not yet have official segregated plastic waste collection services and recycling depends on their willingness to do so, though plans for expansion are under discussion. - SURESUR has installed recycling containers at various central locations, including supermarkets and stores, where waste is collected by SURESUR. - The 'Krin Birti' means 'Clean Neighborhood' project of ROM is being executed in these districts and focusses on awareness and recycling of plastics. - Plastic waste collection services are offered to schools, companies, organizations, and households, either free of charge or for a fee by recycling companies. Alternatively, individuals can deliver plastic waste directly to recycling companies. - Clean-up activities are organized by the Environmental and Health Services (MGD) under the District Commissioner's Office. - Various NGOs undertake awareness initiatives to educate the public about sustainable waste management practices and recycling options.	- The recycle containers are used, however these are insufficient. - Littering remains a challenge and awareness levels are still low. - High costs for clean-up of gutters in the rainy seasons and litter.	- More awareness about the impacts of plastic pollution. - Impose deposit systems for plastics. - Establish fines for littering - Promote alternatives to plastic, e.g. replace plastic bags with paper bags. - Develop legislation to support recycling.
Nickerie, Commewijne, Saramacca	- Official segregated plastic waste collection is currently not available. Recycling depends on the willingness of the community.	- Littering remains a challenge and awareness levels are still low.	- Increase awareness - Recycling containers

District	Status plastic waste management	Challenges	Needs/recommendations
	- SURESUR has installed recycling containers at various central locations, including supermarkets and stores, where waste is collected by SURESUR. - Plastic waste collection services are offered to schools, companies, organizations, and households, either free of charge or for a fee by recycling companies. Alternatively, individuals can deliver plastic waste directly to recycling companies. - The 'Krin Birti' means 'Clean Neighborhood' project of ROM is being executed in these districts and focusses on awareness and recycling of plastics. - In Nickerie, Suresur together with the Districts Commsissioner's Office launched a recycling project, providing awareness at schools, recycle bins and collection.	- Plastic waste is burnt in the dry seasons and littering remains a challenge	
Para, Wanica	- Official segregated plastic waste collection is currently not available. Recycling depends on the willingness of the community. - SURESUR has installed a few recycling containers at various central locations, including supermarkets and stores, where waste is also collected by SURESUR. - Awareness activities are executed by SURESUR together with the Districts Commissioners Office. - Plastic waste collection services are offered to schools, companies, organizations, and households, either free of charge or for a fee by recycling companies. Alternatively, individuals can deliver plastic waste directly to recycling companies.	- Littering remains a challenge and awareness levels are still low. - Recycling containers are insufficient - High costs for clean-up of gutters in the rainy seasons and litter.	- Impose deposit systems for plastics - Develop legislation to support plastic waste management - Increase awareness - Establish fines for littering
Brokopondo, Coronie, Marowijne en	- Official segregated plastic waste collection is currently not available. Recycling depends on the willingness of the community.	- Recycle containers are not sufficient, only a few are installed, and collection is	- Promote recycling options, considering infrastructure, capacities and awareness

District	Status plastic waste management	Challenges	Needs/recommendations
Sipaliwini	- SURESUR has installed a few recycling containers at various central locations, including supermarkets and stores, where waste is also collected by SURESUR. - Collection limited to non-existent. These districts must deliver segregated plastic waste either to the containers placed at central locations or deliver directly to the recycling companies.	not regular. - Plastic waste is burnt in the dry seasons and littering remains a challenge	level - Develop legislation to support plastic management - Increase awareness, considering contextual and environmental differences.

5 Module B Legislative and Regulatory Framework

Module B **'Legal and Regulatory Frameworks'** of the Technical Guidelines, states that Parties to the Basel Convention must review their national and subnational strategies, policies, controls, standards, and procedures to ensure compliance with the convention. Environmental protection legislation is crucial in this regard, as it outlines the authorities and rights for the environmentally sound management of plastic waste. It is important that this legislation emphasizes both the protection of human health and the environment. Governments should be able to establish and enforce specific rules and regulations for environmentally sound management of plastic waste, including inspections and penalties for violations. The legislation should also ensure careful monitoring of facilities where plastic waste is deposited, such as recycling centers, to ensure safety for both humans and the environment. Furthermore, the legislation should require all involved parties, such as collectors, transporters, and recyclers, to comply with environmentally friendly standards when collecting, transporting, storing, and disposing of plastic waste. It is important that legislation complies with national obligations under international treaties such as the Basel and Stockholm Conventions and adheres to international guidelines for environmentally sound management.

5.1 Legislative provisions on plastic waste management

National legislative provisions and international agreements on plastic waste management

To date, Suriname lacks specific legislation solely dedicated to plastic waste management. However, there are several laws and regulations that address waste management and littering more broadly:

1. **Environmental Framework Act of May 21st, 2024 (Milieu Raamwet S.B. 2020 no. 97 z.l.g. bij S.B. 2024 no. 56):** This act is adjusted from 2020 and covers general waste management. Articles 33, 34 and 35 empowers the National Environment Authority (NMA), formerly known as the National Institute for Environment and Development (NIMOS), to:
    a. Establish norms and procedures for the handling, storage, transport, use, disposal, the reuse and recycling of waste, which will also be included as requirements for licenses.
    b. Based on research and information, as well as measurements conducted by itself and other agencies, is authorized to prohibit:
        i. The import or export of any waste.
        ii. The emission into the environment of any waste suitable for reuse or recycling.
    c. Support programs that enhance reuse/recycling

d. Determine which substances are considered hazardous to the environment and which substances are prohibited and develop procedures for importing, exporting, safely storing, handling, transporting, using, and disposing of these hazardous substances.

The NMA is also responsible for the development of the legal implementing decrees related to the Environmental Framework Act. The decrees are administrative regulations that put a law or statute into effect by providing detailed instructions on how it should be applied.

As confirmed in a personal communication with a representative from the NMA, there are no specific plans for plastic waste management or implementing decrees in development for this purpose. However, plastic waste primarily contributes to aesthetic pollution and can incur fines (Representative NMA, personal communication, May 13, 2024).

2. **Act of April 25, 2019, no. 910:** Issued by the Ministry of Economic Affairs, Entrepreneurship, and Technological Innovation (EZOTI), under the former Ministry of Trade, Industry, and Tourism, this act prohibits the use of Styrofoam plastics in the warm food chain.
3. **Hindrance Act (1972):** This legislation addresses pollution stemming from industrial activities and applies to firms producing waste that poses a risk of nuisance, danger, or damage.
4. **Criminal Law Act (1990):** Articles 225a and 225b of this act specify penalties for individuals who intentionally dispose of waste into the environment.
5. **State Decree of 16 October 2019.** Adjusted Decree on the Negative List 2003, prohibiting the import of plastic wastes to Suriname.
6. **Draft Waste Act (2007):** Although developed in 2007, this act has not yet been approved and is currently under review by the presidential commission mentioned earlier.
7. **Draft Pesticide Law:** There is a draft pesticide law that includes a fund specifically for packaging materials in this sector. Importers of pesticides contribute to this fund based on the volume of their imports. The fund is utilized for raising awareness, collecting, and recycling packaging materials from the sector. It is important to note that these contributions are not taken from the importers' profits but are instead factored into the cost price of the pesticides. Additionally, empty pesticide bottles must be rinsed three times to ensure they are safe for recycling. The first draft of this law is expected in August or September of this year, after which it will proceed through the necessary legislative processes (Representatives Ministry of Agriculture, Animal Husbandry and Fisheries (LVV), personal communication, 4 April 2024).

In addition to the above, the Standards Bureau of Suriname (ABS) has developed a Standard for Waste Collection and Processing, Part 1: Collection of Household, Medical, Industrial, and

Bulky Waste and Separate Collection. Component 9 covers frequencies for segregated waste collection, collection containers and bags, equipment (trucks), health and safety, communication and requirements for transporters (Surinaams Standaarden Bureau, 2019). The standards predominantly address the health and safety aspects of segregated waste collection, requiring waste management personnel to use personal protective equipment (PPE), conduct medical checkups at least once a year, and be trained of handling of hazardous waste types, health and safety, requirements for waste containers and plastic bags used to transport segregated waste, truck requirements and permit requirements amongst others. Appendix 3 provides a total overview of component 9 of the standards. Part 2, the standard for waste processing and management, is currently being developed and it is the intention of ABS to publish both parts simultaneously.

Recycling companies are also obliged to have permits in accordance with the hindrance act to operate. Permits are issued by the respective Districts Commissioners office, which are advised by the NMA, the Ministry of Labor, Employment, and Youth Affairs (Ministry of Labor), the Fire Department and the Police. The NMA, depending on the scope of activities, might determine if an Environmental and Social Impacts Assessment (ESIA) is required and which category. Measures regarding safe installation of machinery, health, safety and environmental management are included in permits per case. OW also stated that their inspection department should execute regular inspections at facilities. However, monitoring systems are lacking from the end of the government, to ensure compliance with permit requirements.

In the policy note of ROM of 2020, the ministry acknowledges that plastic waste constitutes a significant portion of overall waste. From ROM, preparations are currently being made to systematically ban single-use plastics (SUPs) in Suriname. Single-use plastics are defined as plastics that are used only once. Some types of plastics can already be reused through recycling, thereby keeping them out of the environment for a longer period (Ministerie van Ruimtelijke Ordening en Milieu, 2020).

International agreements addressing plastic waste management

1. Suriname ratified the Stockholm Convention (SC) on Persistent Organic Pollutants (POPs) on September 20, 2011. SC aims to protect human health and the environment from the harmful effects of POPs. Parties to the Stockholm Convention are required to ensure the safe management of waste contaminated with POPs and minimize exposure to POPs. POPs are present in some plastics and include substances like Polychlorinated biphenyls (PCBs) and dioxins. rendering them ‘hazardous’.
2. The Act of March 14, 2011, approves Suriname's accession to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes. The Basel Convention focuses on the management of hazardous waste types, including plastic wastes and their transboundary movement. An overview of plastic waste types considered hazardous by the Basel Convention are included in Appendix 4 of this report.

Evaluation

Current regulatory frameworks specifically for plastic waste management in Suriname are non-existent. According to the PWC, efforts are underway to support evidence-based policymaking in this area. While standards for the collection of segregated waste types are already in place, their publication is pending the finalization of a waste processing standard that is currently being developed.

For the safety of personnel, the Safety Act of 1947 includes general safety measures for companies and personnel. These measures include the prevention and mitigation of fire accidents, provision of assistance during accidents and the opportunity for escape in case of fire, provision of hygienic sanitary facilities, promotion of a tolerable temperature, prevention and control of the formation and spread of harmful or annoying fumes, gases, and dust, or their removal, and prevention of health damage resulting from work. The Ministry of Labor, Employment, and Youth Affairs is responsible for ensuring that these measures are implemented, however monitoring of compliance are limited.

It is also important to note that Suriname's enforcement mechanisms are limited to non-existent, as underscored by both the NMA and ROM representatives. (Representative NMA, personal communication, May 13, 2024, & Representative ROM, personal communication, 26 March 2024), creating a cautious approach for policy makers.

While policy makers are cautious on one hand, the different stakeholders consulted all stated that legislation and enforcement are important for adequate plastic waste management, highlighting that if proper enforcement is not in place, legislation will serve no purpose.

5.2 Recommendations for legislative provisions on plastic waste management

Stakeholders were asked which components should be included in legislation for plastic waste management and the results of ten (10) responses received are presented in the figure below.

Key areas such as recycling policies, sanctions or rewards systems, authority responsibilities, permit applications, and awareness raising were supported collectively. Other areas, like international obligations and safety requirements for personnel, received significant but slightly less support.

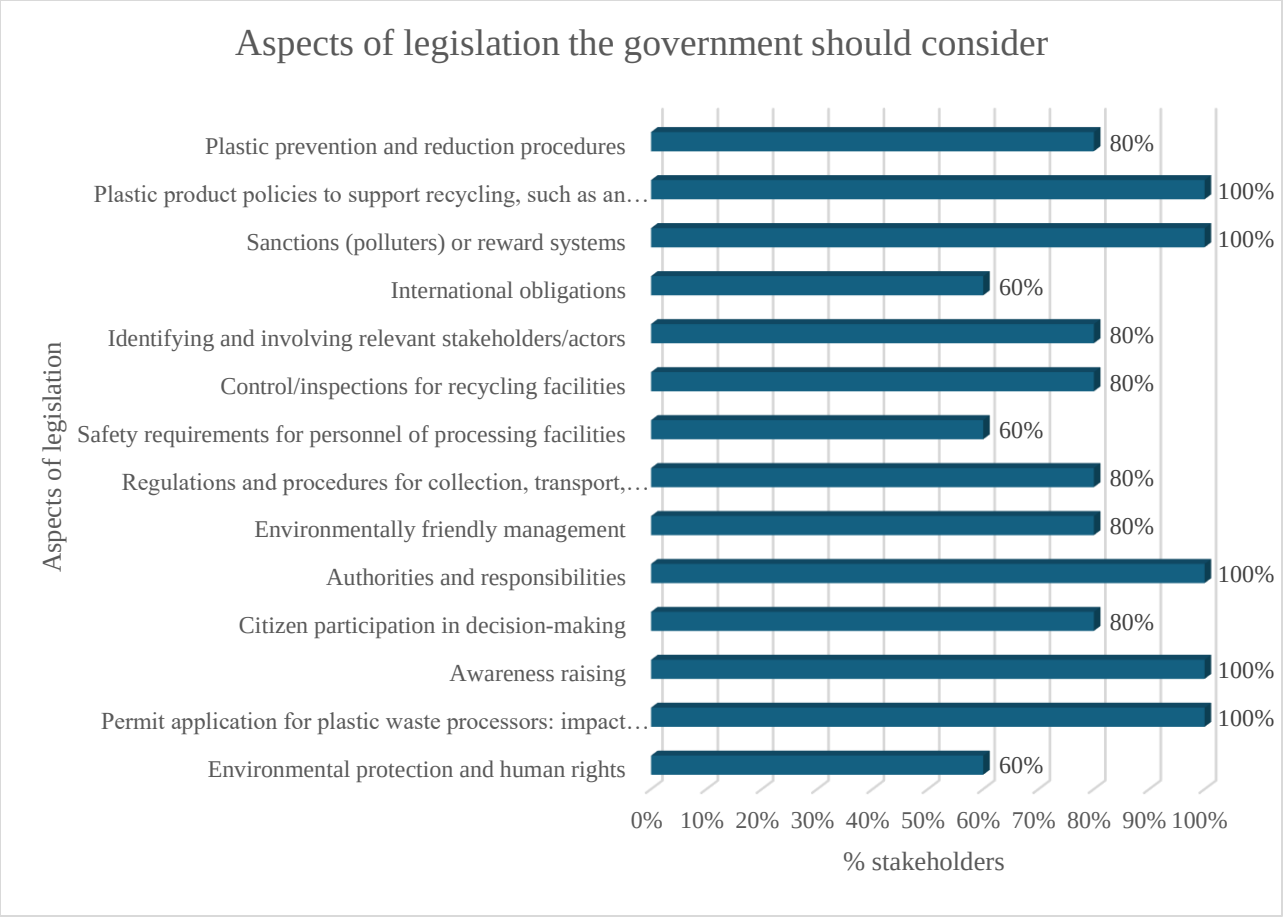

Figure 3 Aspects of legislation important according to stakeholders

Other recommended aspects of legislation were:

1. Introduction of an eco-tax system.
2. Update of the current Environmental Framework Act.
3. Update and approval of the Waste Act.
4. Address the interior regions, considering limited infrastructure and available facilities.
5. Introduce a tax system that allows for reduced electricity and fuel charges for recycling companies.

6 Module C Waste Prevention and Minimization

The Basel Convention affirms that reducing the generation of hazardous waste and other waste to a minimum in terms of quantity and/or potential danger is the most effective way to protect human health and the environment from the hazards associated with such waste. Waste prevention should therefore be the preferred choice in any waste management policy, reducing the need for waste management and allowing resources to be used more efficiently. Waste prevention and reduction are also essential for transitioning from a linear to a circular economy. Companies should use the best available techniques (BAT) and best environmental practices (BEP) to produce less waste and less hazardous waste. Instruments vary by country, considering national resources, capacities, circumstances, priorities, and available alternatives.

6.1 Policy Instruments and measures on plastic waste prevention and minimization in Suriname

The table below presents projects or activities related to plastic waste prevention and minimization that have been executed within the last five (5) years or are currently ongoing.

Table 3 Overview of plastic waste prevention and minimization projects/activities

Organization	Project description	Status
Suriname Waste Management Foundation (SUWAMA)	Testing the technical guidelines on the environmentally Sound Management (ESM) of plastic waste in Suriname and development a national plastic inventory in accordance with the Basel Convention's Toolkit on the Product Lifespan (PL) Method.	On-going (started January 2024)
	Environment and Agriculture, to a higher level by and for Saramaccan women (Milieu en Landbouw, naar een hoger niveau door en voor Saramaccaanse vrouwen). Focusses on adequate waste management including SUPs reduction in five (5) maroon villages alongside the Suriname River	On-going (started February 2022, ends October 2024)
	Replacing Single Use Plastic Commodities in the Economy of Suriname (2022). Project focused on seeking alternatives for SUPs replacement and developed a policy advice for phasing out SUPs on the short and long term	Completed (2019 – 2022)

Rotary Suriname	Greener Together Project with a focus SUPs source reduction at high schools by distribution of water dispensers and water bottles and initiating recycling initiatives	Phase 1 completed (2022 - 2024) (Phase 2 is in preparation)
Ministry of Economic Affairs, Entrepreneurship and Technological Innovation (EZOTI)	Ban on Styrofoam for the warm food chain (2019)	Completed (2018 – 2019)
	Promotion of and awareness on compostable single use containers.	On-going
Ministry of Spatial Planning and Environment (ROM), Directorate for the Environment	Phasing out of single use plastic bags in Suriname within a timeframe of 1 year. Single-use plastic bags are defined as lightweight plastic bags designed to be used only once before being thrown away. These bags are typically made from polyethylene, a petroleum-based plastic that can take hundreds of years to decompose in a landfill and used commercially and in households.	On-going (started 2024)
	Krin Birtie Project in the districts Paramaribo, Commewijne, Saramacca and Nickerie focusing on amongst other reducing PET bottle use and promoting reusable alternatives.	On-going (started 2023)
	Developed a framework in 2022 for the development of an Integrated Waste Management Plan (IWMP), supporting the 5 R's approach, namely refuse, reduce, reuse, repurpose and recycle.	Completed in 2022. To be implemented
UNICEF Suriname	Project Plastic Footprint Suriname (PFS), focusing on minimization of Single Use Plastics (SUPs) usage in Suriname via awareness programs	On-going

Based on the information provided in table 2, it can be stated that current policy instruments for plastic waste prevention and minimization are a combination of regulatory, information-based and voluntary as presented in table 3 below.

Table 4 Overview of current policy instruments for plastic waste prevention and minimization

Regulatory 	**Market-based** 	**Information-based** 	**Voluntary** 
Considering the ban on Styrofoam in 2019.	No market-based instruments are in place for Suriname.	Considering the awareness programs by both the government and local NGOs and sustainable procurements tips	Considering sustainable procurement and green procurement criteria within some organizations.

Awareness programs and projects related to plastic waste prevention and minimization are the majority private sector driven and awareness programs are especially NGO driven. Regarding plastic waste prevention and minimization, ROMs approach is to prevent and reduce by exploring the following strategies and frameworks:

1. The 5R's approach, namely refuse, reduce, reuse, repurpose and recycle. The principles of refuse, reduce, reuse, repurpose, and recycle focus on prioritizing actions to minimize waste generation and optimize resource use. They emphasize the hierarchy of reducing consumption, reusing materials, and recycling as a last resort to conserve resources and reduce environmental impact.
2. Circular economy framework in a broader context, which provides a structured framework for managing the lifecycle of products and materials in a way that emphasizes sustainability and resource efficiency.
3. Exploring the feasibility of Extended Producer Responsibility (EPR) schemes for plastics from the packaging sector for now.
4. Systematic ban of SUPs.

Concrete plans for the above are yet to be developed and implemented.

6.2 Recommendations regarding plastic waste prevention and minimization

Stakeholders (10 responses) recommended the following policy instruments and measures for plastic waste prevention and minimization in Suriname:

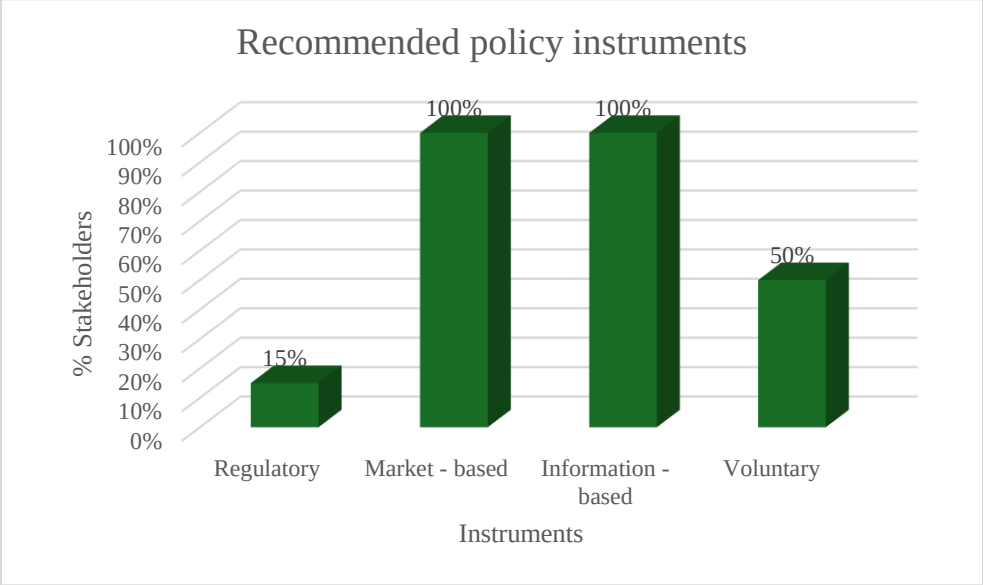

Figure 4 Recommended policy instruments for plastic waste prevention and minimization

Market-based and information-based instruments were mostly recommended amongst stakeholders, followed by voluntary.

Specific market-based and information-based instruments recommended were:

1. The introduction of EPR systems or waste management funds, where all bottling companies, plastic product manufacturers, and importers contribute based on their production or imports. This approach places the responsibility on producers and importers rather than consumers, who are unable to bear the cost due to low awareness and the current economic conditions.
2. Deposit return schemes.
3. Set targets for recycling, however consideration for monitoring and an incentive system should be in place.
4. Tax exemptions from the government to support importers of biodegradable products.
5. Awareness campaigns nationwide.
6. Political will.

Opinions were different regarding deposit schemes, with some stakeholders stating that deposit systems will not work for Suriname, because we do not have the infrastructure, facilities and collection capacities for this purpose, while other stakeholders mentioned that deposit systems are an effective and maybe the only solution to the plastic problem.

Recommended voluntary instruments were procurement guidelines, introduction of green procurement criteria and incentive programs.

Regulatory was the least favourable, because of the following reasons according to stakeholders:

1. Regulatory system of Suriname regarding this is considered too weak.
2. Bans on plastic will take time and effort and will need to consider the impact on producers and consumers.

One stakeholder, however, recommended that requirements for plastic reduction in products should be considered.

7 Module D Identification and inventories

The identification of plastic waste is the starting point for its effective and environmentally friendly management according to the technical guidelines. To enable effective actions to prevent, minimize, and manage plastic waste, it is important for participating parties to identify the sources of plastic waste generation and quantify the amount of generated plastic waste.

7.1 Current situation in Suriname regarding inventories

The technical guidelines distinguish between 2 plastic waste categories:

1. ***Post-consumer plastic wastes***, found mainly in municipal solid waste (MSW) and in the following economic sectors: industry, agriculture, building, construction and demolition, commercial, institutional, automotive, electrical and electronic equipment, and textiles
2. ***Pre-consumer or industrial plastic waste***, wastes from plastic resin production and leftovers from the plastics products production.

While both categories generate plastic waste and are relevant to Suriname, there is currently no organized or continuous data collection or monitoring system specifically for plastic or plastic waste. Furthermore, there is no official central database maintained by the government for companies to report their data to.

As a result, data collection is only carried out on a project-by-project basis. Some companies do record the amount of plastic waste they generate and recycle, and recycling companies also track the quantities of plastic waste they receive, process and ship. There is also no distinguishment made between hazardous and non-hazardous plastic waste types. There is however apparatus available to measure certain types of additives that are not allowed in plastics in Suriname.

Previous research however done on behalf of ROM and OW do provide an indication of the amount of plastic waste generated in Suriname. According to research done in 2018 an average of 17% of household waste in Paramaribo consisted of plastics, whereas this was 13% in 2006-2008 (ILACO NV & Royal Haskoning DHV, 2018). Research by Dr. L. Zuilen revealed that plastic waste generation varies by district in Suriname. In 2007, 21.5% of household waste in Galibi (an Indigenous village on the east coast in the Marowijne district) consisted of plastics, while in 2009, 5.4% of household waste in Pokigron (a Maroon village in the Sipaliwini district) was plastic. This indicates that plastic waste percentages are higher in coastal districts like Paramaribo and Galibi compared to hinterland villages like Pokigron, showing a decreasing trend of plastic usage further south into the hinterland.

In 2020, SUWAMA conducted a partial plastic waste inventory for Suriname. To create the inventory, they used a toolkit based on the 'Consumption Lifespan Method,' developed by UNITAR-SCYCLE under the Basel Convention. This inventory focused on single-use plastics

(SUPs) with a lifespan of up to one year. It showed that between 2015 and 2020, an average of 19,821 metric tons of SUPs from packaging and consumer and institutional sectors were introduced to the market annually in Suriname. In 2020, the SUP waste generated was 20,309 metric tons.

Data on plastic waste generated from other sectors and the treatment of waste electrical and electronic equipment (WEEE), end-of-life vehicles (ELVs), and construction and demolition activities are not available. Personal communications with representatives from these sectors suggest that most plastics from these sources eventually end up in open dumps throughout the country as mentioned earlier. However, BAP Waste Management, an e-waste recycler in Suriname, stated that they shred and store plastics from WEEE after disassembling and export these in big bags. They estimate that an average of 1.5 tons of WEEE plastic from their operations is exported annually.

Data on the amount of plastic waste generated from hospitals and laboratories is also not available, however it is noteworthy that this plastic waste is considered biohazardous waste and destroyed by means of mainly incineration.

Plastic wastes containing mercury or other hazardous substances, are assumed to be discarded at landfills.

Both Amreco NV and Green Circle Recycling reported that they do not accept plastics from the treatment of ELVs, indicating that these plastics also end up in dumps. Smaller scrap collectors confirmed this and mentioned that they remove all plastics from ELVs because scrap dealers only want metals, resulting in the residual plastics being dumped.

7.2 Recommendations regarding plastic waste identification and inventories

Recommendations done by stakeholders during the consultations regarding identification and inventories were:

1. Establish national guidelines for plastic waste recording for different sectors e.g. formats for units, periods and other reporting requirements.
2. Establish a national database, including the organization, formats and other requirements. This database should be accessible to all.
3. Establish guidelines and procedures for registering data from the plastic production sector.

8 Module F Handling, separation, collection, packaging, compaction, transportation and storage

Treating, separating, collecting, packaging, compacting, transporting, and storing plastic waste are crucial aspects of its management. This contributes to preventing plastic leakage into the environment. Procedures and processes must be considered for these activities, both for hazardous and non-hazardous plastic waste, to prevent wastage and leakage. This can occur, for example, due to wind, which can lead to worker exposure, emissions to the environment, or community exposure.

8.1 Current situation regarding handling, separation, collection, packaging, compaction, transportation and storage

Current practices regarding plastic waste handling, separation, collection, packaging, compaction, transportation and storage as related to the technical guidelines are presented in the table below.

Table 5 Current situation regarding handling, separation, collection, packaging, compaction, transportation and storage

Management elements	Current situation
Handling	Recycling companies have established health and safety plans and provide personnel with necessary personal protective equipment (PPE) including earplugs, safety shoes, gloves, face masks, and safety glasses. However, they recognize the need to update these plans and enforce stricter adherence rules for personnel. Personnel also receive safety training and training in the usage of machinery such as compacters and shredders. Forklifts are also available at recycling facilities for handling big bags and heavy loads. Companies mentioned earlier require permits in which safety and environmental requirements are included. They stated that they are at least once per year inspected by the NMA, the Ministry of Labor, or representatives (board supervisors) of the Districts Commissioners Office for compliance. Concerns about heatstroke were raised, particularly during the extended dry season lasting nearly seven months. Compliance with wearing face masks and safety glasses was reported to be inconsistent due to health risks posed by extreme heat.
Separation	Plastic waste is sorted at the source, either at the household or organizational level. Only sorted waste is collected by recycling companies or accepted at recycling facilities and various containers across the country. Different plastic products made from various polymers are not sorted and collected separately initially; this sorting is done at the recycling companies. Separation is done manually at the recycling facilities, which can be very time-consuming. However, the recycling companies will not be investing in advanced automatic sorting sensor lines, because this is not cost-effective considering the volumes of plastic waste received. However, clean plastic waste (including pre-consumer and plastic wraps) is separated from post-consumer plastic waste due to its higher value. Waste pickers at the landfill also separate plastic wastes from other waste types, however this is minimal, as they rather focus on metals for which are more valuable.

Management elements	Current situation
Collection	Recycling companies either collect the separated plastic waste themselves or outsource this service. They have collection programs in place, clustering clients by areas to improve efficiency, however collection costs are the highest costs in plastic waste management. Collection methods include door-to-door services, designated recycling containers (curbside collection), and drop-off options at recycling facilities. There are no deposit and return systems in place. Plastic waste from the agricultural sector is collected door-to-door or dropped off, but there are costs associated with the collection and treatment of this type of waste. Companies and organizations also pay for the collection and, in some cases, the processing of their plastic waste.
Packaging	Separated plastic waste is commonly transported in big bags or other garbage bags (clear or colored). The standards developed, however, do state that clear waste bags should be used with labels.
Compaction/shredding	Shredders and compactors are both used at recycling facilities. Installations are done in compliance with the requirements of the Ministry of Labor.
Transportation	Shredded plastic waste is commonly transported in big bags. Baled forms are strapped, sometimes with support of cardboard and transported in baled form.
Storage	Shredded plastic waste is typically stored indoors in large bags, while baled plastic waste is stored both indoors and outdoors. Outdoor-stored plastic waste is not covered. Recyclers stated that the baled plastic is stored outside until shipment is ready and that they are not stored outdoors for extended periods.

Requirements regarding handling, separation, collection, packaging, compaction, transportation and storage of the technical guidelines are met to some extent, however there is room for improvement in separation and collection. Due to the large volumes and vastness of Suriname, curbside collection initiatives can promise a more cost-effective solution rather than door to door collection.

8.2 Recommendations for handling, separation, collection, packaging, compaction, transportation and storage

Recommendations for improving the handling, separation, collection, packaging, compaction, transportation and storage include:

1. Promotion of curbside collection and drop – off options, to reduce collection costs.
2. Continuous education and awareness about plastic waste recycling options and how to sort waste properly. The latter forms a challenge as waste is oftentimes not sorted properly and either takes time to sort at the facilities or must be dumped at the landfill due to contamination.
3. Financial support from the government with regards to collection, awareness and tax exemptions.
4. Guidelines and guidance from NMA and other regulators, so that companies can comply with requirements.

9 Module G Environmentally sound disposal

In terms of plastic waste management, the waste management hierarchy prioritizes prevention, minimization, reuse, and recycling over other recovery operations and final disposal methods. With recycling being the most applied technology in the Caribbean, the technical guidelines address adequate and environmentally sound recycling methods such as mechanical, solvent-based and chemical recycling, and accompanied processes.

9.1 Current disposal methods

An average of only 3% of plastic waste is recycled in Suriname (ILACO NV & Royal Haskoning DHV, 2018), resulting in the remaining 97% being dumped at landfills or in the environment, burnt or buried.

The recycling practices at recycling companies in Suriname are mechanical and processes are as described below:

1. Collection/delivery of presorted plastic waste – storage – manual sorting of plastic waste by polymer (e.g. PET, HDPE, LDPE, PE, PVC) – shredding or compacting of sorted waste – storage of shredded plastic and bales – shipment abroad (to either European or Asian markets) for further processing.
2. Collection/delivery of clean plastic wraps – storage – manual sorting and removal of contaminated waste – processing into pellets (pelletizing) – processing pellets into garbage bags – packaging - storage and distribution/sales.
   *Recycling companies, as stated before, also have HSE plans in place for their operations.

Recycling companies do not make use of chemical or solvent-based recycling methods, neither do they wash, clean or dry received or processed plastic waste.

Shredded plastic waste and in baled form are exported to different countries for further processing. Recycling companies have stated that they do not export hazardous plastic waste types.

The recycling companies also stated that they do not accept any hazardous waste types for recycling. PVC is accepted by Amreco NV; however, this is not processed and is being stored until adequate processing options are available. They also do not accept waste types that require dismantling/dissembling such as electronic devices. Systems and procedures/guidelines for the ESM of hazardous plastic waste and its transboundary movement needs to be considered.

Plastic waste that is contaminated or has deteriorated due to exposure to environmental factors such as health hazards and rain becomes unrecyclable and must be separated. This non-recyclable plastic waste is then disposed of in landfills.

Recycling capacities for plastic are:

Table 6 Overview of recycling capacities in Suriname

Company	Capacity
Amreco NV	10 tons per day
Green Circle Recycling NV	6 tons per day
Clear Packaging and Recycling NV	3 tons per day

These capacities are underutilized by at least 70% due to limited plastic waste feedstock.

Challenges faced by recycling companies are:

1. Limited support from the government.
2. Difficulties/challenges at customs for export of waste materials.
3. No regulations from the government and NMA.
4. Restrictions of the Basel Convention to ship waste and limited facilitation from the government.
5. Processing: Currently, plastic waste processing in Suriname relies heavily on manual labor. This labor-intensive approach contributes to higher costs.
6. Transportation: Suriname's vastness, coupled with limited infrastructure and a lack of transfer stations, poses significant challenges for transporting large volumes of lightweight plastic waste. The costs associated with such transportation are regarded as the highest.

While recycling companies in Suriname mostly focus on the actual collection and recycling of plastic waste, the NGOs and government invest in related research and awareness programs. An overview of current recycling initiatives is presented in the table below.

Table 7 Overview of current recycling programs in Suriname

Organization	Project description / activities	Status
Ministry of Spatial Planning and Environment (ROM), Directorate for the Environment	Koni Doti project in resort Blauwgrond of Paramaribo, focused on awareness, segregation and collection of plastics at a household level. Krin Birtie Project in the districts Paramaribo, Commewijne, Saramacca and Nickerie also focusing on the promotion of plastic recycling	On-going
SUWAMA	Awareness activities / campaigns country wide	On-going
SURESUR	Awareness activities country wide Installation of more than 115 recycling	On-going

Organization	Project description / activities	Status
	containers for collection of plastic waste in the districts nationwide. Collection of recyclable plastic waste.	
Green Heritage Fund	PROMAR, Prevention of Marine Litter project, focusing on collection of waste data, pilot interventions for preventing marine litter, feasibility for EPR systems and awareness	On-going
Rotary Suriname	Greener Together Project at high schools also promoted recycling via awareness and provision of recycle containers	Completed (Phase 1), recycling activities are on-going. Phase 2 in preparation
Fernandes Bottling Company N.V.	Support for awareness activities and recyclable plastic collection	On-going

9.3 Recommendations for the environmentally sound disposal of plastic waste

Regarding the environmentally sound disposal of plastic waste, stakeholders recommended the following:

1. Financial support for recycling companies from the government in the form of tax exemptions and reduction in electricity and water bills, hereby creating a supportive and more appealing environment for recycling companies and future investments. The government should also offer support and facilitation to meet the requirements of the Basel Convention.
2. Expand recycling capacity nationwide.
3. Establishment of a waste fund to which plastic producers and importers contribute, so that the recycling of plastic waste becomes a shared effort and responsibility. The fund can be allocated to especially awareness raising, collection containers and transportation costs.
4. Establishment of transfer stations throughout the country, at which volumes of plastic waste can be reduced, easing transportation costs.
5. The government should introduce incentives for companies engaged in recycling to keep them motivated and encourage more businesses to adopt recycling practices.
6. Enact legislation to support recycling initiatives.

10 Module J Awareness and participation

According to the Technical Guidelines, it is essential that the public and all stakeholder groups have the opportunity to participate in policy development regarding plastic waste, program planning, legislation development, document and data assessment, and decision-making on local issues related to plastic waste. All layers of society should be continuously informed and made aware of the environment in general and the dangers of mismanagement of plastic waste on our health. This is especially important because awareness leads to improved participation in adequate plastic waste management practices.

10.1 Awareness and participation

Efforts by both the government and the private sector to involve and consult the community in decision-making regarding the ESM of plastic waste have led to increased public participation. Relevant stakeholders and communities are actively engaged in policy development, planning, and decision-making processes related to plastic waste management. Nonetheless, stakeholders have noted that progress in ESM of plastic waste is slow and has remained more or less the same in the past 10 years, which could lead to a decrease in participation.

Public awareness and educational campaigns on plastic waste are predominantly driven by NGOs. Tables 3 and 7 outline the comprehensive range of awareness initiatives nationwide. Social media platforms such as Facebook and Instagram, alongside television infomercials and radio programs, effectively disseminate information to the community in the coastal districts. In the rural districts and hinterland, access to educational campaigns becomes less available. NGOs, in collaboration with the Ministry of Education, Science, and Culture (MinOWC), also provide recycling education in primary schools, promoting waste sorting and recycling practices.

While public awareness efforts have made the community more conscious of the impacts of plastic pollution and the possibilities for recycling, they have not led to significant changes in behaviour and stakeholders recommended measures such as fines for littering and continued impactful awareness. Littering remains a challenge in all districts, and recycling rates are low, partly due to the limited number of recycling facilities throughout the country.

All stakeholders consulted agreed that effective awareness-raising is crucial. However, it is important to note that awareness-raising should be complemented by increased recycling opportunities.

10.2 Recommendations regarding awareness and participation

Stakeholders recommended the following to increase awareness and participation:

1. Awareness should be continuous and effective, leading to actual observable behavioural change. To this end an awareness program needs to be developed and implemented, considering all groups to be reached, languages and effective mediums.
2. Fines should be considered for polluters.
3. The lessons learned from the Koni-Doti project regarding awareness should be considered in any expansion efforts. These include using a different approach of awareness in residential areas considering density of housing to meet targets (instead of door to door), utilizing government owned/operated media channels, making sure the older residents are reached, as they do not always make use of social media for example.
4. Awareness should start at the youngest age possible at primary schools.

11 Gap Analysis of existing plastic waste management practices in Suriname against the Technical Guidelines

The table below provides a gap-analysis of existing plastic waste management practices in Suriname against the Technical Guidelines.

Table 8 Gap Analysis of plastic waste management practices against the Technical Guidelines

Module	Target state	Current state	Gap
B. Legislative and Regulatory Framework	✓ National and subnational strategies, policies, controls, standards, and procedures are in place specific for the ESM of plastic waste in compliance with the convention ✓ National legislation that operationalizes the ESM of plastic waste in compliance with the convention is in place and includes: o requirements for protection of human health and the environment at the recycling facilities o monitoring systems for inspections at recycling facilities and penalties for violations regarding ESM of plastic waste o environmentally friendly standards/requirements for collecting, transporting, storing, and disposing of	✓ Available Environmental Framework Act of 2020 covering environmental protection and waste management in general ✓ Health and safety standards and guidelines are available for the collection and transport of segregated waste types, such as plastic (component 9 Guidelines for collection of segregated waste) ✓ Legislation available for the protection of human health in general (Safety Act of 1947) ✓ Legislation in place for penalties for dumping waste in the environment (Criminal Law Act 1990) ✓ Permits required for recycling facilities include health, safety and environmental requirements (Hindrance Act 1972) ✓ ESIA required for recycling facilities (NMA)	✓ Absence of national or subnational legislation, policies and controls for the ESM of plastic waste specifically ✓ Enforcement of existing laws limited to absent ✓ No enforcement of health and safety standards and guidelines (component 9 Guidelines for collection of segregated waste) ✓ Monitoring/inspection systems and capacities for compliance with requirements of the authorities are limited to absent ✓ Absence of environmental policy or standards for collecting, transporting, storing, and disposing of plastic waste

Module	Target state	Current state	Gap
	plastic waste ✓ ESIA and permit requirements for recycling facilities are in place ✓ Reporting requirements to authorities	✓ Decrees in development for littering ✓ No reporting requirements ✓ Limited inspections conducted by authorities ✓ Recycling and plastic waste minimization efforts are dependent on the willingness of households, companies/organizations and schools to do so.	✓ Outdated legislation regarding penalties.
C. Waste Prevention and Minimization	✓ Waste prevention preferred option in waste management policy ✓ Policy instruments/measures (regulatory, market-based, information-based and voluntary) for reducing the generation of plastic waste both hazardous and non-hazardous to a minimum	✓ Approach of ROM is based on 5Rs approach and circular economy, in which prevention given priority and the government aims to systematically ban SUPs (Policy note of 2020 and Framework for the IWMP for Suriname 2019) ✓ Ban on Styrofoam for the warm food chain in 2019. ✓ Availability of information-based and voluntary measures for plastic waste prevention and minimization from the private sector.	✓ Absence of official plastic waste prevention/minimization policy and instruments ✓ Absence of specific plans for plastic waste prevention ✓ No distinguishment between hazardous and non-hazardous plastic wastes
D. Identification and inventories	✓ Identification of sources of plastic waste generation and quantification of amounts of plastic wastes generated, both hazardous and non-hazardous ✓ Data registry	✓ Registry of weight/volumes of dump trucks visiting the landfills ✓ Data collection on a project-by project basis	✓ Lack of an organized or continuous data collection or monitoring system for plastic waste (both hazardous and non-hazardous), and therefore limited plastic data availability. ✓ No distinguishment between hazardous and non-hazardous

Module	Target state	Current state	Gap
			plastic wastes ✓ No data registry system available for plastic waste from different sectors
F. Handling, separation, collection, packaging, compaction, transportation and storage	✓ Procedures and processes for plastic waste handling, separation, collection, packaging, compaction, transportation and storage, including: o Health and safety plans and provisions (PPE and signs) o Installation of equipment at recycling facilities should ensure safety and health of personnel o Forklifts or other arrangements for moving heavy loads o Source separation of plastic waste o Collection programs o Separating and extracting plastic wasted from other waste streams o Properly packed and labeled waste for transport and storage	✓ Permits required for recycling facilities include health, safety and environmental requirements (Hindrance Act 1972) ✓ Health and safety standards and guidelines are available for the collection and transport of segregated waste types, such as plastic (component 9 Guidelines for collection of segregated waste) ✓ Recycling facilities have in place plans and procedures for the health and safety of personnel, however, there require updates ✓ Forklifts and other equipment available for heavy loads at recycling facilities ✓ Only plastic waste that has been segregated at the source is collected and accepted by and at recycling facilities ✓ Collection programs available for Blauwgrond and for households/companies/organizations that choose to recycle ✓ Processed plastic waste shredded or baled) are packed in primarily big	✓ Lack of systems and capacity for monitoring and inspecting compliance with requirements of authorities at recycling facilities and the informal sector ✓ No enforcement of health and safety standards and guidelines (component 9 Guidelines for collection of segregated waste) ✓ No separating and extracting plastic waste from other waste streams, leading to leakages of plastic waste to the landfills or otherwise ✓ Outdated health and safety plans at recycling facilities

Module	Target state	Current state	Gap
		bags for storage ✓ Plastic waste is primarily transported in garbage bags (clear and colored) and big bags to recycling facilities. Labeling systems are not used	
G. Environmentally Sound Disposal	✓ Environmentally sound disposal of plastic waste: recycling and recovery ✓ Measures to prevent impacts on human health by creating appropriate working conditions and providing training ✓ Measures to prevent impacts on the environment	✓ 3% of plastic waste is recycled in an environmentally sound manner ✓ Permits required for recycling facilities include health, safety and environmental requirements (Hindrance Act 1972). Recycling companies have health and safety plans in place for protecting health ✓ Measures are put in place accordingly to protect the environment	✓ No policies or guidelines for the environmentally sound disposal of plastic waste available ✓ Lack of official and sufficient recycling options nationwide ✓ Outdated health and safety plans at recycling facilities ✓ Lack of systems and capacity for monitoring and inspecting compliance with requirements of authorities at recycling facilities
J. Awareness and participation	✓ Public sector involvement ✓ Awareness and educational programs and campaigns	✓ Public sector involved and consulted in projects, planning, decision-making, policy development regarding plastic waste management ✓ Availability of project-based awareness and educational programs and campaigns via NGOs in especially coastal districts	✓ Limitations in awareness and educational outreach to rural areas and the hinterland ✓ No continuous or official awareness programs ✓ Impact of awareness strategies on behavioural change limited

12 Recommendations for Addressing Barriers to Effective Plastic Waste Management in Suriname

Recommendations for enabling effective plastic waste management as presented in this chapter are based on:

1. Addressing the key findings and recommendations from the consultations with stakeholders. These also include barriers such as financial support.
2. Addressing the gaps identified during the assessment for the achievement of the BAT/BEP management of plastic.
3. Integrating the 5Rs approach of ROM and the three actions of the 'Circular Economy for Plastics Framework' (Schroder et al., 2020) as much as possible.

The recommended actions are presented in the table below per module and have been prioritized as:

1. High priority: actions that are critical and need immediate attention. These have a significant impact on the overall ESM of plastic waste in Suriname if not addressed promptly.
2. Medium priority: actions that are important but not as time-sensitive as high-priority items. These should be addressed after high-priority tasks are completed and have medium impacts on the ESM of plastic waste.
3. Low priority: actions that are less critical and can be addressed later. These have minimal impact on the ESM of plastic waste.

Table 9 Recommended actions for the ESM of plastic waste in Suriname

Module	Gaps from the assessment	Recommended actions for bridging the gaps and as recommended by stakeholders	Priority
B. Legislative and Regulatory Framework	✓ Absence of national or subnational legislation, policies and controls for the ESM of plastic waste specifically ✓ Enforcement of existing laws limited to absent ✓ No enforcement of health and safety standards and guidelines (component 9 Guidelines for collection of segregated waste) ✓ Monitoring/inspection systems and capacities for compliance with requirements of the authorities are limited to absent ✓ Absence of environmental policy or standards for collecting, transporting, storing, and disposing of plastic waste ✓ Outdated legislation regarding penalties.	✓ Develop national or subnational legislation for ESM of plastic waste with a focus on circular economy approach: Draft and implement comprehensive legislation focused on the environmentally sound management (ESM) of plastic waste and ensure recommended aspects as presented in figure 3 are included in legislation as well as robust monitoring mechanisms and distinguishment between hazardous and non-hazardous plastic waste types. ✓ Develop and include environmental policies and standards for plastic waste management (collection, transportation, storage, and disposal of plastic waste) in for e.g. component 9 Guidelines for collection of segregated waste ✓ Develop a legal instrument requiring companies to report information in the centralized system recommended ✓ Update outdated legislation to include stricter penalties for non-compliance with health, safety and environmental regulations. ✓ Strengthen institutional arrangements for enforcement of updated and existing laws ✓ Implement/enforce health and safety standards for waste management as outlined	High

Module	Gaps from the assessment	Recommended actions for bridging the gaps and as recommended by stakeholders	Priority
		in component 9 of the guidelines and the Safety Act of 1947 ✓ Enhance monitoring and inspection systems: Establish robust monitoring and inspection systems to ensure compliance with environmental regulations. This includes regular inspections, reporting mechanisms, and compliance checks ✓ Update, approve and enforce Waste Act of 2007 ✓ Provide education and guidance. Providing information and support to help the community understand and comply with the legislation ✓ Introduce an eco-tax system and tax exemptions for recycling companies	
C. Waste Prevention and Minimization	✓ Absence of official plastic waste prevention/minimization policy and instruments for both hazardous and non-hazardous plastic waste ✓ Absence of specific plans for plastic waste prevention	✓ Formulate and implement national plastic waste policy focused on preventing and minimizing plastic waste ✓ Develop comprehensive plans for plastic waste prevention, including the phased elimination or banning of certain plastic types. These plans should be detailed, actionable, and tailored to specific sectors to effectively minimize and reduce plastic waste. Additionally, they should incorporate robust monitoring systems to ensure compliance and measure progress of bans and the reduction of plastic types	Medium

Module	Gaps from the assessment	Recommended actions for bridging the gaps and as recommended by stakeholders	Priority
		✓ Promote and sustain sector involvement when developing policies and plans and provide education and guidance to help the community understand and comply with policies. ✓ Develop and promote market-based, information-based and voluntary policy instruments to minimize and prevent plastic waste.	
D. Identification and inventories	✓ Lack of an organized or continuous data collection or monitoring system for plastic waste (both hazardous and non-hazardous), and therefore limited plastic data availability ✓ No data registry system available for plastic waste from different sectors	✓ Establish a structured data collection and monitoring system for plastic and its waste, both hazardous and non-hazardous. A systematic approach should be developed and implemented for the continuous collection and monitoring of data on: 1. Plastic waste generation across different sectors. Waste audits can serve as an effective tool in this process. 2. Plastic import, export, and local production. ABS, Customs office and the local government can play a crucial role in this. 3. Plastic waste recycling The system should incorporate safeguards to prevent double counting or duplicate registrations. ✓ Develop sector-specific guidelines for reporting on plastic waste, imports/exports and local production. Develop reporting guidelines for recycling facilities: This involves establishing standardized formats for units, reporting periods, and other requirements, customized to the needs	High

Module	Gaps from the assessment	Recommended actions for bridging the gaps and as recommended by stakeholders	Priority
		of each sector. ✓ Create a centralized data registry system for the data collected: Establish a system to collect and store data on plastic imports/exports, local production, plastic waste generated by sector, and recycling rates.	
F. Handling, separation, collection, packaging, compaction, transportation and storage	✓ Lack of systems and capacity for monitoring and inspecting compliance with requirements of authorities at recycling facilities ✓ No enforcement of health and safety standards and guidelines (component 9 Guidelines for collection of segregated waste) ✓ No separating and extracting plastic waste from other waste streams, leading to leakages of plastic waste to the landfills or otherwise ✓ Outdated health and safety plans at recycling facilities.	✓ Enhance monitoring and inspection systems at recycling facilities. To this end develop a robust system and build capacity for regular monitoring and inspection of recycling facilities to ensure compliance with regulatory requirements. ✓ Map out the various recyclers in the informal sector who recycle plastic waste or recover plastic from other waste streams and identify solutions to support and integrate them into formal waste management systems. ✓ Enforce health and safety standards and guidelines. Implement and strictly enforce health and safety standards and guidelines as outlined in component 9 of the guidelines and the Safety Act of 1947. Require recycling facilities to regularly review and update their health and safety plans to reflect current best practices and regulatory requirements. ✓ Establish systems for separating and extracting plastic waste from other waste streams at the source and during processing, hereby preventing plastic waste leakage to landfills and the environment, promoting higher recycling rates	Medium

Module	Gaps from the assessment	Recommended actions for bridging the gaps and as recommended by stakeholders	Priority
		and better resource utilization ✓ Introduce EPR systems and waste funds and allocated funds to manage awareness, collection and treatment of plastic wastes ✓ With regards to collection: Promotion of curbside collection and drop – off option, to reduce collection costs ✓ Provide education and guidance. Providing information and support to help the recycling companies to understand and comply with legislation ✓ Provide training and capacity building for recycling facility staff on health, safety, and environmental management practices. ✓ Promote/stimulate private sector (especially young entrepreneurs) initiatives focusing on the production of finished products from plastic waste.	
G. Environmentally Sound Disposal	✓ No policies or guidelines for the environmentally sound disposal of hazardous and non-hazardous plastic waste available ✓ Lack of official and sufficient recycling options nationwide ✓ Outdated health and safety plans at recycling facilities ✓ Lack of systems and capacity for monitoring and inspecting compliance with requirements of authorities at recycling	✓ Develop policies or guidelines for the ESM of plastic waste. ✓ Expand and formalize recycling options and capacities nationally considering differences in environmental and social context throughout the country. ✓ Enforce health and safety standards and guidelines. Implement and strictly enforce health and safety standards and guidelines as outlined in component 9 of the guidelines and the Safety Act of 1947. Require recycling facilities to regularly	Medium

Module	Gaps from the assessment	Recommended actions for bridging the gaps and as recommended by stakeholders	Priority
	facilities	review and update their health and safety plans to reflect current best practices and regulatory requirements. ✓ Establish guidelines and procedures for the collection, extraction, packaging, storage, and treatment of hazardous plastic waste, including its transboundary movement: Additionally, engage and educate recyclers on these guidelines to ensure proper handling and compliance. ✓ Map out the various recyclers in the informal sector who recycle plastic waste or recover plastic from other waste streams and identify solutions to support and integrate them into formal waste management systems. ✓ Financial support for recycling companies in the form of tax exemptions and reduction in electricity and water bills, hereby creating a supportive and more appealing environment for recycling companies and future investments. ✓ Establishment of a waste fund to which plastic producers and importers contribute, so that the recycling of plastic waste becomes a shared effort and responsibility. The fund can be allocated to especially awareness raising, collection containers and transportation costs. ✓ Establishment of transfer stations throughout the country, at which volumes of plastic waste can be reduced, easing transportation costs.	

Module	Gaps from the assessment	Recommended actions for bridging the gaps and as recommended by stakeholders	Priority
J. Awareness and participation	✓ Limitations in awareness and educational outreach to rural areas and the hinterland ✓ No continuous or official awareness programs ✓ Impact of awareness strategies on behavioural change limited	✓ Expand awareness campaigns to rural areas and the hinterland. Develop targeted awareness campaigns tailored to rural communities and hinterland areas, addressing specific challenges and cultural contexts. ✓ Establish continuous and official awareness programs e.g. official awareness programs that operate continuously throughout the year, utilizing multiple communication channels. ✓ Enhance effectiveness of awareness strategies. Evaluate and enhance awareness strategies through research and feedback mechanisms to understand their impact on behavioural change. ✓ Collaborate with NGOs and other potential partners already engaged in awareness.	High

13 To conclude

1. **Urgent need for legislative reform**: Suriname lacks comprehensive laws to address the environmentally sound management (ESM) of plastic waste. Current laws are outdated and insufficient, particularly in regulating hazardous and non-hazardous plastic waste. Developing clear legislation, alongside enforcement mechanisms, is critical for advancing plastic waste management.
2. **Private sector plays a key role in recycling**: While the government's involvement in plastic waste management is minimal, private sector initiatives have driven the country's recycling efforts. Expanding governmental support and integrating these private initiatives into formal waste management systems can significantly improve outcomes.
3. **Data collection and monitoring are weak**: The absence of structured systems for data collection on plastic waste, imports, exports, and production hampers effective waste management planning and policy development. Establishing organized data collection and monitoring systems is essential for informed decision-making.
4. **Public awareness is limited**: Public awareness and education on plastic waste management are lacking, particularly in rural areas. Continuous, nationwide awareness campaigns are needed to foster behavioral change and public participation in waste reduction and recycling efforts.
5. **Circular economy potential**: Suriname's efforts to phase out single-use plastics and promote the 5Rs (refuse, reduce, reuse, repurpose, recycle) suggest a growing focus on adopting circular economy principles. Strengthening policies around waste minimization can accelerate the shift towards the sustainable and ESM of plastic waste.
6. **Recycling potential:** Expansion of current recycling initiatives (Koni-Doti, Krin Birti) from the governments end, along with supporting recycling initiatives and industries through incentives, and the introduction of EPR/return schemes or a plastic waste fund, can also accelerate the shift towards sustainable plastic waste management.

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Appendix 1 Overview of participating stakeholders

#	ORGANIZATION/ COMPANY	CONTACT PERSON	CONTACT NUMBER	E-MAIL ADDRESS
GOVERNMENT & SEMI GOVERNMENT				
1	Ministry of Public Works and Wastemanagement department	Ms. Saskia Chote Mr. Soeratmin Moestadja	430050	openbaargroencnv@gmail.com saskia.chote@gmail.com smoes52@yahoo.com
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3	The Ministry of Agriculture, Animal Husbandry and fisheries (LVV)	Ms. Alies Sauers Mr. Eyvan Amatmoekrim Ms. Shemiem Modiwirijo	8863814 7156026 8654335	aliesmuller@yahoo.com evyan-amat@outlook.com shemiem_84@yahoo.com
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7	DC Nickerie	Ms. Senrita Gobardhan (DC)	231448 / 231 712	comnickerie@hotmail.com comnickerie@gmail.com
8	DC Para	Ms. Marlene Joden (DC) Ms. Kago (Head MGD)	872 4554 / 352109 / 352090 8744407	secretariaat.dc.para@outlook.com lidiakagoj@gmail.com
9	DC Boven Suriname	Mr. Frits Dinge (DC) Mr. Igene Mai (Ressort leader)	8513652	frits.dinge@gmail.com igenemai@gmai.com
10	Districtscommisaris Marowijne Noord-Oost (DC) (Albina)	Mr. Clyde Hunswijk (DC) Ms. Pinas (BBR Department)	8203914	pinasjowintinie@gmail.com

11	Districtscommisaris Marowijne Zuid-West (DC) (Moengo)	Ms. Olivia Dominie (DC) Mr. Thomas (Head MGD department)	0341831 / 0341825/ 8580597	
12	DC Coronie	Mr. Maikel Winter Ms. Margriet Lugard (Secretary DC)	235129 / 8922385 8501989	secretariaatcoronie@hotmail.com lugardmar82@gmail.com
13	Ministry of Spatial Planning and Environment	Mr. Kawiesh Debisarun Mr. Nasser Rodjan	522021	secdir.milieu@rom.gov.sr ritesh.sardjoe@gov.sr nasserrodjan@gmail.com kawiesh2@gmail.com
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15	General Statistics Bureau (ABS)		471543 / 474861 / 473650/473737	pr@statistics-suriname.org info@statistics-suriname.org
16	NMA	Mr. Donovan Bogor		dbogor@nimos.org
RECYCLING COMPANIES (FORMAL AND INFORMAL SECTORS)				
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18	Amreco	Mr. Iwan Hasnoe	597-8819333	iwanhasnoe@gmail.com
19	Samie's Scrap Yard		366520	
20	BAP Waste Management	Mr. Bjorn Pang Atjok	8727638	
PLASTIC MANUFACTURERS/PRODUCERS				
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23	Fernandes Bottling NV	Ms. Ayida Slooten	8835027	ayida.slooten@fernandes.sr
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Appendix 2 General concept note

TESTING OF GUIDANCE ON DEVELOPMENT OF PLASTIC WASTE INVENTORIES AND TESTING THE TECHNICAL GUIDELINES ON THE ENVIRONMENTALLY SOUND MANAGEMENT OF PLASTIC WASTE

Concept note

INTRODUCTION

The project **"Testing of Guidance on Development of Plastic Waste Inventories and Testing the Technical Guidelines on the Environmentally Sound Management (ESM) of Plastic Waste"** has been initiated by BCRC-Caribbean and is being implemented in Suriname by the Suriname Waste Management Foundation (SUWAMA), which was appointed as the National Technical Team (NTT) in January 2024. The project commenced in February 2024 and aims to:

1. Develop a national inventory of plastic waste for Suriname using the "Production Lifespan Methodology (PLM)" toolkit developed by the Basel, Rotterdam, and Stockholm (BRS) Secretariat. Statistics on the import and export of plastic, as well as local production data of plastic, will be used as input for developing the plastic waste inventory. The goal of the inventory is to gain insight into the quantities and types of plastic waste generated in Suriname, enabling the development of appropriate management measures.
2. Evaluate the status and applicability of the technical guidelines developed for the environmentally sound management of plastic waste, as adopted at the Conference of the Parties to the Basel Convention (COP-16), in Suriname. The Surinamese government has selected modules of the Technical Guidelines based on our national situation and priorities for improving plastic waste management. It has been decided to test modules B, C, D, F, G, and J, which focus on legal and regulatory frameworks, waste prevention, identification and inventory, processing, collection, transportation, and public awareness and participation. Shortcomings identified from the evaluation will also be used to make recommendations for improving plastic waste management in Suriname.

As a result, consultations with various key stakeholders will be organized in March and April 2024.
You have been identified as a key informant in this regard, and this concept note provides background information on the project, the specific questions the NTT aims to address through the consultations (interviews), and the output of the consultations.

PROJECT BACKGROUND

Plastic is a widely used material made from fossil fuels that has a significant impact on the environment. Since the 1950s, plastic production has dramatically increased, reaching 359 million metric tons in 2018. Despite their widespread use in various industries, many plastic products have a short lifespan, yet it can take up to 400 years for them to fully decompose in the environment. This has led to the accumulation of over 400,000 metric tons of plastic waste per year worldwide, with at least 8 million metric tons ending up in the ocean from land sources each year, posing a threat to marine life and coastal communities such as Suriname.

To address these challenges, the Basel Convention on the "Control of Transboundary Movements of Hazardous Wastes and their Disposal" has implemented various instruments, including the "Plastic Waste Partnership" and the "Technical Guidelines for the Environmentally Sound Management of Plastic Waste (the Technical Guidelines)." These guidelines, first published in 2002 and updated in 2019, consist of ten modules aimed at assisting countries in controlling the generation of plastic waste and effectively managing it.

As part of the Basel Convention's Work Program, the BRS Secretariat collaborates with Regional Centers of the Basel Convention (BCRCs) in the Caribbean, China, and Slovakia to demonstrate the applicability of the Technical Guidelines in various regions. Specifically, the BCRC-Caribbean, with support from the Secretariat, is carrying out this project called 'testing of guidance on development of plastic waste inventories and testing the technical guidelines on the environmentally sound management of plastic waste' in three Caribbean countries: Antigua and Barbuda, Saint Lucia, and Suriname.

CONSULTATION QUESTIONS

The consultations will take place in the form of interviews, with the associated questions included in this section of the note.

General:

1. What is the role of your organization in managing plastic or plastic waste in Suriname?
2. Do you consider plastic and/or plastic waste to be a problem in Suriname?
3. There are various sectors that produce plastic waste as presented in the table. Which do you believe pose a problem in Suriname? (more options possible)

Sectors	Form a problem				
	Strongly agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
Transportation: Plastic vehicle components, dashboards, coating, bumpers					
Packaging: Plastic bottles, plastic wraps, plastic food containers					
Building and construction: Plastic pipes, window frames, ceiling, floors					
Electrical/electronic: Plastic components in computers, keyboards, refrigerators, washing machines					
Consumer and institutional products: Toys, kitchen ware, bins made from (or partially) of plastic components					
Industrial machinery: Plastic seals, conveyors, insulation					
Textiles: Synthetic fibers and fabrics made from plastic materials such as polyester and nylon					
Other:					
Other:					

4. Has your organization executed projects related to plastic or plastic waste management? If yes, which ones?
5. Are there any projects related to plastic or plastic waste in the pipeline?
6. Does your organization contribute to policy development aimed at managing plastic or plastic waste? If yes, in what way?

Questions related to Module B – Legislative and regulatory framework:

Parties to the Basel Convention must review their national and subnational strategies, policies, controls, standards, and procedures to ensure compliance with the convention. Environmental protection legislation is crucial in this regard, as it outlines the authorities and rights for the environmentally sound management of plastic waste. It is important that this legislation emphasizes both the protection of human health and the environment. Governments should be able to establish and enforce specific rules and regulations for environmentally sound management of plastic waste, including inspections and penalties for violations. The legislation

should also ensure careful monitoring of facilities where plastic waste is deposited, such as recycling centers, to ensure safety for both humans and the environment. Furthermore, the legislation should require all involved parties, such as collectors, transporters, and recyclers, to comply with environmentally friendly standards when collecting, transporting, storing, and disposing of plastic waste. It is important that legislation complies with national obligations under international treaties such as the Basel and Stockholm Conventions and adheres to international guidelines for environmentally sound management.

Questions:

1. Is the management of plastic waste in our environmental framework adequately aligned with the requirements of the Basel Convention as described above? If not, what are the deficiencies?
2. Are you aware of any other current or planned legislation/policies addressing the environmentally friendly management of plastic waste in accordance with the requirements of the convention?
3. Has your organization proposed/developed any initiatives to address the management of plastic waste? If yes, which ones and are they aligned with the requirements of the convention?
4. On which aspects of legislation should the government focus? See the table below and check the aspects you consider important (multiple choices are allowed).

Aspects	**Check if cosidered important**
Environmental protection and human rights	
Permit application for plastic waste processors: impact assessment	
Awareness raising	
Citizen participation in decision-making	
Authorities and responsibilities	
Environmentally friendly management	
Regulations and procedures for collection, transport, storage, and processing	
Safety requirements for personnel of processing facilities	
Control/inspections for recycling facilities	
Identifying and involving relevant stakeholders/actors	
International obligations	
Sanctions (polluters) or reward systems	
Plastic product policies to support recycling, such as an EPR (Extended Producer Responsibility) system	
Plastic prevention and reduction procedures	
Other	
Other	

5. Who do you believe should be held responsible for plastic waste? The consumer or the producer? Why?

Some countries have successfully implemented EPR systems. EPR stands for 'extended producer responsibility' and places the responsibility for the entire life cycle of a product on the producer, including environmentally friendly waste management. For example, in the European Union

(EU), member states must establish EPR schemes for certain plastic disposable products to ensure that producers contribute to the costs of waste collection, transport, and processing, awareness programs, and litter cleanup.

6. Is an EPR system being developed for Suriname? If yes, describe the purpose and the system (costs, collection program, etc.).
7. Do you think an EPR system is suitable for Suriname?
    a. If yes, why?
    b. If no, why not?
8. What other system do you recommend for Suriname?
9. Regarding the status of plastic: when do you believe we can state that plastic waste is no longer waste but a product, for example, according to your opinion?

The Basel Convention stipulates that transboundary movements of hazardous waste and other waste should be minimized, in accordance with environmentally sound and efficient management and in a manner that protects human health and the environment from any adverse effects. Transboundary movements are allowed if the country does not have environmentally friendly processing alternatives and if the importing country needs the waste as a raw material.

10. Government: Has policy been developed for the transboundary movement of plastic wastes?
    a. If yes, can you share this with SUWAMA?
    b. If no, is it in the planning? How is this organized?
    c. How is the distinction made between hazardous and non-hazardous plastic?
11. Recyclers:
    a. Do you export plastic waste for recycling or otherwise?
    b. How is the distinction made between hazardous and non-hazardous plastic?
    c. Are the government's arrangements sufficiently facilitating for this?
    d. What is lacking and what could be improved?
12. Do you have any additions to this module?

Questions related to Module C – Waste prevention and minimization:

The Basel Convention states that reducing the generation of hazardous waste and other waste to a minimum in terms of quantity and/or potential danger is the most effective way to protect human health and the environment from the hazards associated with such waste. Waste prevention should be the preferred choice in any waste management policy, reducing the need for waste management and allowing resources to be used more efficiently. Waste prevention and reduction are also essential for transitioning from a linear to a circular economy. Companies should use the best available techniques (BAT) and best environmental practices (BEP) to produce less waste and less hazardous waste.
Instruments vary by country, considering national resources, capacities, circumstances, priorities, and available alternatives.

Questions:

1. What is your opinion on plastic waste prevention and reduction?
2. Are there any policy documents planned focused on plastic waste prevention/reduction? If yes, which ones?

3. Has your organization executed or planned projects aimed at plastic waste prevention/reduction?
    a. If yes, which ones?
    b. Are you collaborating with other organizations (e.g., NGOs) in this context?
4. In your opinion, which policy instruments would be effective in promoting plastic prevention/reduction and why?

Policy instruments	**Check if considered effective**
Regulations: banning certain types of plastic, restrictions on hazardous substances in plastics we import, design requirements reducing the use of plastic as a component in products, consumption reduction, recycling targets, EPR (Extended Producer Responsibility), deposit-refund systems to promote recycling.	
Market-based: taxation on packaging materials, exemption from import taxes for non-plastic packaging materials, EPR, labeling and identification (informed choices), incentives for recycling, pay-as-you-throw programs (the more plastic waste, the more you pay for processing).	
Voluntary: eco-design, incentive programs, EPR, sustainable procurement, incorporating environmentally friendly requirements into tender specifications, initiatives by schools, businesses, and government to use less plastic.	
Other	

5. Which barriers do you foresee when implementing the above instruments? How can these be bridged?
6. Which types of plastic do you believe can be prevented or reduced? Why?
7. Do you have any additions to this module?

Questions related to Module D: Identification and inventories:

The identification of plastic waste is the starting point for its effective and environmentally friendly management. To enable effective actions to prevent, minimize, and manage plastic waste, it is important for participating parties to identify the sources of plastic waste generation and quantify the amount of generated plastic waste.

Questions:

1. Has a plastic waste inventory already been created? If yes,
    a. When and by whom? Can SUWAMA have access to the inventory?
    b. What methods were used for this? Could you provide some details?
    c. Was a distinction made between hazardous and non-hazardous waste? How?
    d. What is done with this information? (policy development, seeking processing alternatives?)
2. Is a distinction made between hazardous and non-hazardous plastic waste at your processing plant?
    a. If yes, how?
    b. What happens to the hazardous waste? How is it processed, stored?

Questions related to Module F – Handling, separation, collection, packaging, compaction, transportation, and storage and Module G – Environmentally sound disposal:

Treating, separating, collecting, packaging, compacting, transporting, and storing plastic waste are crucial aspects of its management. This contributes to preventing plastic leakage into the environment. Procedures and processes must be considered for these activities, both for hazardous and non-hazardous plastic waste, to prevent wastage and leakage. This can occur, for example, due to wind, which can lead to worker exposure, emissions to the environment, or community exposure.

1. Government: Does your organization have guidelines (permitting, safety, environmental-friendly, etc.) for the safe treatment, separation, collection, packaging, compacting, transportation, and storage of plastic waste? For both the public and private sectors.
    a. If yes, what are they? Is there government oversight?
    b. If no, why not? Is this in the planning?
2. For recycling companies and transporters:
    a. What services do you provide regarding plastic waste management: (check what applies):

Services	
Awareness	
Collection and transportation	
Facilities for plastic waste segregation	
Processing	
Packaging and storage	
Export	
Other	
Other	

    b. Describe the recycling process at your processing facility (collection, transportation, segregation, processing, storage etc…).
    c. Does your organization have procedures/guidelines in place for collection and transportation, separation, packaging, processing, and storage? If yes, what are they?
    d. What measures does your organization take to prevent pollution of water, air, etc.? Is this documented?
    e. Which types of plastic do you process, and which ones do you not? Why?
    f. Do you also receive plastic waste containing hazardous substances, such as empty pesticide bottles?
        i. If yes, what are the procedures regarding treatment, processing, and safety?
    g. Do you also receive waste that contains plastic partially? If yes, what are the processing procedures? (dismantling)
    h. What requirements do you have for the plastic waste you collect/receive?

i. Is the plastic waste delivered pre-separated or is it separated at your plant?
j. Do you collect the plastic waste yourself or do you outsource it?
    i. If yes, what collection system do you use?
        1. Door-to-door collection
        2. Delivered to the processing plant.
        3. Gathered at central points where the company collects.
        4. Other:
k. Which collection system is practically feasible for Suriname?
l. How much plastic waste do you process monthly? Or annually?
m. Which type of plastic do you receive the most at your processing plant?
n. How is processed plastic waste packaged for storage and export? Do you have government guidelines for this?
o. How is processed plastic waste stored? Do you have government guidelines for this?
p. Is the plastic waste covered outside or is it exposed to the open air?
q. Are fire extinguishers available?
r. Does your organization have HSE (Health, Safety, Environment) guidelines/procedures in place for staff safety and environmental protection?
    i. If yes, what are they?
    ii. If no, why not?
s. Are there requirements/guidelines included in your permit for safety and environmentally friendly practices?
t. Do you have a reporting obligation to the government?
u. What challenges do you experience in managing plastic waste?
v. How could these challenges be overcome?
w. What are the future plans of your organization?

3. For the districts:
    a. Do you believe plastic waste is a problem in your district?
    b. What is done with plastic waste in your district?
    c. Are there guidelines from the central government for managing plastic waste?
        i. If yes, what are they?
        ii. If no, do you have your own guidelines? What are they?
    d. Are there projects with NGOs in Paramaribo or your district to manage plastic or plastic waste?
    e. What, in your opinion, is a desired approach to plastic and plastic waste?
4. Do you have any additions to this module?

Questions related to Module J - Awareness & Participation:

According to the Technical Guidelines, it is essential that the public and all stakeholder groups have the opportunity to participate in policy development regarding plastic waste, program planning, legislation development, document and data assessment, and decision-making on local issues related to plastic waste. All layers of society should be continuously informed and made aware of the environment in general and the dangers of mismanagement of plastic waste on our health. This is especially important because awareness leads to improved participation in adequate plastic waste management practices.

Questions:

1. How important do you consider awareness about environmentally friendly management of plastic?

Very important	Important	Neutral	Somewhat important	Not important

   In case of very important, why?
   In case not important, why?
2. Does your organization organize awareness campaigns/activities to raise awareness among businesses about the importance of environmentally friendly management of plastic?
   a. If yes, what activities and on what topics?
   b. If no, why not?
3. Does your organization organize awareness campaigns/activities to raise awareness among the community about the importance of environmentally friendly management of plastic?
   a. If yes, what activities and on what topics?
   b. If no, why not?
4. What communication techniques/media do you use?
   a. Social media: Facebook, Television, Instagram
   b. Door-to-door
   c. Community meetings
   d. Events
   e. Other gatherings
5. Are there any awareness campaigns/activities planned?
   a. If yes, what are they and on what topics?
6. Are there other organizations (NGOs, etc.) conducting awareness activities (in the district)?
7. Do you have a collaboration with these organizations?
8. What type of awareness campaigns/activities on environmentally friendly management of plastic would be effective in your district?
9. Which communication/media channels do you recommend to effectively reach businesses and the community in your district?

OUTPUTS

Interviews will be recorded with the consent of the key informants. Please refer to the attached 'consent form', which asks for permission to record the interviews among other things. The recordings will be treated confidentially and are solely intended for the purpose of preparing the minutes. If permission is not granted for this, notes will be taken during the interview.

The information obtained from the interviews will be used to assess the current national legislative capacity, analytical capacity, and waste management practices against Modules B, C, F, G, and J of the Technical Guidelines.

Based on the findings of the assessment, an 'assessment and recommendations report' will be developed with recommendations on how the current practices related to Modules B, C, F, G, and J of the Technical Guidelines in Suriname can be improved to better align with best environmental practices and the best available technologies.

Appendix 3 Guidelines for segregated collection

9.1 General

These guidelines do not specify which types of waste need to be separated. The guidelines are established based on the following principles:

- Equality (waste collection is accessible to everyone).
- Affordability and availability of resources within each district.
- Clarity and ease of implementation of the standards.
- Practical feasibility.

The handling of hazardous waste is regulated by the Basel Convention.

9.2 Component Frequency

9.2.1

Recyclable (dry) waste must be removed at least once every two weeks. Removal at businesses/institutions should be coordinated with the waste collector to minimize costs and prevent accumulation at transfer stations.

9.2.2

Where possible, recyclable components should be separated at the source (e.g., households).

9.2.3

The recycling company/government must provide clear guidelines for waste producers: which types of recyclable components should be sorted, which suitable containers/bags and removal schedules should be used for each type of waste.

9.2.4

A collection calendar should be created for each type of recyclable component.

9.3 Collection Method/Collection Area

9.3.1

The collection company/government must determine the time and location where the waste bin should be placed.

9.3.2

Recyclable components can be collected from homes and via drop-off systems.

9.3.3

Recyclable waste should be taken to a collection point/recycling company:

- These facilities must be easily accessible to the public.
- These facilities must promote recycling behaviour: they should be clean and user-friendly.

9.3.4

A route plan should be developed for each collection area.

9.4 Waste Containers

9.4.1

There must be a suitable container for each type of recyclable component.

9.4.2

Containers should be labeled depending on the type of recyclable component.

9.4.3

Regarding the drop-off system, the waste collection company should establish conditions that the locations for waste containers must meet. Agreements should be made with the clients about this.

9.4.4

The containers must be intact, not rusty or aged, have no sharp edges, and have no holes from which leachate can escape to prevent environmental contamination and health hazards.

9.4.5

The containers must have a lid to ensure that animals, insects, and scavengers cannot access them and to prevent the waste from blowing away.

9.5 Waste Bags

9.5.1

The waste bags must be transparent with a label for each type of recyclable component.

9.6 Equipment (Truck)

9.6.1

External transport is allowed by authorized authorities or transporters registered with the Chamber of Commerce.

9.6.2

Depending on the type of waste, collection and transport should take place using leak-proof containers or a loading space with leak-proof metal walls or walls with similar properties.

9.6.3

The walls of the loading space should have rounded corners, be easy to wash and disinfect.

9.6.4

The loading space must be separated from the driver's cabin by a sufficiently sturdy partition.

9.6.5

The loading space must be designed so that any leaking liquids cannot escape. The driver's cabin must be equipped with sufficient materials for washing and disinfecting the hands of the driver and loaders.

9.6.6

There must be a separate space in the transport vehicle with sufficient protective equipment for the loaders.

9.6.7

The transport vehicle must display international symbols along with the address of the collection company where the waste will be processed.

9.7 Health and Safety

9.7.1

The transport vehicle must be cleaned at the end of the day after the last transport.

9.7.2

The transport vehicle must undergo a technical inspection annually in addition to the regular inspection.

9.7.3

Employees performing waste management tasks must work safely and protect themselves using personal protective equipment (PPE) (see Annex B).

9.7.4

All employees performing waste management tasks must undergo a medical check-up at least once a year to ensure their health and well-being.

9.7.5

All employees performing waste management tasks must be trained in handling hazardous materials, health, and safety.

9.7.6

Eating, drinking, and smoking are not allowed during waste collection.

9.7.7

The employer must have a protocol on how to act in case of an incident.

9.7.8

Every accident and incident must be reported to the relevant department/authority.

9.7.9

Every organization performing waste management tasks must have a health and safety department/responsible person.

9.8 Communication

9.8.1

The organization must have written procedures. The employer must inform employees about occupational risks and provide instructions on how to handle them in practice. The employer must monitor compliance. Every employee must ensure their own safety and health, as well as that of colleagues and others, during work.

9.8.2

Annual training must be provided for the staff responsible for waste management. The goal of the training is to develop skills and raise awareness about the risks of industrial waste.

9.8.3

The transporter must have a transport form issued by the organization. The transport form must include at least the following information:

- Name and address of the reporting entity.
- Nature, properties, composition, quantity, and place of origin of the waste.
- Name and address of the person collecting, transferring, storing, transporting, processing, or destroying the waste in accordance with a permit, if different from the originator.
- The name and address of the person processing or destroying the waste in accordance with a permit, if different from the transporter.

- Date and place of transfer, and the method of transfer.

9.9 Waste Collection Company (Transporter)

9.9.1

The transporter must have a valid permit issued by the government and be registered with the Chamber of Commerce.

9.9.2

The transporter must have a transport form (see 9.8.3).

9.9.3

The waste collection company may not store the collected waste on its premises or transport it elsewhere unless it processes the waste itself.

Appendix 4 Annex 111, list of hazardous characteristics of plastic waste

ANNEX III LIST OF HAZARDOUS CHARACTERISTICS

UN Class[1]	Code	Characteristics
1	H1	Explosive
		An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings.
3	H3	Flammable liquids
		The word "flammable" has the same meaning as "inflammable". Flammable liquids are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc., but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 60.5ºC, closed-cup test, or not more than 65.6ºC, open-cup test. (Since the results of open-cup tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying from the above figures to make allowance for such differences would be within the spirit of this definition.)
4.1	H4.1	Flammable solids
		Solids, or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.
4.2	H4.2	Substances or wastes liable to spontaneous combustion
		Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.
4.3	H4.3	Substances or wastes which, in contact with water emit flammable gases
		Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.
5.1	H5.1	Oxidizing
		Substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen cause, or contribute to, the combustion of other materials.
5.2	H5.2	Organic Peroxides

[1] Corresponds to the hazard classification system included in the United Nations Recommendations on the Transport of Dangerous Goods (ST/SG/AC.10/1Rev.5, United Nations, New York, 1988).

		Organic substances or wastes which contain the bivalent-o-o-structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.
6.1	**H6.1**	Poisonous (Acute)
		Substances or wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.
6.2	**H6.2**	Infectious substances
		Substances or wastes containing viable micro organisms or their toxins which are known or suspected to cause disease in animals or humans.
8	**H8**	Corrosives
		Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport; they may also cause other hazards.
9	**H10**	Liberation of toxic gases in contact with air or water
		Substances or wastes which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.
9	**H11**	Toxic (Delayed or chronic)
		Substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity.
9	**H12**	Ecotoxic
		Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems.
9	**H13**	Capable, by any means, after disposal, of yielding another material, e.g., leachate, which possesses any of the characteristics listed above.