



National Action Plan to End Plastic Pollution in Barbados



This report was prepared by Common Seas in collaboration with the Government of Barbados

It supports efforts by The Ministry of Environment and National Beautification (MENB), Blue and Green Economy, to provide and promote a national framework for decision-making based on the principles of sustainable environmental management.

Common Seas

Common Seas is a social enterprise that drives systemic change, creating partnerships to design and deliver resources and solutions that stop the flow of plastic pollution.

Our programmes are centred on:

- Leading policy changes through partnerships with governments, providing technical expertise and convening the right stakeholders for action.
- Commissioning research and raising awareness of the human health impacts of plastics to inspire and motivate change.
- Empowering and equipping children through their schools, to stop the flow of plastic pollution.

We work with countries that are most affected by plastic, particularly SIDS and developing coastal economies, supporting a just transition to a future freed from plastic pollution. This project was co-funded by Common Seas under its Government Partnerships programme.

For more information please visit: commonseas.com

The Commonwealth Blue Charter

This work was co-funded by the Commonwealth Secretariat's Blue Charter Project Incubator Fund. The Project Incubator supports Commonwealth governments and their partners developing solutions that address shared ocean issues. The Incubator accelerates governments' transition to fair, sustainable and inclusive marine conservation and maritime development, while mitigating and adapting to climate change.



I am deeply honoured to introduce the National Action Plan (NAP) to End Plastic Pollution in Barbados, a landmark initiative undertaken in partnership with Common Seas, which is a result of the collaborative efforts of government, businesses, industry experts and the community. This comprehensive plan represents a significant step forward in our unwavering commitment to combat plastic pollution and its far-reaching impacts on our environment and climate.

Barbados has long been vocal about the urgent need to address climate change, recognizing it as one of the most pressing challenges of our time. Plastic pollution, a pervasive and insidious threat, is intrinsically linked to this crisis. The production, consumption, and disposal of plastic contribute substantially to greenhouse gas emissions, exacerbating the effects of climate change that we, as a small island developing state, are particularly vulnerable to. By tackling plastic pollution head-on, we are not only safeguarding our marine and terrestrial ecosystems but also advancing our climate resilience and sustainability goals.

Our efforts to manage the plastic crisis are directly aligned with the United Nations Sustainable Development Goals (SDGs). Effective plastic waste management is crucial for achieving clean water and sanitation (SDG 6), sustainable cities and communities (SDG 11), responsible consumption and production (SDG 12), life below water (SDG 14), and life on land (SDG 15). By addressing plastic pollution, we are making significant strides toward these global targets and ensuring a healthier, more sustainable future for our people.

The Ministry of Environment and National Beautification, Green and Blue Economy has made notable progress in tackling plastic pollution. Over the last four years, we have implemented gradual bans on single-use plastics, funded the Clean and Green Project and continued to uphold stringent anti-littering laws. However, we recognize that there is still much work to be done. The NAP serves as a robust framework to build upon our achievements and scale up our efforts. It outlines five clear and actionable strategies to significantly reduce plastic waste, enhance recycling initiatives, and promote sustainable alternatives.

This plan is not merely a policy document; it is a reflection of our collective ambition and determination. It complements the Ministry's objectives for the integration of environmental considerations into all aspects of national development by providing a cohesive approach to plastic pollution management, ensuring that our actions are impactful, coordinated, and sustainable.

I extend my heartfelt gratitude to Common Seas for their invaluable partnership and support in the development of this robust and evidence-based National Action Plan. Their expertise and commitment have been instrumental in shaping a comprehensive strategy that addresses the unique challenges and opportunities we face. I also express my sincere appreciation to The Commonwealth Secretariat for supporting this work through the Blue Charter Project Incubator.

Together, we are taking bold steps towards a cleaner, greener, and more resilient Barbados. Let us all embrace this action plan with the dedication and urgency it demands, for the benefit of our environment, our communities, and future generations.

Hon. Adrian Forde

Minister of Environment, National Beautification,
Green and Blue Economy



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List of Acronyms

- ALDFG:** Abandoned, Lost and Discarded Fishing Gear
- BaU:** Business as Usual
- BWA:** Barbados Water Authority
- CARICOM:** The Caribbean Community
- CSIRO:** Commonwealth Science and Industrial Research Organisation
- CYEN:** Caribbean Youth Environment Network
- CZMU:** Coastal Zone Management Unit
- DRS:** Deposit Return Scheme
- EHD:** Environmental Health Department
- EPD:** Environmental Protection Department
- EPR:** Extended Producer Responsibility
- FCCC:** Fijian Competition and Consumer Commission
- HDPE:** High-density polyethylene
- INC:** Intergovernmental Negotiating Committee
- KT:** Kilotonnes
- MENB:** The Ministry of Environment and National Beautification
- M&E:** Monitoring & Evaluation
- MoE:** Ministry of Environment
- MoU:** Memorandum of Understanding
- MSP:** Marine Spatial Plan
- NAP:** National Action Plan
- NGO:** Non-Governmental Organisation
- PD:** Plastic Drawdown
- PET:** Polyethylene terephthalate
- PIU:** Project Implementation Unit
- PMCU:** Project Management Coordination Unit
- PRO(s):** Producer Responsibility Organisation(s)
- PVC:** Polyvinyl Chloride
- RVM:** Reverse Vending Machine
- SBRC:** Sustainable Barbados Recycling Centre
- SDG:** Sustainable Development Goal
- SIDS:** Small Island Developing States
- SSA:** Sanitation Services Authority
- SUP:** Single-Use Plastic
- UK:** United Kingdom
- UN:** United Nations
- UNDP:** United Nations Development Programme
- UWI-CERMES:** University of the West Indies – Centre for Resource Management and Environmental Studies
- ZWS:** Zero Waste Scotland

Definitions

Advanced fee modulation: an approach used in some Extended Producer Responsibility (EPR) schemes to encourage environmentally friendly design of products. EPR schemes require producers to pay fees for the type and/or quantity of certain materials or products placed on the market. These fees can be modulated to influence producers’ choices when designing the material or product. Advanced fee modulation refers to stronger incentives, e.g. bonuses and maluses (reductions or increases of the fee), and premiums and penalties, which are financial incentives paid independently from the fee (OECD, 2021).

Biodegradable materials: a material that can, with the help of microorganisms, break down into natural components (e.g. water, carbon dioxide or biomass) under certain conditions. Most ‘biodegradable’ products rely on industrial composting conditions, and do not degrade in home composting conditions or the open environment. Most biodegradable materials are also not recyclable and have been known to contaminate recycling streams (Royal Society of Chemistry, 2021).

Circular economy: an economic model, in which products and materials are designed in such a way that they can be reused, remanufactured, recycled or recovered and thus maintained in the economy for as long as possible, along with the resources of which they are made, and the generation of waste is avoided or minimised, and greenhouse gas emissions are prevented or reduced (UNEP/EA.4/Res.1).

Composite materials/product packaging: packaging made of two or more layers of different materials which cannot be separated by hand and form a single integral unit (European Parliament and Council Directive 94/62/EC, 1994).

Consolidated fund: Levies paid by producers typically go to a ‘Consolidated Fund’, a general government account where all public revenues are paid into and from which comes the supply of public services, to use within a specified ministry (House of Commons, 2022).

¹ This term was recently included as a working definition in the glossary of key terms prepared for the work of the intergovernmental negotiating committee to develop an international legally binding instrument on plastic pollution. See UNEP/PP/INC.1/6.

Extended producer responsibility: EPR is an ‘extended’ approach to ‘producer responsibility’ which pushes responsibility upstream to manufacturers and makes them accountable for the entire product lifecycle, from design through end-of-life. The concept of EPR places the responsibility for managing items at the end of their life on the producer or importer. For example, by setting collection and recycling targets for producers to meet, it engages the producers and importers in implementing and financing source separation. It also connects design decisions to waste management costs to align business and environmental incentives.

Fee modulation: within EPR schemes, producers pay a fee for each piece of packaging put on the market. The fee can be modulated by criteria and methodology. Most EPR schemes modulate fees based on unit, weight and/or material, approximating the cost associated with managing the end-of-life product (OECD, 2021).

Illegal dumping: illegal disposal of large items or waste on public roads, land or into rivers.

Littering: dumping of waste often associated with eating and drinking.

Microplastics: Primary microplastics are those originally produced or directly released into the environment as micro-sized particles (less than 5 millimetres in size). Secondary microplastics are micro-sized fragments originating from the degradation of large plastic waste into smaller plastic fragments once exposed to the environment (Systemiq, n.d.).

On-the-go waste collection: Refers to the collection of waste in public spaces, typically by public bodies (often local councils or municipalities). This aims to stop litter that is dropped ‘on-the-go’, by individuals consuming products outside of their home, from leaking into the terrestrial or aquatic environment. On-the-go waste collection typically involves the provision, particularly in high footfall areas, of bins for consumer use and regular street sweeping.

On-the-go recycling (RotG): on the go recycling enables people to recycle when they are outside of their home or work, using recycling bins provided in public places. These recycling bins are provided by appropriate public bodies (often local councils or municipalities) in busy public places (e.g. parks and central business districts). RotG aims to achieve higher recycling rates, as large amounts of often recyclable waste are disposed of away from home when people shop, travel or visit places of interest (WRAP, 2012).

Plastic pollution: Plastic pollution is defined broadly as the negative effects and emissions resulting from the production and consumption of plastic materials and products across their entire life cycle. This definition includes plastic waste that is mismanaged (e.g., open-burned and dumped in uncontrolled dumpsites) and leakage and accumulation of plastic objects and particles that can adversely affect humans and the living and non-living environment.¹

Plastic Drawdown: Peer-reviewed and UN endorsed methodology for supporting governments to understand their country’s plastic pollution problem and take ambitious policy action to address it. The tool was developed by Common Seas, in collaboration with Oxford University and Eunomia Research and Consulting. Read more about Plastic Drawdown (Royle et al., 2022).

Petrochemical: substances obtained by the refining and processing of petroleum or natural gas. Nearly all plastics are made from fossil-fuel based petrochemicals.

Preforms or pre-forms: intermediary product shaped like a tube that is blown into a PET container.

Refill: Consumer bringing their own container into shops, cafes, etc. to fill with products at their behest.

Recyclable: for something to be deemed recyclable, the system must be in place for it to be collected, sorted, reprocessed, and manufactured back into a new product or packaging—at scale and economically. Recyclable is used here as a short-hand for ‘mechanically recyclable’ (UNEP, 2023).

Recycled: processed waste materials for its original purpose or for other purposes, excluding energy recovery (ISO:472:2013) (OECD, 2021).

Residual waste: the fraction of waste that is neither recycled nor composted.

Reuse: use of a product more than once in its original form (ISO:472:2013). In the context of packaging reuse, reuse is a system under which the packaging’s collection, washing, refill and redistribution is operated by the producer and/or a third party, including the existence of infrastructure and reverse logistics, incentive to return, collection rate and minimum rotations (Zero Waste Europe, 2022).

Source Separation: Source separation, also called curbside separation, means customers sort their own recyclables (e.g. separating plastics, paper, glass etc.) and place them at the curb for collection. Conversely, single stream recycling means recyclables do not have to be sorted (Recycle Nation, 2015).

Key messages

- 1 An estimated 15 thousand tonnes of plastic waste was generated in Barbados in 2021 – that is the equivalent weight of about 15 cargo ships.**

This is expected to increase by approximately 12% in ten years.

- 2 131 tonnes of macroplastics leaked into the sea.**

Research indicates that, in addition to macro plastic pollution, a further 177 tonnes of microplastics also escaped into the environment.

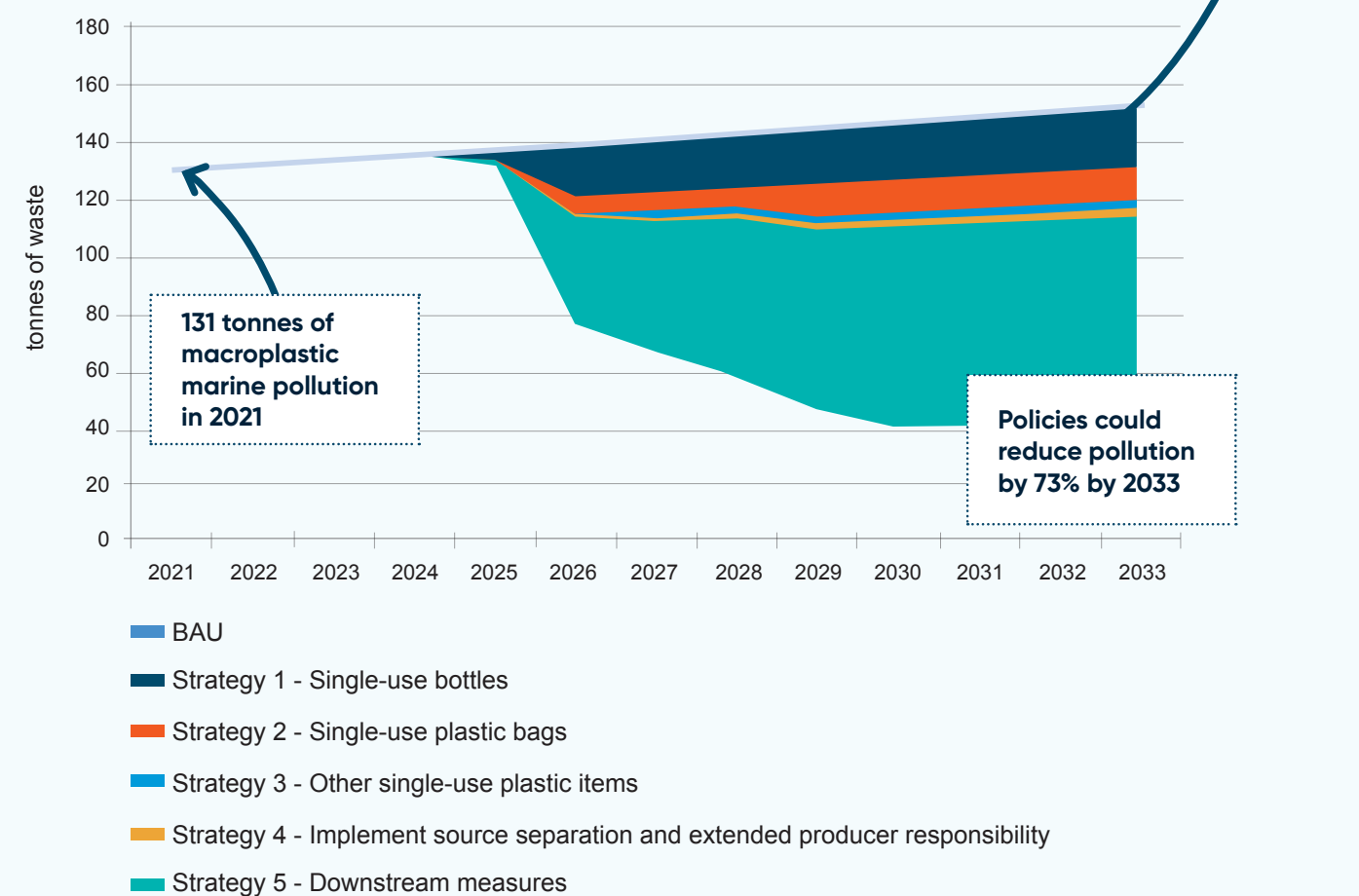
- 3 This can be radically reduced if we act now.**

- 4 Barbados is responding to this urgency by putting together a comprehensive National Action Plan to end Plastic Pollution.**

This will build upon existing initiatives, whilst simultaneously putting forward ambitious new policies that will stop plastic pollution at source. In doing so, we will safeguard a clean and safe environment, free of plastic litter.

- 5 The time to act is now.**
This document outlines five strategies that will reduce Barbados' plastic pollution by 73% over 10 years.

ES.1 Impact of strategies to tackle plastic pollution



These strategies and policies have been developed in collaboration with key stakeholders including government, business and civil society who are motivated and supportive of the actions outlined. At a workshop facilitated by social enterprise, Common Seas, the strategies and policies were refined and broadly agreed for inclusion in this National Action Plan.

The National Action Plan will be embedded into the Government of Barbados' programme of work, leading the charge on tackling plastic pollution on our island. Crucially, the tourism sector will be a key partner in piloting and implementing these measures. This programme could become a global exemplar, demonstrating how a tourism focused economy can address plastic pollution.



Executive summary

By 2040, ocean plastic pollution is predicted to quadruple globally.

From production to disposal, plastic threatens the climate, human health, and the sustainability of blue economies. Addressing plastic pollution is a key priority to safeguard biodiversity, protect communities and deliver the UN Sustainable Development Goals (Imperial College London, 2020).

Whilst a UN Plastics Treaty will help to address the many cross-boundary challenges related to plastic pollution, national governments can still prioritise national action against plastic pollution. By taking action today, governments pave the way for a more resilient and healthy future, in preparation for a legally-binding treaty.

Barbados is taking the lead by prioritising the development of a National Action Plan to tackle plastic pollution ahead of a ratified UN Plastics Treaty.

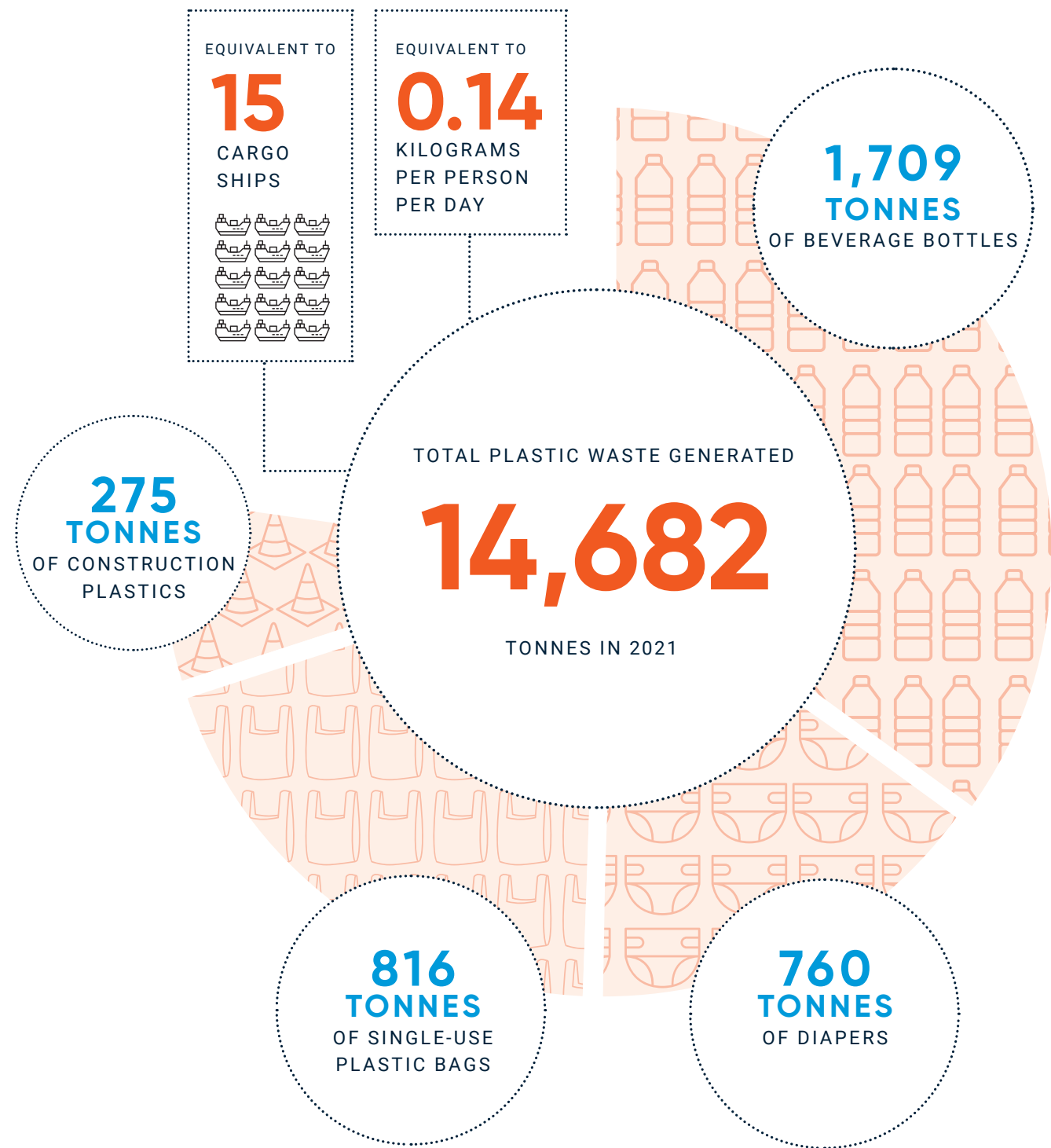
In 2022, Common Seas and the Ministry of Environment and National Beautification, Blue and Green Economy in Barbados entered a partnership to understand the scale of the island's plastic pollution problem and identify and implement policies to tackle it.

Common Seas' Plastic Drawdown tool was used to analyse the problem and assess potential policy interventions that could reduce pollution in Barbados. This report sets out the results in a National Action Plan, which will form the basis of any such plan required by signatories of the UN Plastics Treaty.

The report has been developed in consultation with key government partners and a wider expert group of stakeholders. This has ensured that the analysis is fully informed by the knowledge and expertise of those organisations and people most closely involved in the use and disposal of plastics in Barbados.



How much plastic waste is Barbados generating?



What happens to Barbados' plastic waste?

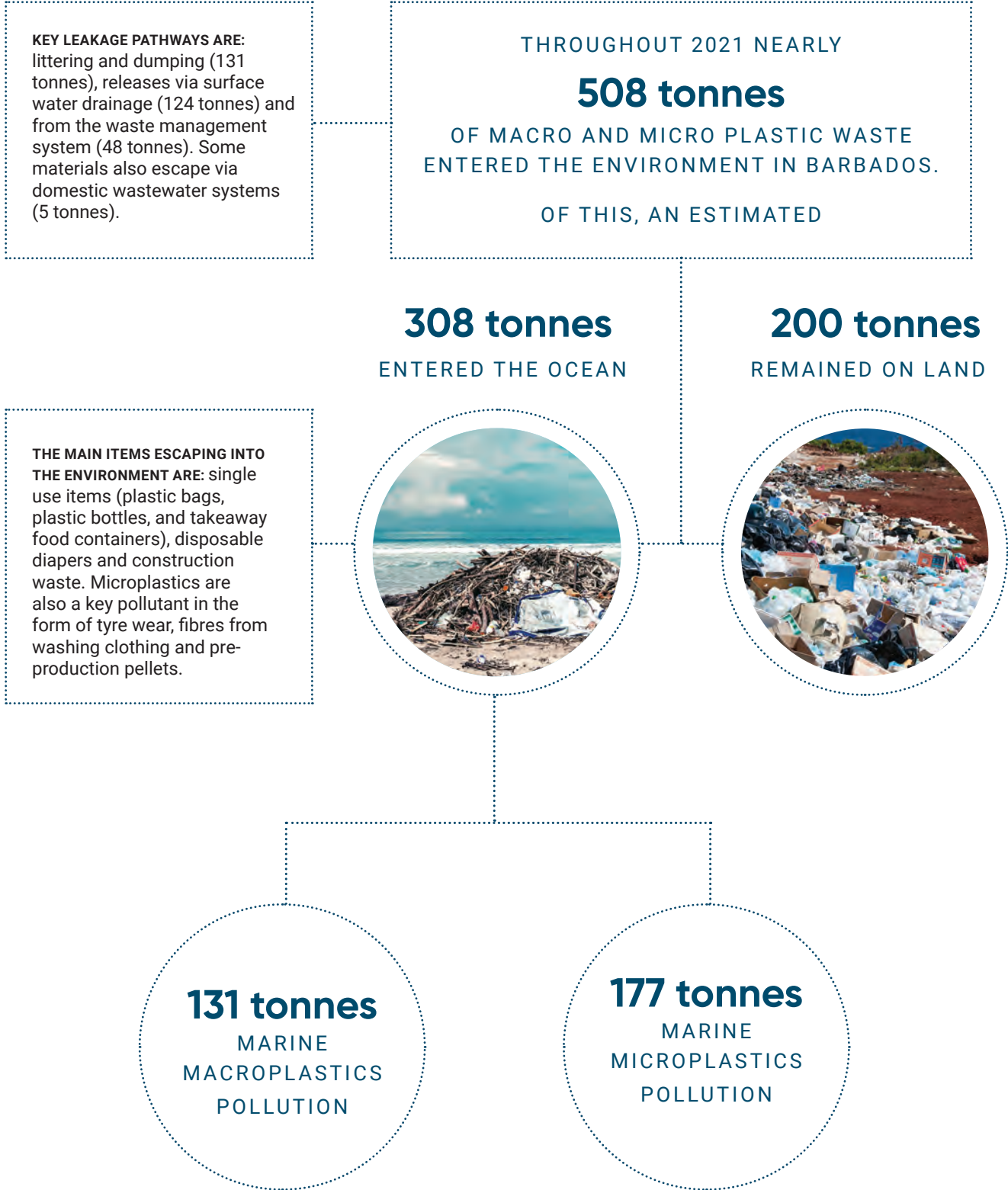
Most of the plastic waste generated in Barbados enters the solid waste management system.

However, these systems have limited capacity and increasing plastic waste generation means Barbados will have to send around 13,408 tonnes of plastic waste to landfill in 2033, 9 percent more than in 2021 under a business-as-usual scenario.



Key findings

How much plastic is entering our oceans?



What is the trajectory to 2033?

- Plastic waste generation is expected to increase by 12 percent between 2021 and 2033 (equivalent to a compound annual growth rate of approximately one percent).
- Without action, an estimated 4,173 tonnes of plastics will escape from Barbados into the sea between now and 2033 (about two percent of total plastic generation).
- If the quantity of plastic waste continues to grow as predicted and recycling rates remain low, Barbados is expected to need to landfill 13,408 tonnes of plastic waste each year by 2033, an increase of 9 percent from 2021.

Figure 1. Top 5 plastic items by weight (kT) in 2021

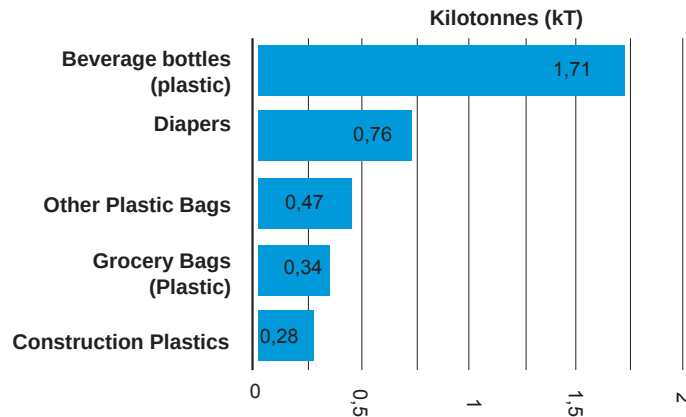
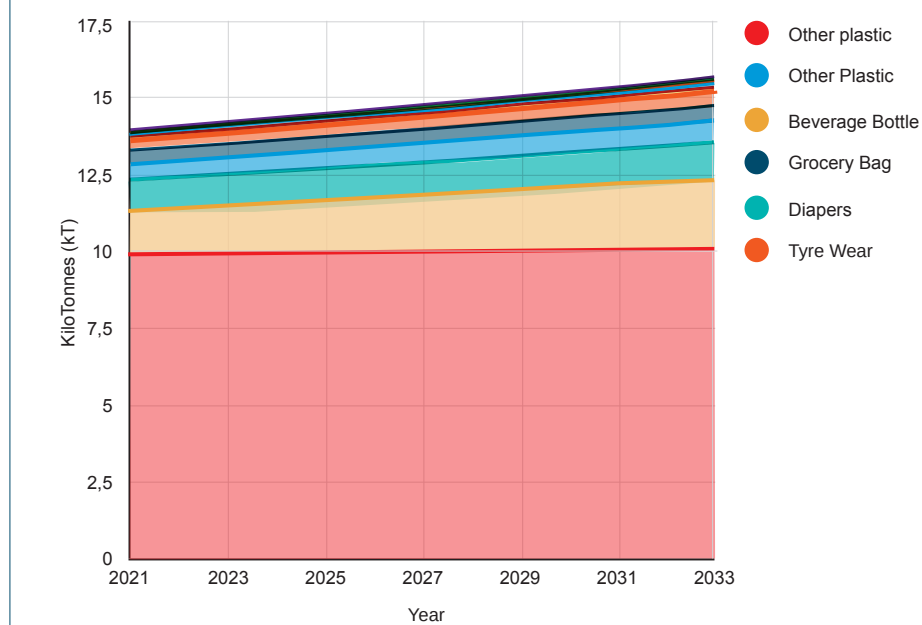


Figure 2. Growth in estimated plastic waste generation over time (kT)



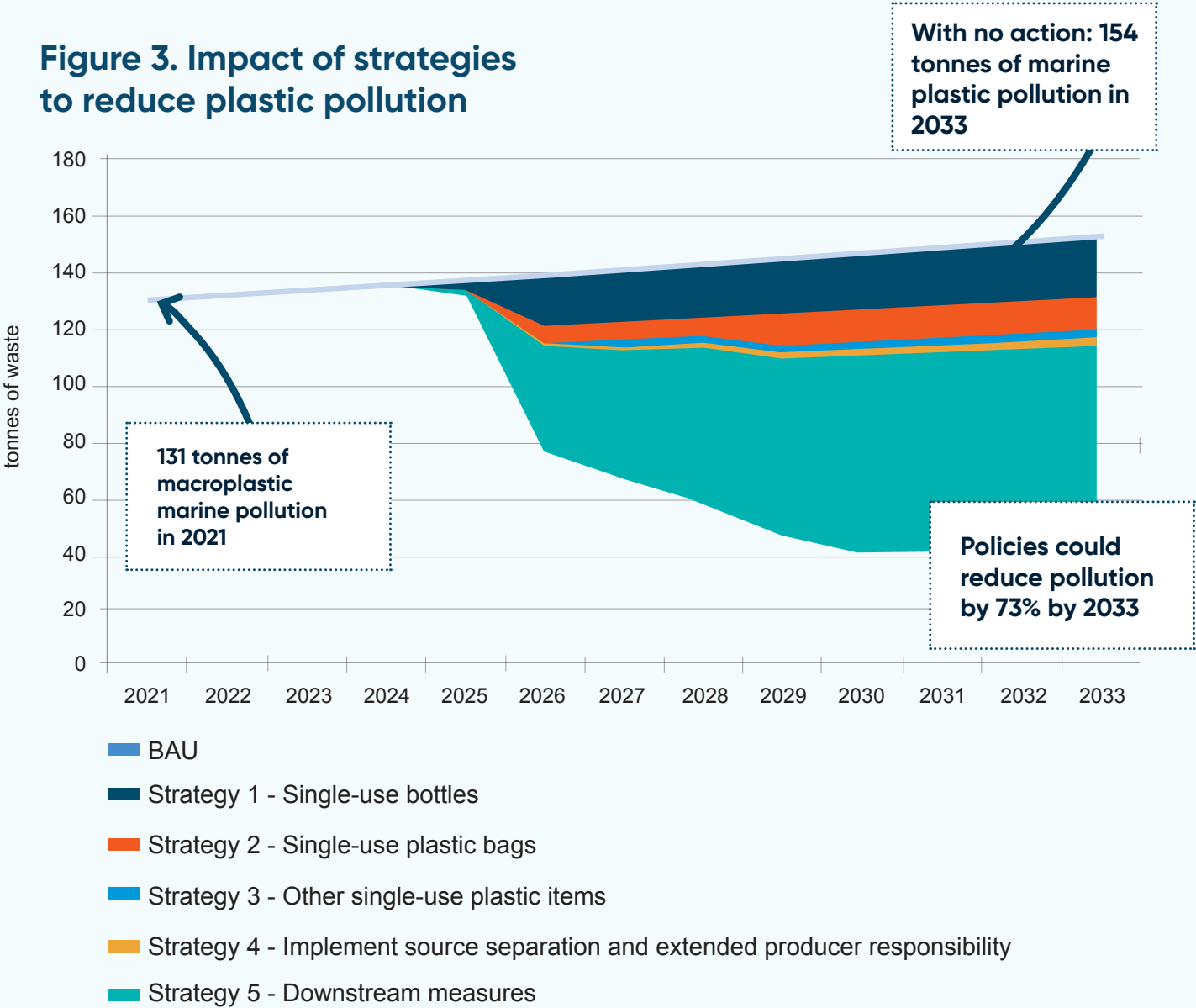
National Roadmap

Summary of the key strategies, policies, and their impact

The following five system-change strategies will help address the key sources of Barbados' plastic pollution. Analysis using the Plastic Drawdown tool suggests that by 2033, these five strategies have the combined potential to reduce annual plastic pollution in Barbados by 73%.

Plastics pollution in Barbados comprises both macro and microplastics. This action plan focuses on macroplastics pollution, a key element of plastic pollution in Barbados and the fraction that can be tackled with action today. Action to address microplastics will require careful consideration and international action over the coming years.

Figure 3. Impact of strategies to reduce plastic pollution



Strategy 1 - Tackling Single-use bottles		
This strategy includes the following actions: • Policy 1.1: Relaunch plastic bottle deposit return scheme • Policy 1.2: Providing water refill points • Policy 1.3: Phased ban on single-use plastic bottles	Reduce plastic pollution from business as usual case by: 14.0%	Combined plastic pollution reduction potential: 160 tonnes
Strategy 2 - Single-use plastic bags		
This strategy includes the following actions: • Policy 2.1: Charge on single-use bags • Policy 2.2: Enhanced ban on single-use bags	Reduce plastic pollution from business as usual case by: 7.8%	Combined plastic pollution reduction potential: 78 tonnes
Strategy 3 - Other single-use plastic items		
This strategy includes the following actions: • Policy 3.1: Charge on single-use plastic packaging • Policy 3.2: Reuse system for single-use food service items	Reduce plastic pollution from business as usual case by: 1.8%	Combined plastic pollution reduction potential: 18 tonnes
Strategy 4 - Implement source separation and extended producer responsibility		
This strategy includes the following actions: • Policy 4.1: Extended Producer Responsibility to support source separation	Reduce plastic pollution from business as usual case by: 1.7%	Combined plastic pollution reduction potential: 16 tonnes
Strategy 5 - Downstream measures		
This strategy includes the following actions: • Policy 5.1: Enhanced 'on-the-go' and 'bulky' waste collection to tackle littering and dumping • Policy 5.2: Enhance enforcement against littering and dumping • Policy 5.3: Enhance waste transportation, storage and handling	Reduce plastic pollution from business as usual case by: 47.5%	Combined plastic pollution reduction potential: 492 tonnes

Figure 4. The Roadmap

Legend

STAGE

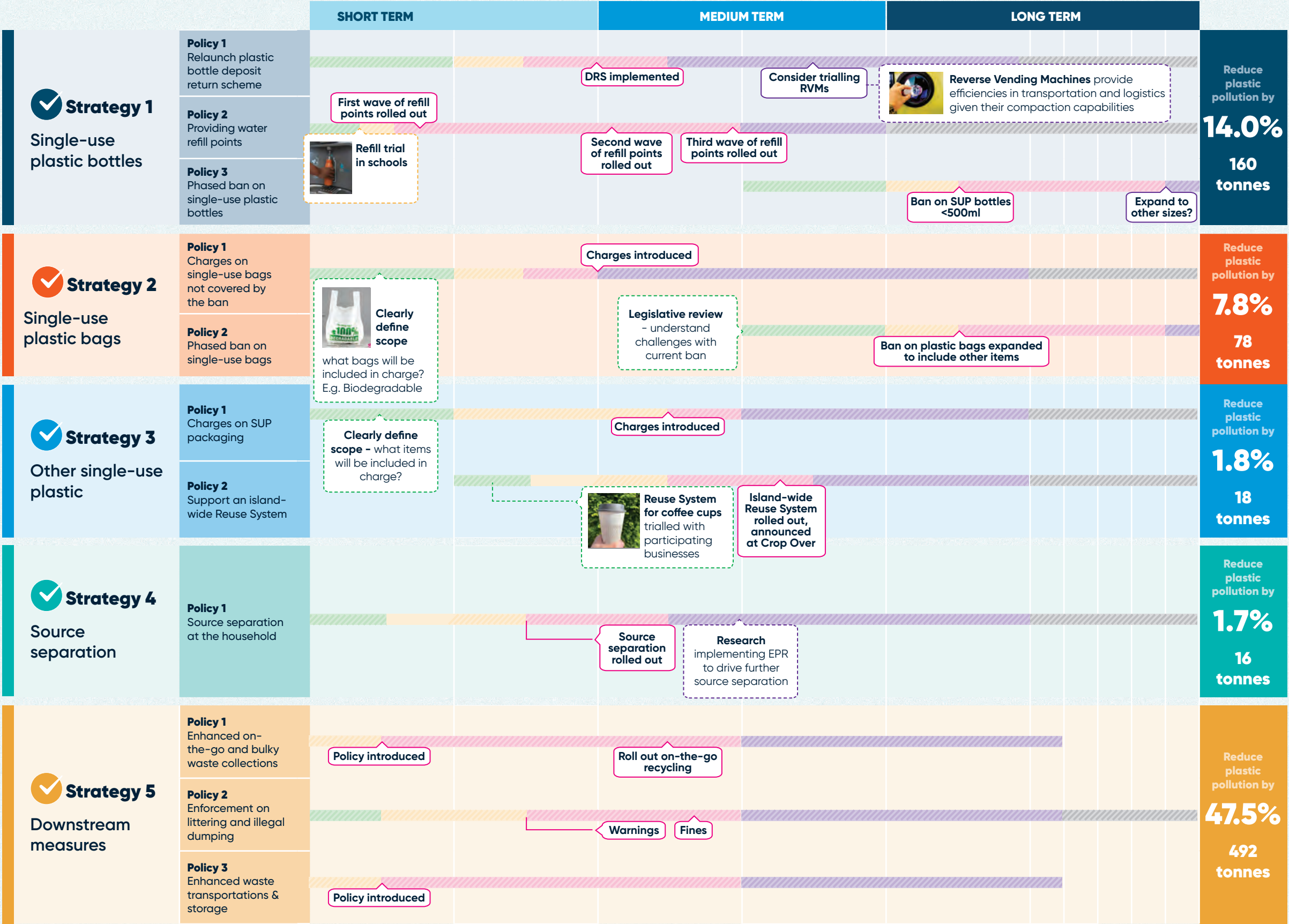
DESIGN

PRE-IMPLEMENTATION

IMPLEMENTATION

POST-IMPLEMENTATION

TO BE DETERMINED





Introduction

Plastic pollution is a global environmental and health problem – and it is getting worse.

Today, eleven million tonnes of plastic flows into the ocean every year (Pew Charitable Trust, 2020). By 2040, this is predicted to quadruple, and is expected to account for 19 percent of the global carbon budget by that date (UNDP, 2022).

Plastic pollution is destroying our ocean, threatening the marine creatures and ecosystems that support a thriving blue economy. Globally, it is estimated that half of all sea turtles have eaten plastics. Research conducted by the Commonwealth Science and Industrial Research Organisation (CSIRO) found that a turtle had a 22 percent chance of dying if it ate just one piece of plastic (CSIRO, 2018).

As well as threatening marine life, plastic is a threat to our health. Plastic particles have been discovered in nearly 80 percent of the human blood samples tested (Common Seas, 2022), yet many countries still lack any policies targeted to address plastic pollution.

An analysis in 2020 found that 14 of the world’s top 20 countries for plastic pollution have either no plastic policies at all, or their policies only address plastic bags (Common Seas, 2022).

The need for governments to address plastic pollution is clearly laid out within their commitment to the Sustainable Development Goals (SDGs), with plastic consumption and related pollution associated with the following seven SDGs:

- **SDG 3:** Good health and well-being
- **SDG 6:** Clean water and sanitation
- **SDG 11:** Sustainable cities and communities
- **SDG 12:** Responsible consumption and production
- **SDG 13:** Climate action
- **SDG 14:** Protection of seas and oceans
- **SDG 15:** Repair ecosystems and retain biodiversity

In particular, plastic is a focus for: **SDG target 14.1**, to prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution, by 2025 and **SDG target 12.5**, to substantially reduce waste generation through prevention, reduction, recycling, and reuse, by

National action against plastic pollution is urgently needed.

Designated as a Small Island Developing State (SIDS), Barbados’ preservation, conservation, and protection of the country’s environment is a critical issue to its economy and development.

In 2019, The Caribbean Community (CARICOM) adopted a regional strategy for the management of marine litter and microplastics. It is the first regional declaration of its kind that acknowledges the potential adverse impacts of increasing levels of plastics and microplastics within the Caribbean Sea and Atlantic Ocean. The declaration challenges governments to support a holistic approach to solid waste and plastic management (CARICOM, 2023).

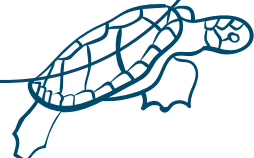
So far, Barbados has implemented ambitious legislation that provides the framework for action against plastic pollution. This includes restrictions on the import, sale and consumption of certain single-use items.

Barbados has also focused on improving its waste service provision through the Ministry of Environment and National Beautification and increased awareness as well as improved working conditions for sanitation workers. The country’s ambition is to provide and promote a national framework for decision making based on the principles of sustainable environmental management. However, a more holistic and coordinated approach is needed to manage and reduce plastic consumption and eliminate its leakage into the environment.

Adopting a National Action Plan for plastics pollution will position Barbados as a model for plastics management among small island developing states and complement its goal of achieving a national sustainable environmental management framework.



Research conducted by the Commonwealth Science and Industrial Research Organisation (CSIRO) found that a turtle had a 22% chance of dying if it ate just one piece of plastic.



Plastic stats

- ↑19%**
By 2040, plastic will account for 19% of the global carbon budget.
- ↑80%**
Plastic particles have been discovered in nearly 80% of human blood samples tested.
- ↑14 out of 20**
An analysis in 2020 found that 14 of the world’s top 20 countries for plastic pollution have limited plastic policies.
- ↑50%**
Globally it is estimated that half of all sea turtles have eaten plastics.



3 GOOD HEALTH AND WELL-BEING



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER

Background

In 2022, the Ministry of Environment and National Beautification, Blue and Green Economy entered into a partnership with Common Seas to design and deliver scalable solutions that tackle the source of the plastic problem.

This report sets out the results of analysis and consultation undertaken to understand the scale of Barbados' plastic pollution problem and identify policies to tackle it through a National Action Plan. The plan will inform government policy to tackle plastics pollution over the next ten years.

Common Seas is proud to have worked in partnership with more than 20 key stakeholder organisations across government, business and civil society to use the Plastic Drawdown tool and develop this National Action Plan for Barbados.

The partnership has taken place under a Memorandum of Understanding (MoU) between Common Seas and the Ministry of Environment and National Beautification, Blue and Green Economy.



Country Profile: Barbados

Barbados is an island country in the south-eastern Caribbean, covering an area of 430 km², and hosts a population of around 281,200 people in 2021 (Barbados Statistical Service, 2021).

The island is the most densely populated in the Eastern Caribbean, with one third (31 percent) of the population living in urban areas (World Bank, 2022). It is estimated that c. 71 percent of the population resides in Barbados' four most densely populated parishes (Saint Michael, Christ Church, Saint James, and Saint Peter), see Figure 3.5.

Barbados is a high-income country that enjoys one of the highest per capita incomes in the region, with tourism being a major economic driver (Forbes, 2018). The island welcomed an average of 1,215,000 tourists per year between 2015-2019 (World Bank, 2019).

Bordered by the Caribbean Sea on the West Coast and the Atlantic Ocean on the East Coast, Barbados boasts a total coastline length of 97km (Coastal Zone Management Unit, 2020). The country recognises the immense value of its blue economy and is currently preparing a Marine Spatial Plan (MSP) for its Exclusive Economic Zone. This includes an aspirational target of protecting 30 percent of its ocean space for biodiversity conservation (The Nature Conservancy, 2023).

Designated as a Small Island Developing State, effective and sustainable solid waste management is a critical issue to the country's economy and development.

Approach

Stakeholders

The Government of Barbados established a Plastic Drawdown Steering Committee to oversee the creation and implementation of the National Action Plan. This comprised of representatives from the key ministries responsible for developing policy, as well as municipal government, the private sector and civil society groups.

A wider group of stakeholders was also consulted via their attendance at an in-person workshop. This enabled the robust, inclusive collection of country-specific data and information, and offered valuable insight on the potential stakeholder impacts from the policy options under consideration.

Crucially, consultation of these groups ensured that the analysis has been fully informed by the knowledge and expertise of the organisations and people most closely involved in the production, use and disposal of plastics in Barbados. This means the National Action Plan is co-created by those who will ultimately play a key role in its effective implementation.



The Plastic Drawdown Steering Committee consists of representatives from the following organisations:

- **Ministry of Environment and National Beautification, Blue and Green Economy (MENB)**
- **Ministry of Tourism and International Transport**
- **Ministry of Agriculture and Food Security**
- **Ministry of Finance, Economic Affairs and Investment – Economic Affairs Department**
- **Ministry of Transport, Works and Water Resources (Drainage Department)**
- **Environmental Health Department (EHD)**
- **Ministry of Health**
- **Environmental Protection Department (EPD)**
- **Coastal Zone Management Unit (CZMU)**
- **Project Management Coordination Unit (PMCU)**
- **Sanitation Services Authority (SSA)**
- **Barbados Water Authority (BWA)**

In addition, the wider stakeholder organisations who contributed via their input into the workshop are listed below:

- **Newport Water**
- **United Nations Development Programme (UNDP)**
- **Eco Skywater**
- **University of the West Indies- Centre for Resource Management and Environmental Studies (UWI-CERMES)**
- **Caribbean Youth Environment Network (CYEN)**
- **Glacial Pure**
- **Prosource**
- **Banks Holding Limited**

PHOTOS: STAKEHOLDER WORKSHOP



Approach to developing the National Action Plan

A baseline study brought together the best available information on plastic waste generation and management, to model waste flows (p. 37) and subsequently quantify the proportion of plastic waste that is captured by waste management infrastructure. The study also assessed the quantities of plastic pollution leaking into the marine environment. This included a review of country and region-specific literature sources related to plastic waste generation and leakage to support understanding of the national plastic waste flow system.

Stakeholder consultation involved interviews with individuals and organisations from across the plastics value chain. This provided invaluable contextual insights and expert knowledge to complete data gaps and allow a holistic understanding of Barbados’ plastic waste system.

Policy analysis and visualisation drew on a global literature review of the effectiveness of different plastic policies, alongside stakeholder insights and a review of existing policies in Barbados. The analysis explored the potential for 20 different policies to tackle the country’s plastic problem (p. 29). This highlighted the instruments that could have the greatest potential impact on reducing plastic waste and pollution in Barbados – taking into account the plastic waste composition and leakage characteristics identified in the baseline study.

Development of the National Action Plan included a stakeholder workshop and consultation. It drew on the Committee and a wider group of expert stakeholders to build understanding of the different policies under consideration, and enable the prioritisation of key strategies and actions for inclusion within the NAP.

This process included:

- Eliminating policies that were undeliverable for practical, economic or political reasons;
- Confirming a shortlist of policies with broad stakeholder support;
- Understanding which of these policies can be implemented in the short, medium or long term;
- Amending the design of each policy to fit Barbados;
- Identifying the stakeholders that will be involved in the design and implementation of each policy;
- Developing suggestions for how each policy can be financed.

Plastic Drawdown tool

The analysis was underpinned by the Plastic Drawdown tool. Plastic Drawdown was developed by Common Seas in consultation with 24 governments including low to middle income countries and SIDS governments (2020).

Application of the tool by experts at Common Seas provided crucial data to:

- Describe the composition of Barbados' plastic waste.
- Understand how much waste becomes plastic pollution.
- Explore how the problem will change over time.
- Analyse plastic-related policy.

1. ANALYSE PLASTIC-RELATED POLICY

The tool analyses the total and yearly reductions in plastic pollution that could be achieved by 20 policies. This is used to visualise the combined reductions achievable by different policy strategies and the remaining plastic pollution after policy interventions. The Technical Annex details the data sources and assumptions used to develop a bespoke Plastic Drawdown model for Barbados.

2. UNDERSTAND HOW MUCH WASTE BECOMES PLASTIC POLLUTION

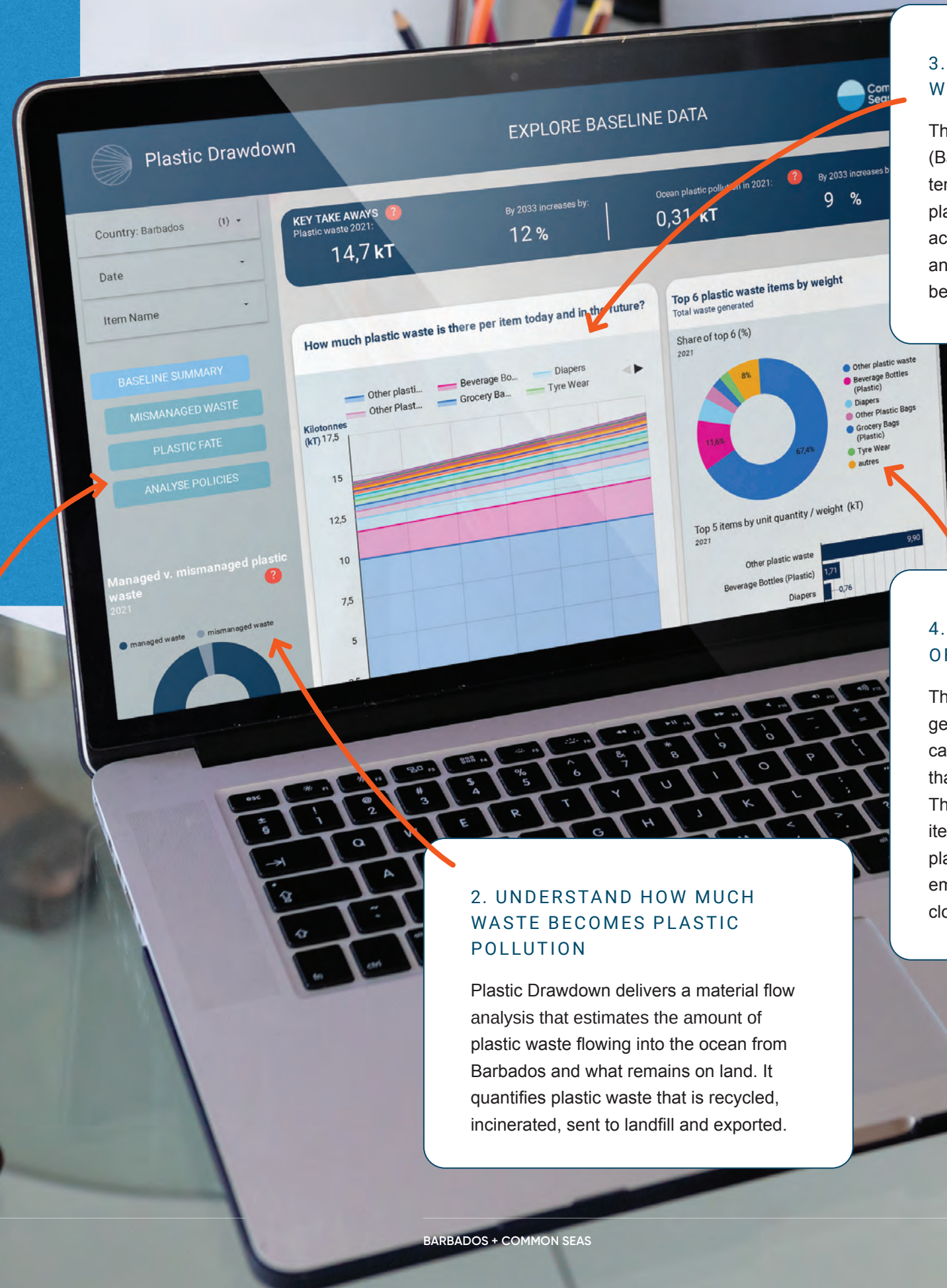
Plastic Drawdown delivers a material flow analysis that estimates the amount of plastic waste flowing into the ocean from Barbados and what remains on land. It quantifies plastic waste that is recycled, incinerated, sent to landfill and exported.

3. EXPLORE HOW THE PROBLEM WILL CHANGE OVER TIME

The tool forecasts a Business as Usual (BaU) scenario projected over the next ten years, for waste generation and plastic pollution. It assumes no further action is taken to address plastic pollution and current policy, infrastructure, and behaviours remain the same.

4. DESCRIBE THE COMPOSITION OF BARBADOS PLASTIC WASTE

The tool quantifies the total plastic waste generated by imported products and categorises it into the 29 plastic item types that most commonly pollute the ocean. This includes single use plastics, sanitary items, fishing gear and construction plastics. It also estimates micro-plastic emissions from tyre-wear, brake-wear, clothing fibres, pellets and microbeads.



Baseline assessment of plastic pollution

14,682 tonnes



An estimated 14,682 tonnes of plastic waste was generated in Barbados in 2021, equivalent to 0.14 kg per person per day. This is relatively high compared to other countries in the region, such as Antigua and Barbuda (0.11), Grenada and Saint Lucia (0.08).

equivalent to
0.14^{kg}
per person per day

16,482 tonnes



The total quantity is expected to rise by 12.2% to 16,482 tonnes in 2033, due to increases in consumption and population growth (see Table 1).

an increase of
↑12%
expected in 2033

The most common individual macroplastic* items generated are single-use plastic bags, beverage bottles, diapers and construction plastics (see Figure 4).

3,044 tonnes



Taken together, single-use food and packaging items comprise an estimated 3,044 tonnes of waste in 2021 (beverage bottles, plastic bags, take-away containers, disposable cups, plates and cutlery, lids, bottle caps and food wrappers). This is 21% of all plastic waste and 3% of all municipal solid waste.

Single-use food and packaging is
21%
of all plastic waste and
3%
of all municipal solid waste

367 tonnes



Total microplastic* generation was estimated at 367 tonnes in 2021 and comprised tyre and brake wear particles, clothing fibres and plastic pellets (see Table 1).

The most common individual items generated are:

- Tyre and brake wear particles
- Clothing fibres
- Plastic pellets

Total waste generation

Barbados produced an estimated 14,682 tonnes of plastic waste in 2021

The majority of this waste was generated within Barbados (see Table 1) and comprises macroplastics and microplastics. Imports of plastic waste to Barbados, as reported by market analysis data, are very small at just 2.9 tonnes in 2021.

Average per capita plastic waste generation in Barbados is estimated at 0.144 kg per person per day. This is similar to other high-income countries; however, this is high relative to other countries in the region. For example, it is almost twice as high as the per capita plastic waste generation of Grenada (0.08 kg/person/day) and Saint Lucia (0.08 kg/person/day).

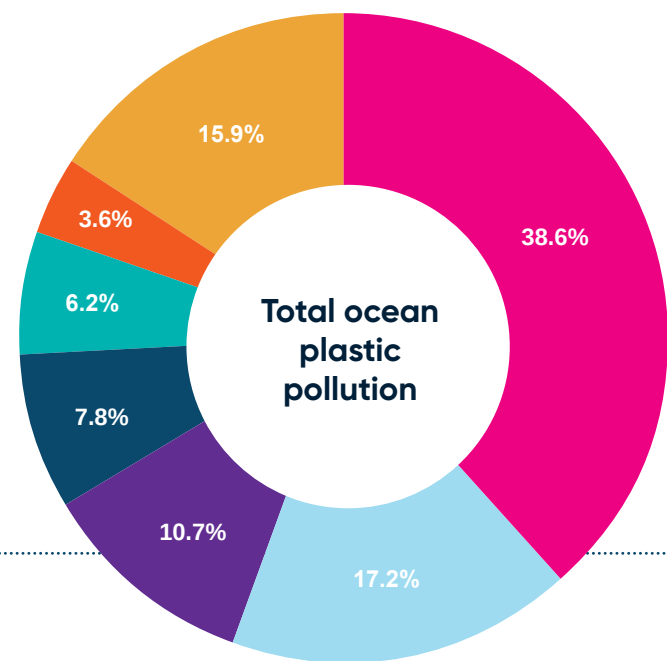


Figure 5. Top 6 plastic items polluting the ocean (%)



Macroplastics

The most common identifiable plastic items generated as waste in 2021 are:

- Beverage bottles
1,709 tonnes
- Grocery bags and other single use plastic bags
816 tonnes combined
- Diapers
760 tonnes
- Construction plastics
275 tonnes

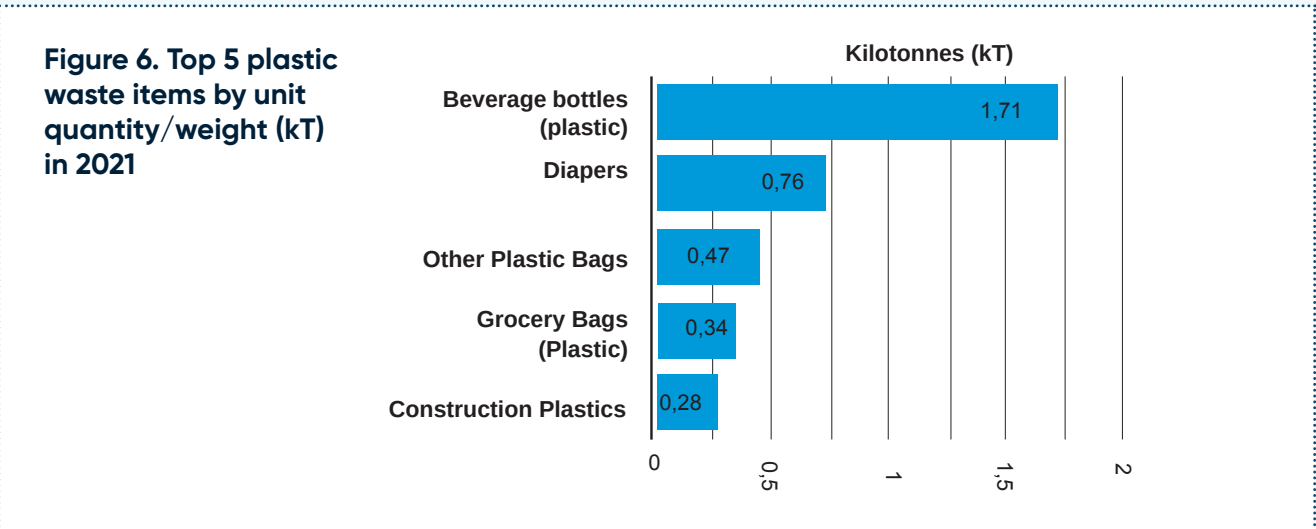
Bottle caps (172 tonnes), takeaway containers (149 tonnes), disposable cups and plates (146 tonnes), non- beverage single-use plastic bottles (90 tonnes), single serve sachets (90 tonnes), sanitary pads (64 tonnes) and wet wipes (61 tonnes) are also a key component of plastic waste. The full breakdown of items is illustrated in the table (see Table 1).

‘Other plastic waste’ is a relatively large fraction. This relates to materials that it is not possible to identify specifically using available data. It is likely that this includes some of the identified items that we are unable to apportion due to inadequate composition data. The remainder of this faction comprises of a diverse range of other plastic items, e.g. including heavier household items like e-waste, commercial wastes, waste car parts, etc.

Table 1. Plastic waste generation by item, 2021 and 2033 (tonnes)

ITEM	2021	2033
Beverage bottles (plastic)	1,709	2,296
Diapers	760	1,206
Other plastic bags	472	615
Grocery bags (plastic)	344	434
Tyre wear	334	336
Construction plastics	275	374
Bottle caps (plastic)	172	249
Take out/away containers (plastic)	131	178
Cups, plates (plastic)	105	147
Other plastic bottles (oil, bleach, etc)	90	118
Single serve sachets (non-food)	66	90
Sanitary pads	64	83
Wet wipes	61	89
Cups, plates (foam)	41	54
Food wrappers (candy, chips, etc.)	38	49
Single serve sachets (non-food)	24	37
Clothing fibres	20	20
Take out/away containers (foam)	18	23
Pellets	12	16
Straws, stirrers	11	14
Forks, knives, spoons	8	11
Balloons	6	8
Cigarette butts	6	9
Lids (plastic)	6	7
Condoms	5	8
Fishing gear	1	1
Brake wear	0.1	0.1
Microbeads**	0.0	0.0
Imported waste***	-	-
Other plastic waste	9,902	10,009
Total	14,682	16,482

Figure : Plastic waste generation by item, 2021 (tonnes)
**Review of available data and consultation with stakeholders did not identify any strong evidence that microbeads are used in Barbados and form part of the plastic waste stream.
***Consultation with stakeholders indicated that no plastic waste is imported into Barbados. However, the UNCommtrade database records three tonnes of plastic waste imported. This is considered to be erroneous data.



Single-use packaging

The most common single use items are thought to comprise almost a quarter of plastic waste generated in Barbados. These include:

- Beverage bottles
- Plates and cutlery
- Plastic bags
- Lids
- Take-away containers
- Bottle caps
- Disposable cups
- Food wrappers



These items pose a high risk to the environment as they are generated in high unit volumes and have been found to be a common component of litter, as confirmed by the beach clean data (see Table 2) This is in part due to single use plastics often being ‘on the go’ packaging items used by consumers in public places.

The products are relatively lightweight, particularly bags and wrappers. This presents challenges for solid waste management they are more likely to leak into the environment due to wind and rain transport. In turn, this creates a higher risk of blocked drains, leading to flood events (which can contribute to increased levels of plastic pollution).

Stakeholder consultations confirmed that plastic beverage bottles remain a particularly challenging item. It was reported that the deposit return scheme (under the Returnable Containers Act, 1986) has helped to improve collection rates. However, return rates, which are estimated at about 70 percent, are still lower than would be expected from a well-functioning scheme which would be considered over 90 percent.

Similarly, stakeholders reported that single-use plastic bags still pose a key litter problem. As an alternative to the banned petroleum bags supermarkets now provide biodegradable single-use plastic bags instead. However, littering of biodegradable bags may have actually increased as consumers incorrectly perceive them to be biodegradable in the natural environment.

PHOTO: WASTE AT THE SUSTAINABLE BARBADOS RECYCLING CENTRE (SBRC) IS HANDLED INSIDE A WASTE RECEPTION BUILDING, LIMITING ESCAPE OF MATERIALS. NOTE LARGE QUANTITIES OF PLASTIC BAGS AND FILMS

Microplastic

Total micro plastic generation in 2021 was estimated at 366 tonnes. This comprised:

- Tyre and brake-wear particles
334 tonnes
- Clothing fibres released during washing
20 tonnes
- Plastic pellets, used in production
12 tonnes



Market research data obtained during the course of this study also indicated that approximately 300 tonnes of microbeads - typically used in cosmetics and cleaning products – are imported into Barbados each year. However, further research and stakeholder discussions did not find any evidence that microbeads are used as an input for the manufacture of these items in Barbados, so this was considered to be erroneous and was excluded from further analysis.

Estimating microplastic waste generation is particularly problematic due to a lack of relevant data and the nascent level of understanding of this issue. As such, estimates of microplastic generation for Barbados are provided for context.

It is recommended that the issue of microplastics is investigated further as part of Barbados’ activities on tackling plastics pollution. For more information about microplastics and how they are being considered in the ongoing INC negotiations, please see the case study on page 100.

PHOTOS: EXAMPLE OF MICROPLASTIC FRAGMENTS

Projection of future waste generation

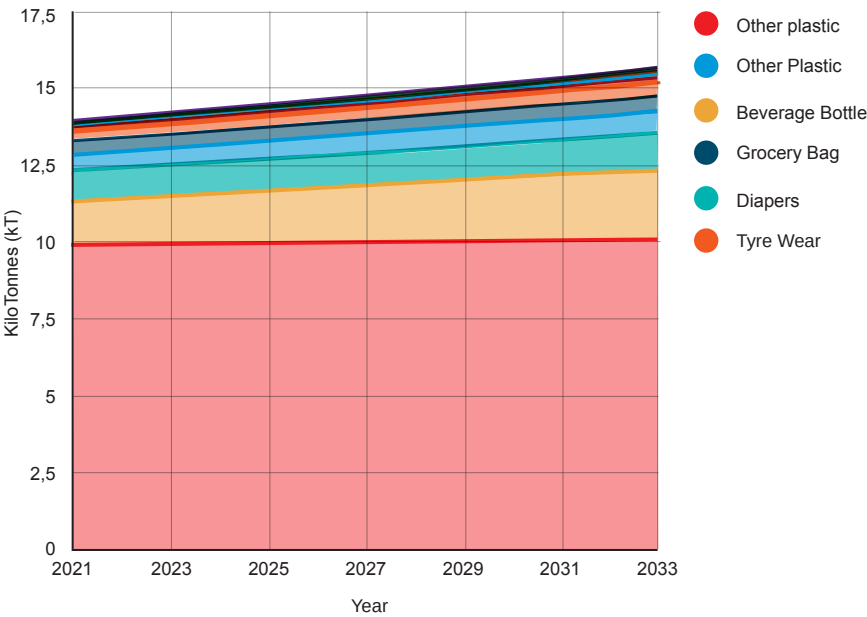
In the absence of any new policy interventions to address plastic waste (otherwise known as the 'Business as Usual' scenario) it is estimated Barbados will produce a total of 202,076 tonnes of plastic waste from 2021-2033.

The amount of plastic waste generated each year is estimated to increase by 12.2 percent, from 14,682 tonnes in 2021 to 16,482 tonnes in 2033. This increase is due to two main factors:

1. Projected growth of relevant product and packaging markets over the modelled timeframe from market research (PMR, 2022); and
2. Population growth rates until 2033, based on historical population figures from the last five years (World Bank, 2022), projected population figures from the United Nations (2017).

Population growth is expected to taper off and contract over the long term. However, waste generation is still expected to grow considerably overall due to projected forecast increases in consumption (see Figure 7).

Figure 7. Growth in estimated plastic waste generation over time



202,076 tonnes
of plastic waste from 2021-2033.

Plastic Flows: Summary

This section describes the flows – or pathways – that plastic waste in Barbados takes on its journey to either recycling or disposal ('managed waste') or into the environment ('mismanaged waste').

Managing the flow

Plastic Drawdown uses a material flow-type approach to consider how plastic waste moves through the country, from the point of generation as waste, to its potential release into the environment. This allows the plastic pollution problem to be illustrated as a flow diagram, with the course of different types of plastic along each part assessed and quantified. The overarching flow diagram for Barbados is shown in Figure 8.

The course can be considered in terms of three interlinked parts:



1. Flows through the solid waste management system, and potential leakages from this system (e.g. escape of plastic items from landfill)

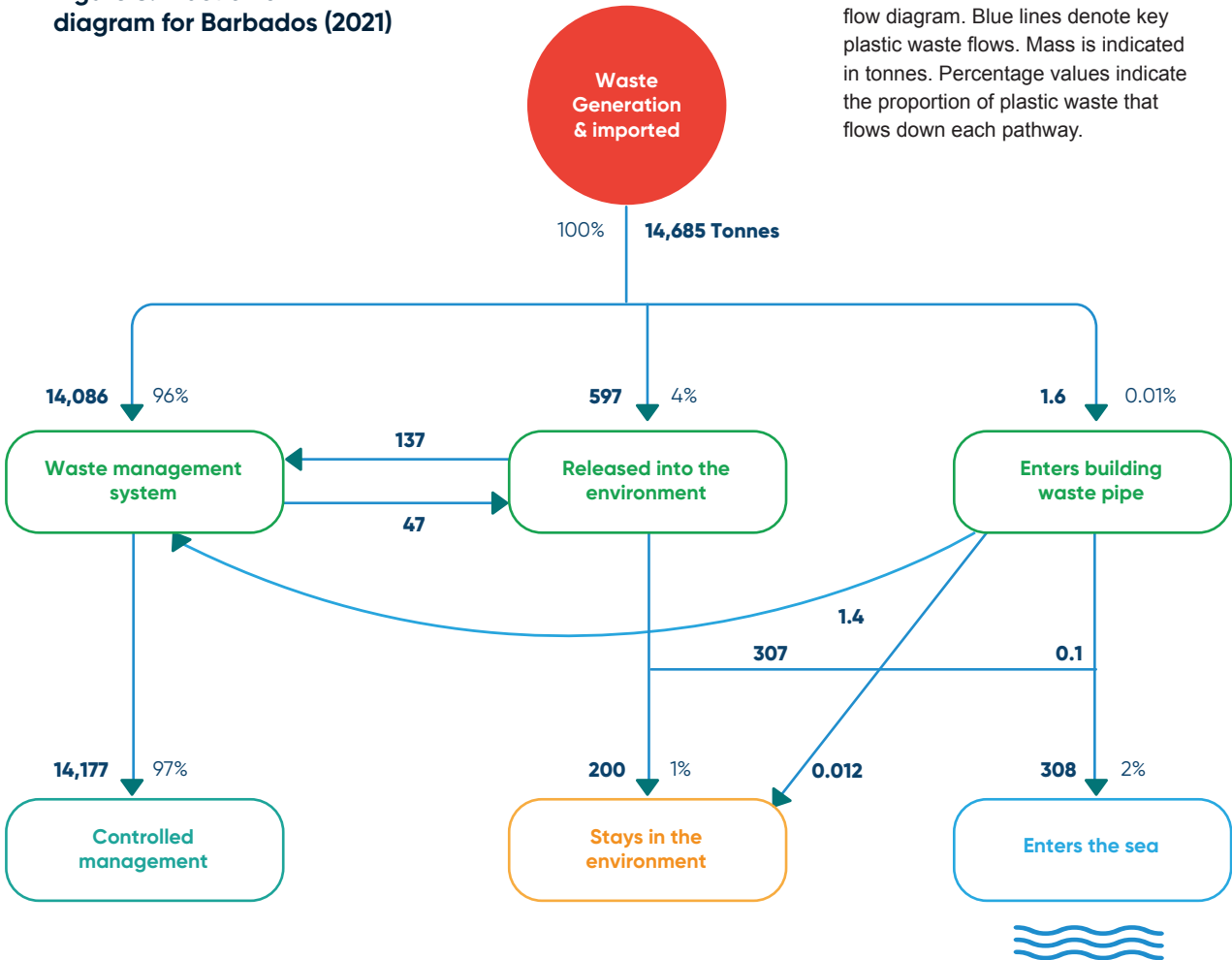


2. The release of plastics directly into the environment (e.g. littering of plastic items in the environment)



3. Discharge of plastics into drainage and wastewater systems (e.g. flushing of microplastic items or microplastics in wastewater)

Figure 8. Plastic flow diagram for Barbados (2021)



Solid waste management in Barbados

Modelling indicates that, under a business-as-usual scenario, Barbados will be landfilling approximately 13,407 tonnes of plastic waste in 2033, 9 percent more than in 2021.

The Sanitation Service Authority (SSA), which falls under the Ministry of Environment, National Beautification, Green and Blue Economy (formerly the Ministry of Environment and Drainage) is responsible for street sweeping, and the collection, transportation and disposal of all household municipal solid waste, as well as the operation of the disposal site (Ministry of Environment and National Beautification, 2023).

Waste collection services have generally improved over the last five years due to the Residential Waste Collection Improvement Project, which was implemented by SSA, in partnership with Prosource Ltd. Representatives from the project confirm that all households currently have weekly collection and commercial centres in Bridgetown have collection up to 13 times per week.

Municipal waste that is collected is transported to the Sustainable Barbados Recycling Centre (SBRC), which serves as a centralised location for the handling of all waste. The Centre aims to measure waste quantities and remove recoverable material before residual waste is transferred to landfill. Private waste companies also collect waste from businesses and institutions. This is generally also delivered to SBRC but may be taken directly to landfill.

Research and stakeholder feedback suggests that the waste management system operates effectively with relatively low levels of leakage during collection, transport and landfilling. However, a challenge relates to the capacity of the main landfill to accept waste in the long term.

Currently, there is no law for source segregation in Barbados and stakeholder consultations suggest that waste separation is the exception rather than the rule, and plastic waste in co-mingled waste is generally directed to landfill. Some recyclable materials, particularly returnable beverage containers, are collected by private companies and informal collectors. Householders can also deliver plastic recyclables (primarily bottles) to depots at supermarkets, where they are collected by waste companies. There is no established recycling on the island (although there has been an initiative to recycle plastic bottles into roofing tiles). As such, plastic waste is aggregated, processed and exported for recycling.

Approximately 1,916 tonnes of plastic waste were exported in 2021 comprised mainly of PET bottles.

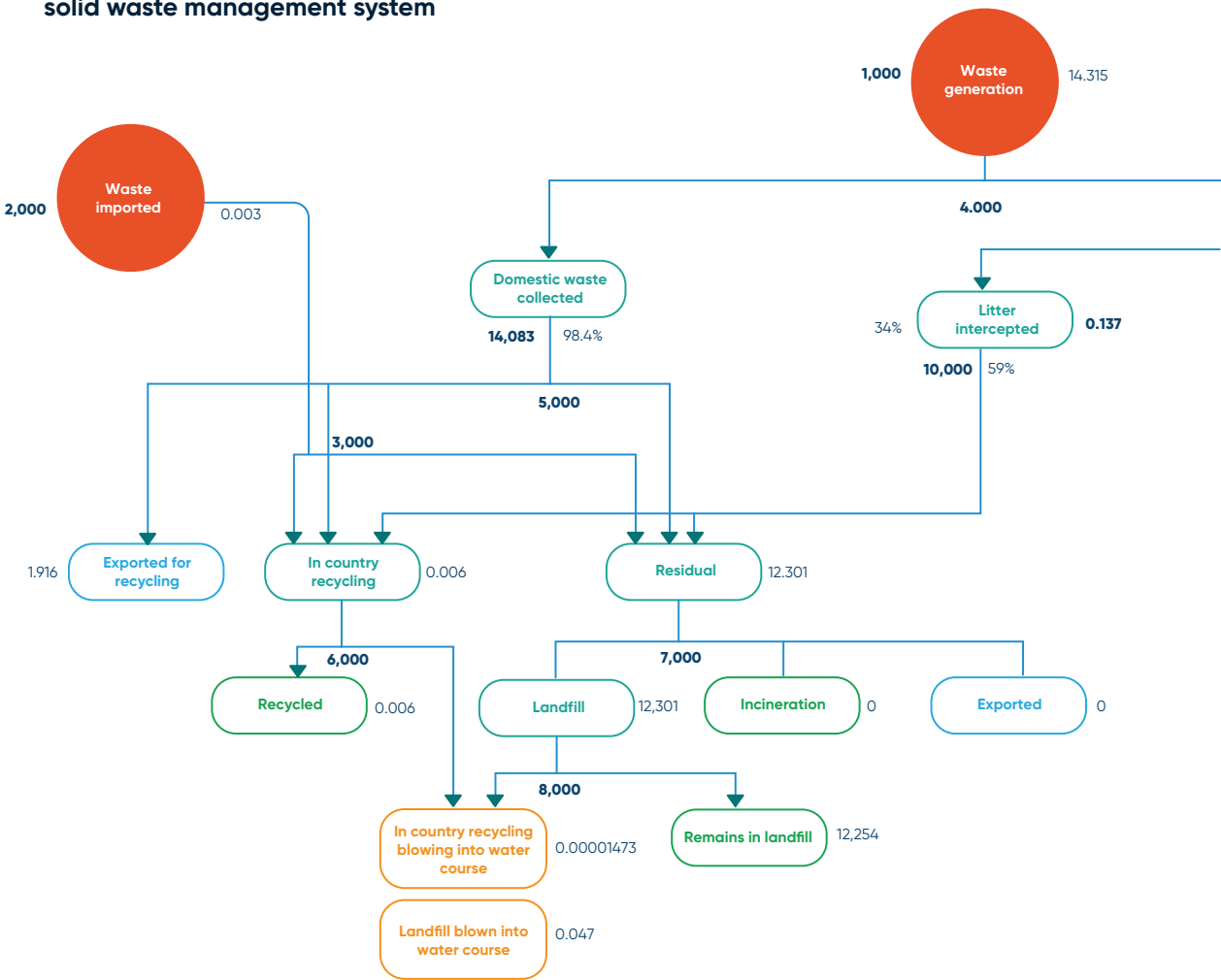
There is one sanitary landfill in Barbados, namely Mangrove Pond Landfill in Vaucluse, St. Thomas. Plans are in place for the construction of a new cell to facilitate more waste disposal. Most plastic waste is expected to end up in this landfill.



Photo: waste collection in Barbados

13,407 tonnes of plastic waste in 2033, 9% more than in 2021.

Figure 9. Flow of plastics through the solid waste management system



Releases directly into the environment

It is estimated that 4 percent (597 tonnes) of the plastic waste generated in 2021 is released directly into the environment, through littering and occasional illegal dumping.

The Fire Service Fee Order which took effect on April 1 2020, has led to the open burning or burying of waste in Barbados becoming uncommon. By contrast, stakeholder consultations highlight that littering and illegal dumping (particularly of white goods and larger items) remain substantial challenges in Barbados.

There are public bins in high footfall areas (some of which are segregated), but it is unclear whether these are used consistently or emptied regularly. Moreover, there is little data on the number of bins in less populated areas. It is thought that littering of on-the-go-items (plastic bags, beverage bottles and caps, straws and stirrers, food wrappers, single serve food sachets, takeaway containers, cups, plates and cutlery), is relatively common, and constitutes the majority of plastic waste that is released into the environment.

Some of these plastic materials (137 tonnes) are captured by street cleaning operations and trash screens in surface water drains, where present. Stakeholder consultations highlight that the streets are cleaned regularly, particularly in high footfall and tourism areas, where this occurs daily.

The Clean and Green Barbados initiative, which employs people to clean the streets every week, contributes to the high frequency of street cleaning reported by stakeholders. Additionally, various stakeholders (e.g., EPD, Future Centre Trust, The National Conservation Commission, CYEN) have also undertaken litter clean ups in various areas, particularly on beaches.

Survey work conducted by CYEN indicates that, in addition to almost four tonnes of fishing gear in the form of items such as abandoned nets and pots, beverage bottles and caps, disposable cups and plates, non-beverage plastic bottles, takeaway containers, grocery bags and disposable cutlery are commonly found on beaches (see Table 2) (Ocean Conservancy, 2020).

Note that the data presented is based on survey data collected during a beach cleaning operation so represents the quantity present on the beach at one specific moment in time. The data is not directly comparable to the estimates of quantities of plastic waste leaking in Barbados over the course of one year.

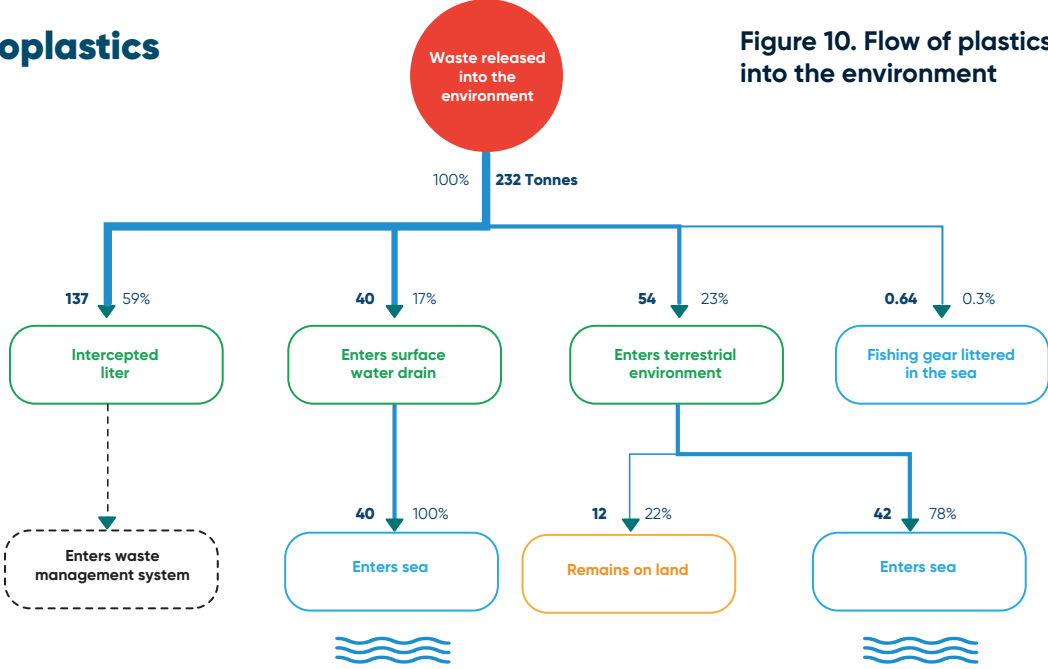
ITEM	ESTIMATED QUANTITY (KG)
Fishing gear	3,987
Beverage bottles (plastic)	63
Bottle caps (plastic)	25
Cups, plates (plastic)	14
Other plastic bottles (oil, bleach, etc)	12
Take out/away containers (rigid plastic)	6.2
Lids (plastic)	3.8
Take out/away containers (EPS foam)	3.6
Grocery bags (plastic)	2.4
Forks, knives, spoons	1.8
Cups, plates (foam)	0.9
Diapers	0.7
Straws, stirrers	0.35
Cigarette butts	0.25
Condoms	0.10
Sanitary pads	0.04
Balloons	0.01

TABLE 2: SUMMARY OF PLASTIC WASTE ITEMS FOUND ON BEACHES IN BARBADOS (SOURCE: CYEN, 2022)

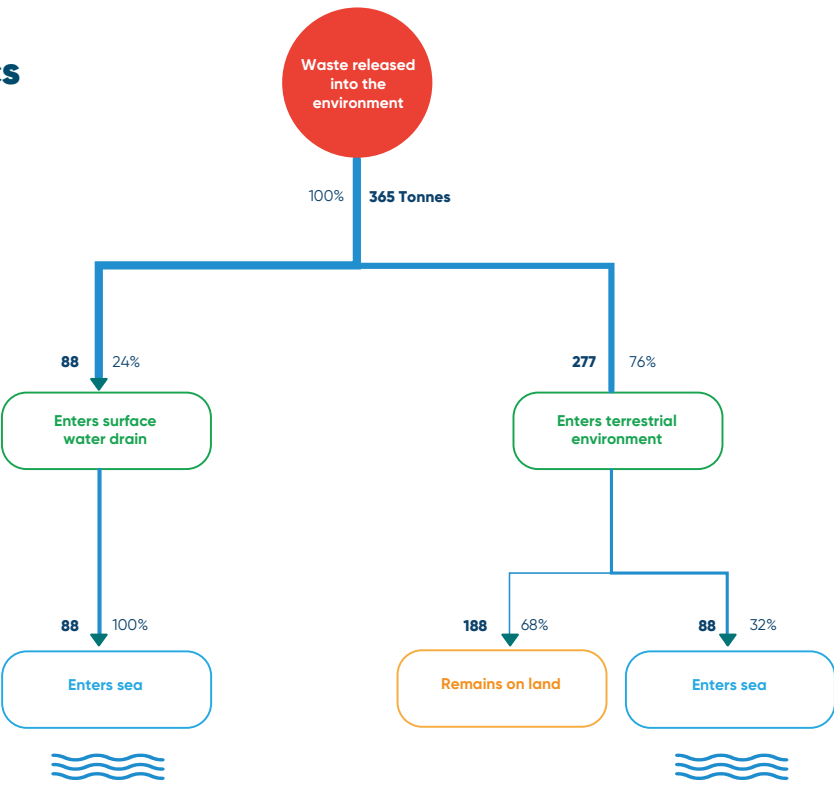
597 tonnes (4%)

Macroplastics

Figure 10. Flow of plastics into the environment



Microplastics



Macroplastic and microplastic flows have been shown separately because the mass flowing are significantly different

Wastewater and surface water drainage systems

The flow of waste plastics through domestic wastewater and surface water drainage systems is also a pathway for plastic waste to enter the environment.

An estimated 1.6 tonnes of plastic waste are estimated to enter building waste pipes.

These materials contain a combination of flushable macroplastic items (e.g. sanitary items and diapers) and microplastic clothing fibres released in the washing of synthetic textiles.

Many properties in Barbados (97%) are not connected to a municipal sewerage system, so these materials enter either septage or suck well systems. Properties in the main urban areas are connected to a municipal sewer meaning that some of these materials are intercepted by treatment systems.

Stakeholder discussions suggest that householders are unlikely to flush larger items into the wastewater system, so the quantity of these materials entering the environment via this route is thought to be relatively low. However, information is limited on this issue so it should be considered as a potential route, particularly for some flushable items as well as microplastics shed from the washing of clothes.

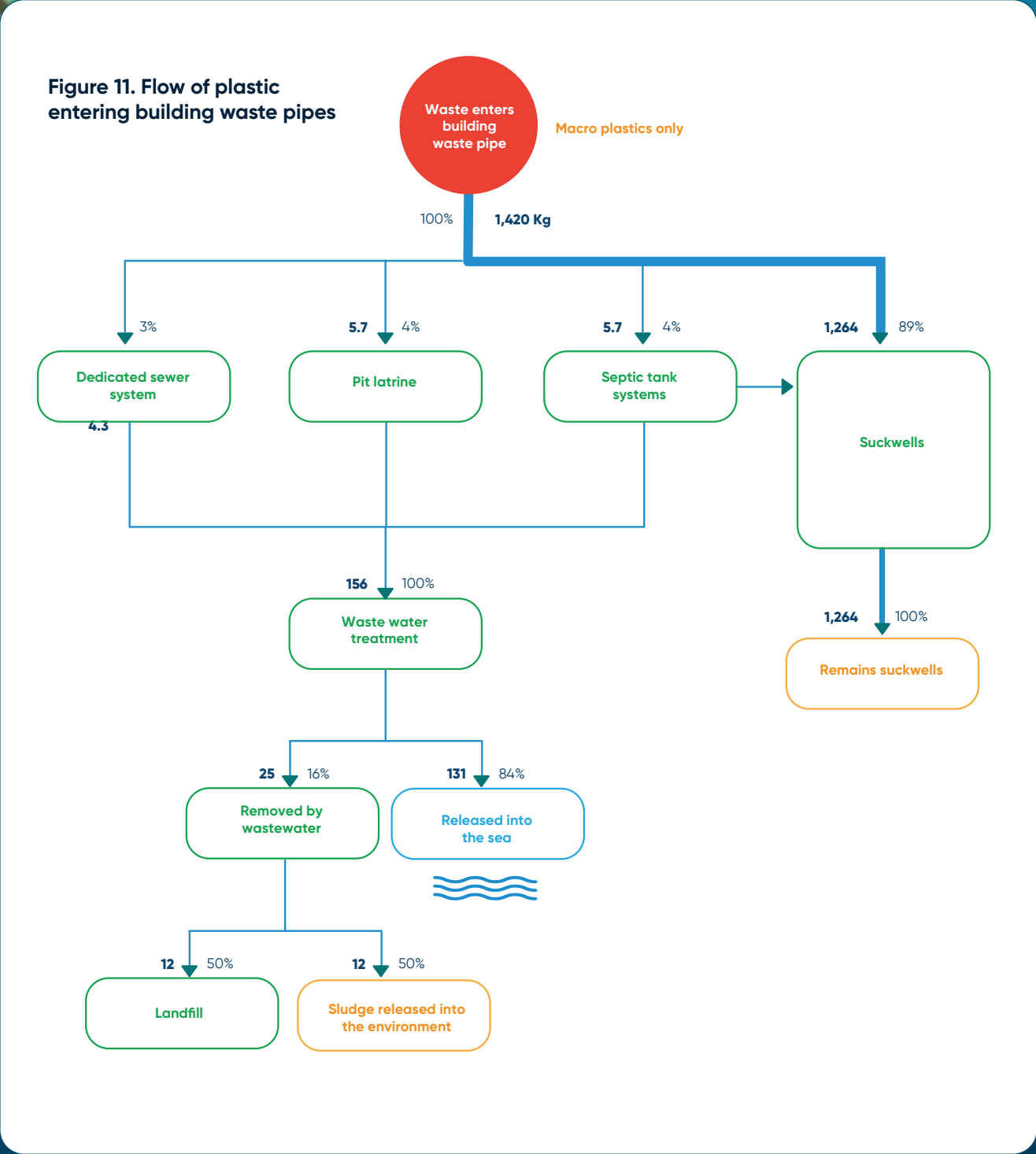
The surface water drainage systems in Barbados are separate from the wastewater system and it is understood that the majority enter surface water courses, meaning that any littered items or microplastics that enter the surface water drains readily flow into water courses and the sea.

Some wastewater from septic tanks is disposed in suckwells, as designated by the directional arrow in Figure 11. However, this it is not a significant pathway for leakage of plastics into the sea (estimated at less than 60kg).



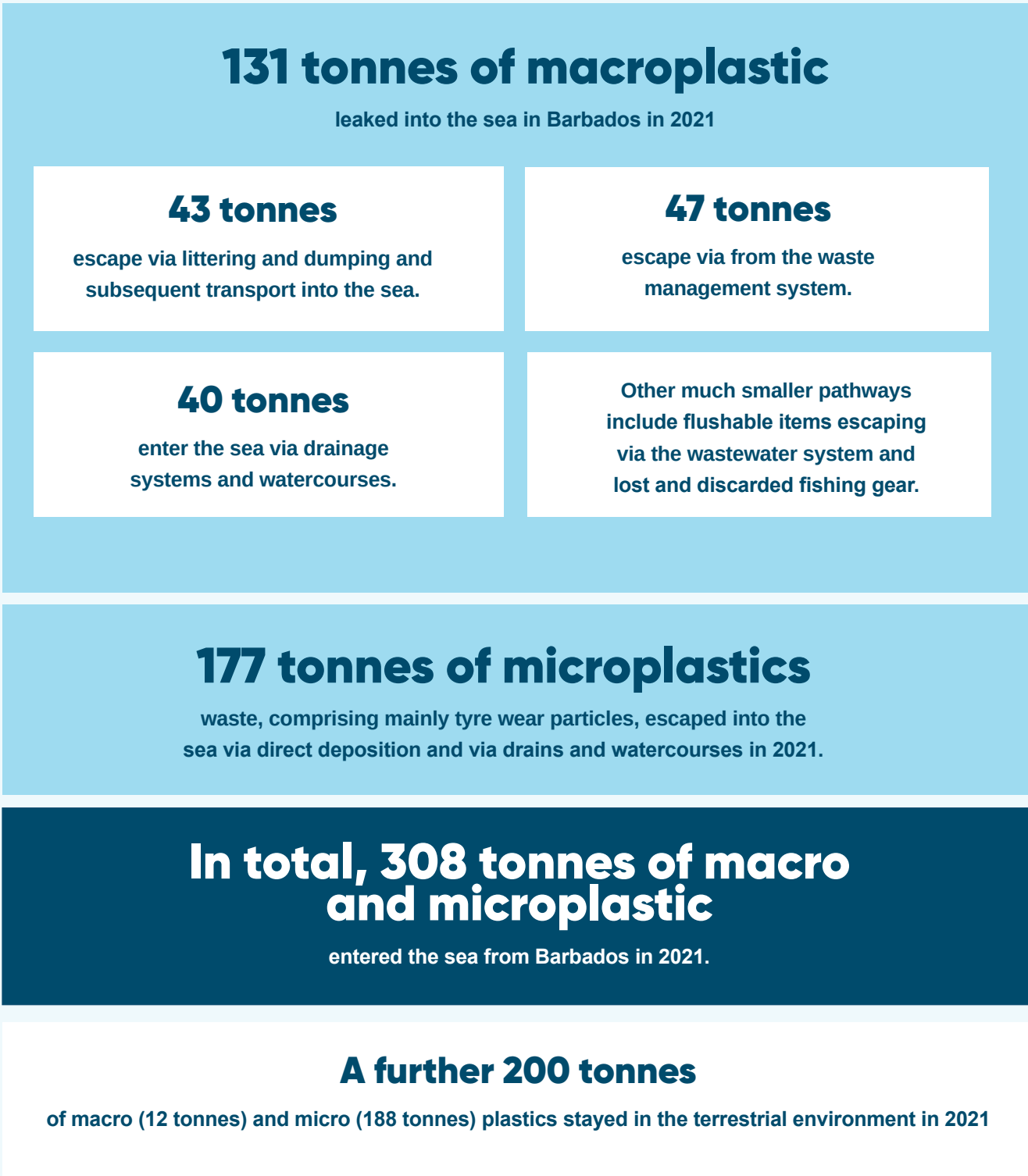
PHOTOS: LITTER IN SURFACE WATER DRAINS AND ESCAPING WHILST WASTE AWAITING COLLECTION

1.6 tonnes



This section discusses the estimated level and nature of plastic pollution leakage into the marine environment in Barbados.

Summary



How much plastic waste leaks into the marine environment?

The Plastic Drawdown analysis indicates that in 2021, 131 tonnes of macroplastic was mismanaged and leaked into the sea. For context, this is equivalent to over seven million plastic beverage bottles entering the ocean (or 26 bottles per person). A further 177 tonnes of microplastic waste also escaped into the sea.

The majority of macroplastic waste enters the ocean via the littering of plastic items on land, which then enters the sea (43 tonnes), and via surface water drainage systems (40 tonnes). This includes all waste that is directly or indirectly littered, or illegally dumped on land, which is subsequently transported to the sea through flooding events, heavy rainfall, or being blown by the wind. This pathway includes plastic pollution arising from high rates of littering of on-the-go items, especially within environments such as beaches or in areas close to coastal and riverine environments.

There is regular street cleaning in Barbados, particularly in high-footfall and busy urban areas, which helps to intercept litter before it enters drains. Many drains have litter traps, and are cleaned twice a year (in advance of the rainy season). Nonetheless, some of the litter that enters drains is expected to enter watercourses and the ocean. Note that a further 12 tonnes of macroplastic waste litter is expected to remain on land.

Littering remains a significant challenge in Barbados, despite many years of awareness campaigns. Moreover, it has been reported that littering may have worsened as a result of the perception that the alternatives to single-use plastics are fully biodegradable and can therefore be disposed of directly into the environment.

Leakage from the waste management system is a source of plastic pollution (47 tonnes). There are strategies in place to minimise escape of waste during storage, collection and transport, and at the landfill (e.g., enclosed waste collection vehicles, enclosed bins, daily coverage of waste), but that there are also some opportunities for materials to escape (e.g., open recycling bins, some collection vehicles without full enclosure and incomplete fencing at the landfill).

Some plastic waste also escapes into the environment via the domestic wastewater system (5 tonnes). Plastic waste transported this way includes both macroplastics (flushed items such as sanitary items) and microplastics (microbeads contained in cosmetics and toiletries). Data indicates that the majority of households (89%) in Barbados dispose of their wastewater into a suckwell system. The remainder either use septic tanks (4%), latrines (4%) or are connected to a piped sewerage system that flows directly into wastewater treatment facilities.

Much of the plastic waste materials in wastewater either remain in situ, in the case of suckwells and latrines, or are captured by wastewater treatment systems that handle wastewater from piped connections or from septic tanks that are emptied. However, treatment facilities do not capture all plastic materials, and some plastic waste is thought to leak via this pathway into the ocean. There may also been some release of materials from suckwell and latrine systems but data on this is very limited, so it has not been included in the estimate above. Further information on microplastics leakage is provided below.



What types of plastic escape into the marine environment?

A total of 131 tonnes of macroplastic waste is estimated to have escaped into the marine environment in Barbados in 2021. This total comprises a wide variety of material types and products, 71 tonnes of which cannot be disaggregated into specific items. The 71 tonnes which remain unidentifiable are likely to comprise household items, other types of packaging, plastic toys and other miscellaneous plastic items. However, available data has been used to identify many of the key items that pose the greatest risk of plastic pollution.

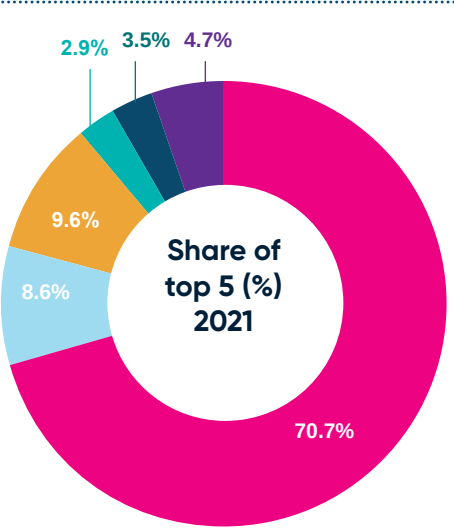
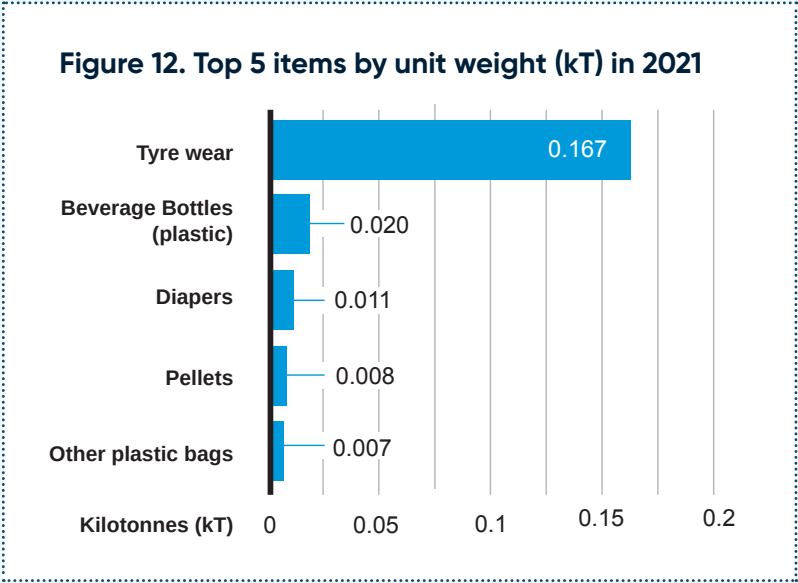
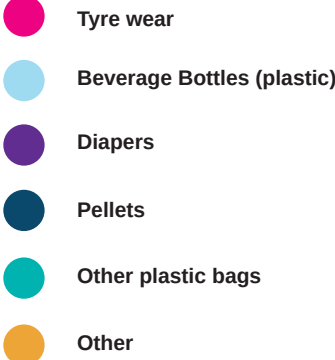


Figure 13. Plastic waste escaping into the sea, excluding unidentified plastic wastes (%)



Plastic pollution is also generated by the construction sector in Barbados, with an estimated 2 tonnes escaping into the environment in 2021. A wide range of plastic materials and items are used in modern construction – ranging from pipes to packaging materials – but it is likely that lighter materials more commonly escape into the environment (e.g. packaging used to transport construction products to sites and lightweight plastic coverings).

177 tonnes
Microplastics

Estimates suggest that microplastics are also a major source of marine plastic pollution in Barbados (177 tonnes). These microplastics comprise tyre and brake wear (167.2 tonnes), pellets (8.4 tonnes) and clothing fibres (1.4 tonnes). Tyre and brake wear is generated by vehicle use on the island. These small particles are transported through the air into water courses and the sea. Plastic pellets are used in the manufacture of plastic products and escape during their transport, storage and use. Clothing fibres are generated from the washing of synthetic clothing and textiles and reach the sea via the wastewater system.

What is the future projection for plastic leakage in Barbados?

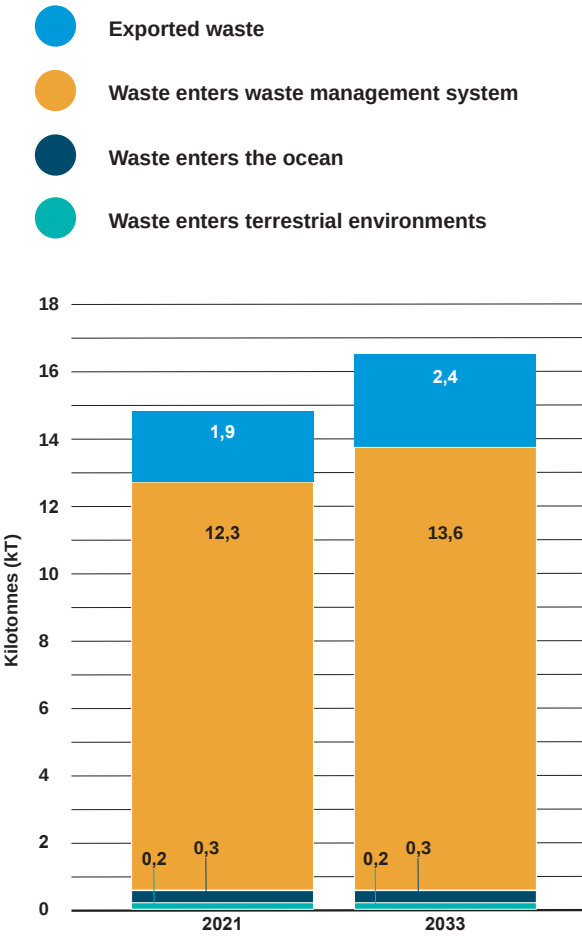
In the absence of policy interventions, it is estimated that a cumulative total of 6,810 tonnes of plastic waste will enter Barbados' marine and terrestrial environments over the 12-year period between 2021 and 2033.

The increase in plastic waste generation over time, and lack of clear, effective and robust policy or control mechanisms under the future projection for plastic leakage under the Business as Usual (BAU) scenario, leads to a significantly increased amount of plastic waste entering the sea by 2033 (see Figure 15). This demonstrates the urgent need to improve or implement additional policy measures to reduce plastic pollution.

Table 3. Plastic waste entering the marine environment by item, 2021 & 2033 (tonnes)

ITEM	2021	2033
Macroplastics	131	154
Beverage Bottles (plastic)	20.4	27.5
Diapers	11.1	17.6
Other Plastic Bags	6.8	8.8
Grocery Bags (Plastic)	4.9	6.2
Bottle Caps (Plastic)	2.5	3.6
Construction Plastics	2.0	2.7
Take Out/Away Containers (Plastic)	1.9	2.6
Cups, Plates (Plastic)	1.5	2.1
Cigarette Butts	1.4	2.0
Other Plastic Bottles (oil, bleach, etc.)	1.3	1.7
Sanitary pads	0.9	1.2
Single serve sachets (non-food)	0.9	1.3
Wet wipes	0.9	1.3
Fishing Gear	0.6	0.9
Cups, Plates (Foam)	0.6	0.8
Food Wrappers (candy, chips, etc.)	0.6	0.7
Single serve sachets (food)	0.3	0.5
Take Out/Away Containers (Foam)	0.3	0.3
Condoms	0.2	0.3
Straws, Stirrers	0.2	0.2
Forks, Knives, Spoons	0.1	0.2
Balloons	0.1	0.1
Lids (Plastic)	0.1	0.1
Other plastic waste	71.1	71.8
Microplastics	177	180
Tyre Wear	167.2	168.0
Brake Wear	0.04	0.04
Clothing Fibres	1.4	1.4
Pellets	8.4	10.9
Microbeads	0.00	0.00

Figure 14. Plastic waste generation in Barbados, 2021-2033 (kT)



It is estimated that a cumulative total of 6,810 tonnes of plastic waste will enter Barbados' marine and terrestrial environments over the 12-year period.

Figure 15. Plastic waste leakage into the ocean in Barbados, 2021-2033

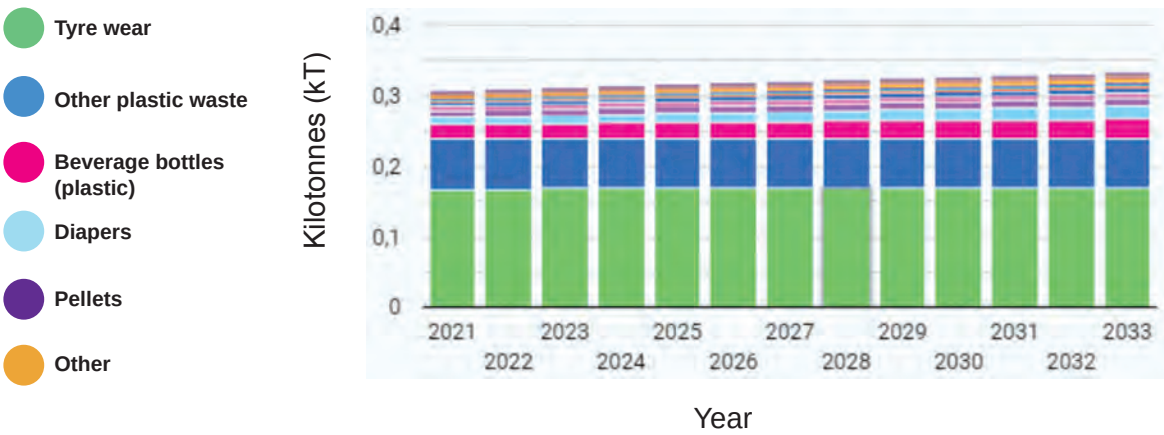
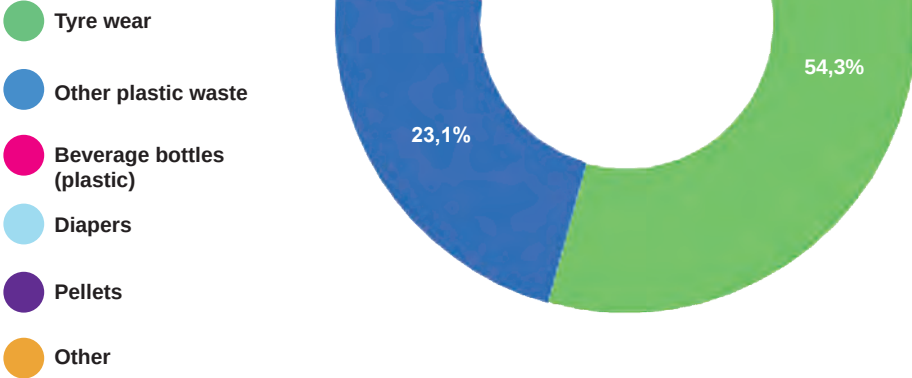


Figure 16. Share of top 5 plastic waste items in 2021 (%)



Summary of Plastic Policies & Regulations

The Government of Barbados has not yet created a dedicated strategy to address plastic pollution. However, there are several key pieces of legislation that govern different aspects of solid waste management and the wider management of litter. These act as a solid foundation for building the action required to reduce plastic waste and litter.

- **Control of Disposable Plastics Act (2019-11)** provides the legislation for a ban on the import, distribution, sale or use of petroleum-based bags, plastic containers, cutlery, and straws. The act provides an exception for products labelled as “environmentally sustainable” after receiving a license from the relevant Minister. The law exempts all containers regulated under the Returnable Containers Act. The act was reinstated again in February 2022 due to some confusion around the requirements, as well as reduced impact from COVID-19. The ban is largely successful, however it has led to the proliferation of alternative products and materials (e.g. ‘biodegradable plastics’) which are causing some challenges – both at Customs (e.g. in the identification of banned items), as well as in the continued littering of these alternative items.
 - **The Barbados Sustainable Development Policy (2004)** is an integrated framework for policy development, with the aim to sensitise all persons in Barbados about the need to make wise choices daily, at the individual, household, business, community and national levels. It contains core concepts which inform the principles of Sustainable Development as well as specific policy recommendations which will inform sustainable practices and activities in Barbados.
 - **Returnable Containers Act (1986)** provides the legislation for Barbados’ deposit return scheme (DRS). The act currently sets refund value for glass containers at 20 cents and other containers at 10 cents. The Minister may exempt distributors or dealers from the law if they have “adequate recycling systems” in place. While the scheme seems to be working very well for glass bottles, the impact is reportedly not as strong for plastic bottles. There is also some confusion on the scope and operation of the DRS, in part due to inconsistencies in enforcement.
 - **The Marine Pollution Control Act (1998)** was established to prevent, reduce, and control pollution to the marine environment from land-based sources of pollution. While there is no specific mention of plastic, it requires polluters to report and provide information on their pollutants to the Environmental Protection Department, who administer the Act.
 - **The Sanitation Service Authority Act (1974)** established a Sanitation Service Authority to perform the functions formerly performed by the Sanitation and Cemeteries Board and for related matters. Key functions fall under four key areas: Excreta management systems, wastewater management systems (included here are wastewater treatment plants), solid waste management systems, drainage systems for rainwater, also called storm water drainage.
 - **The Integrated Solid Waste Management Programme** was formulated under the Solid Waste Project Units (now known as the Project Management Coordination Unit – PMCU). It is responsible for the effective management of all solid waste generated in Barbados. They are responsible for operating the recycling centre, waste collection service, and support on necessary institutional strengthening, public awareness and education, and policy development (Barbados Solid Waste Management Programme, 2023).
- For a full list of policies related to plastic, as well as the relevant international and regional agreements that Barbados has signed, (Lancaster, A., 2022).

Summary of Initiatives & Projects

Below is a brief summary of completed, ongoing and planned initiatives for plastic and solid waste management. When developing a National Action Plan, it is important to consider learnings from previous projects, as well as activities occurring under current and upcoming projects, to maximise efficiencies and ensure priorities are aligned with existing commitments.

-  **Completed**
- **B’s Recycling trial for source segregation at the household**
 - **Distribution of blue recycling bins for householders**

-  **Ongoing**
- Enactment of the Control of Disposable Plastics Act, 2019-11
 - Participation in the ongoing sessions of the Intergovernmental Negotiating Committee to develop an international legally-binding instrument on plastic pollution, including in the marine environment.
 - A project to enhance opportunities to create a circular economy through improved management of plastics and plastic waste through funding from the Basel Convention Plastic Waste Partnership.
 - School Recycling Programme is run by the Solid Waste Management Programme and is aimed at primary and secondary schools to teach the importance of waste minimization through the use of the 3R’s



Summary

The following five system-change strategies will help address the key sources of Barbados’ plastic pollution. These strategies have been developed following data analysis using the Plastic Drawdown tool, technical research into the potential social and economic impacts, as well as local input into further policy considerations. Analysis using the Plastic Drawdown tool suggests that by 2033, these five strategies have the combined potential to reduce annual plastic pollution in Barbados by 73 percent.

- 1. Tackling single-use plastic bottles can reduce plastic pollution by 14%.**

Single-use plastic bottles form the largest share of plastic waste generated in Barbados (14%). To tackle this, we will relaunch the existing deposit return scheme to increase stagnating recovery rates. At the same time, we will encourage a shift to reusables, by providing water refill points in public spaces, to decrease a reliance on single-use bottles. Once these systems are running efficiently, we will consider a phased ban on single-use plastic bottles, starting with the smallest packaging format (<500ml).
- 2. Tackling single-use plastic bags can reduce plastic pollution by 8%.**

This involves placing a charge on all single-use plastic bags of any type, including biodegradable. This charge will be phased, increasing as time goes on, and finally followed by a ban on the most problematic single-use bags for which suitable alternatives exist. These policies, combined with the existing ban on petroleum-based single-use plastic bags, will comprehensively tackle this problematic waste stream.
- 3. Tackling other single-use items can reduce plastic pollution by 2%.**

There is a wide range of other single-use items that cause plastic pollution in Barbados, including single-use takeaway food containers, straws and lids. This strategy will aim to reduce this through a charge on all single-use plastic food-service packaging, as well as a complementary measure to encourage adoption of reuse systems.

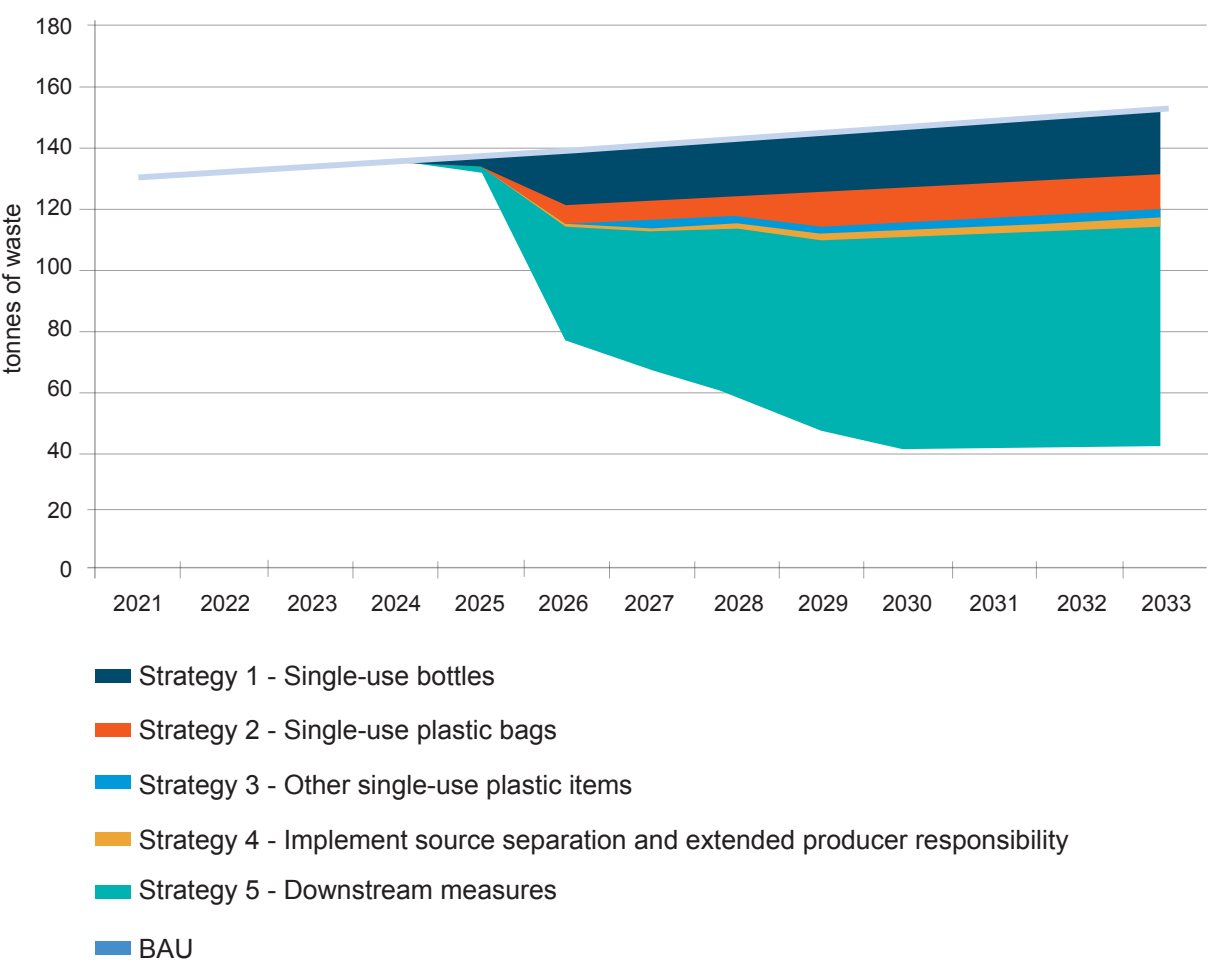
- 4. Implement enhanced source separation through Extended Producer Responsibility can reduce plastic pollution by 2%.**

Extended Producer Responsibility (EPR) is increasingly being seen in the international community as a key mechanism by which to reduce plastic pollution, by involving producers (or importers) in the management of the waste they produce. EPR can be used as a tool to enhance source separation, while at the same time providing financing for waste management.
- 5. Improve solid waste management and downstream measures can reduce plastic pollution by 48%.**

To ensure that the plastic waste that is generated does not leak into our environment and ocean, we need a strong solid waste management system. This strategy will enhance on-the-go waste collection and enforcement, as well as provide bulky waste collection and enforcement of illegal dumping.

The potential impact of five strategies to tackle the plastic problem are explored below, which combines 11 key policies and enabling initiatives to support implementation and deliver widespread benefits in tackling plastic pollution.

Figure 17. Impact of strategies to tackle plastic pollution



In order to coordinate and maximise the impact of these strategies and policies, consideration should be given to implementing an integrated policy on plastics and its pollution to drive a system-wide reduction in consumption and pollution. For example, a wider programme of Extended Producer Responsibility (EPR) for plastics packaging (not just for source separation) could be used to both improve recycling rates and incentivise plastics waste reduction. This could also be extended to other plastic items.

Policy measures to address microplastics are very nascent. However, it is recommended that ways to address microplastics form part of the Government of Barbados’ future activities in plastic pollution. Action at the international level is likely to be key – for example, influencing tyre supply – and should form part of GoB’s advocacy as part of the negotiations on an international plastic treaty.

● **Strategy 1:**
Tackling single-use bottles

Disposable plastic bottles form the largest share of plastic waste generated in Barbados (14 percent).

In 1985 a deposit return scheme (DRS) for beverage bottles was established in Barbados under the Returnable Containers Act 1985. This was extended to include all containers (including non-beverages) by the Returnable Containers (Amendment) Act 2019.¹¹ In theory, all single-use plastic containers now attract a deposit. However, in practice this does not happen, and recovery rates for plastic beverage bottles are estimated at only 70 percent, lower than expected for a typical DRS (Reloop 2022).

The policies laid out below aim to increase those recovery rates, as well as decrease the reliance on single-use plastic bottles.

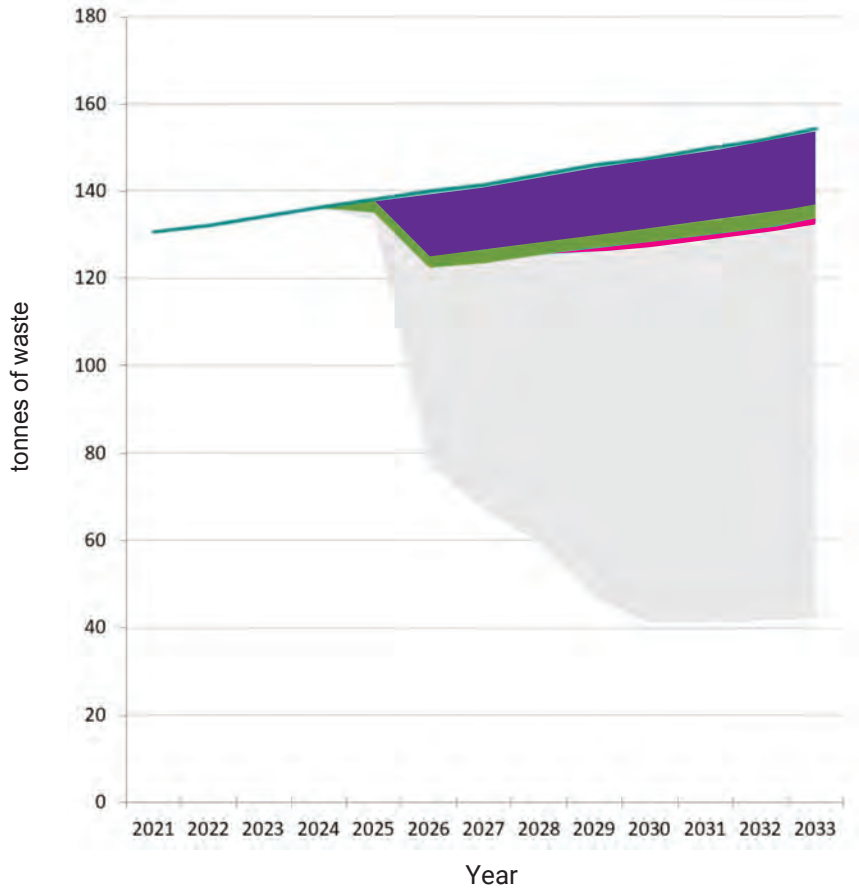
Tackling single-use plastic bottles could reduce marine plastic pollution by 160 tonnes by 2033.



Figure 18: Strategy 1: Policies

- **Policy 1.1:** Relaunch plastic bottle deposit return scheme
- **Policy 1.2:** Providing water refill points
- **Policy 1.3:** Phased ban on single-use plastic bottles
- **BAU**

Shows the impacts of policies modelled within Strategy 1.



● Policy 1.1: Relaunch plastic bottle deposit return scheme

The current Returnable Containers Act 1985 is not achieving as high of a recovery rate as it could, and feedback from the stakeholder workshop highlighted confusion over the act's scope and operation. However, the existing legislative instruments in Barbados do provide an effective framework for tackling these items, so the current deposit return scheme will be considered for relaunch.

Key considerations

The main barriers to the current DRS are due to a lack of public and business awareness, as well as a lack of enforcement. As such, the relaunch of the DRS will pay particular consideration to designing a powerful communication programme, comprising two strands: education (to raise awareness); and enforcement (to drive compliance).

Clear obligations coupled with effective enforcement will make the scope and requirements of the scheme clear, thus representing a key enabler for successful understanding and implementation of the policy.

A performance target will be agreed, and specify the percentage of all beverage containers placed on the market to be collected and recycled, incentivising the organisation running the scheme to maximise return rates. The value of the deposit should be defined by the scheme but not set in the legislation. This will enable operational flexibility should the deposit need adjusting in future to incentivise returns.

All performance and financial information should be shared and made public in annual reports, so that any third party can check the performance against the targets specified in the legislation.

Equity and access to the system must be considered as well, for example, by extending the network of collection points to ensure that return facilities are available in all areas.

It will be important that the relaunch makes a more explicit link with existing structures that are currently capturing much of this material. B's Recycling is involved in collecting, shredding and exporting PET, and thus are a pivotal stakeholder to include in the policy design process. It will also be important for bottlers, importers, retailers and any other key recyclers to be proactively involved in the relaunch.

Governance structures of DRS vary, and careful consideration will be needed to agree the appropriate structure that works for Barbados. Key stakeholders from industry, government, sector experts and NGOs will be gathered under a steering committee to consider the governance structure for the scheme. The case study [on page 56] provides one example of an industry-led DRS for plastic bottles, supported by government.



Implementation

To implement the relaunch of the DRS, firstly a legislative review will be undertaken to consider what changes and enhancement are needed to the existing system. This will include, for example:

- Whether any changes are needed to the regulations themselves (e.g. deposit amount)
- Factors that affected implementation of the previous DRS scheme and potential sociocultural impacts of the proposed DRS system
- How to incorporate performance targets and the review period for the targets
- Scope, in terms of items covered and definitions of those items
- Infrastructure needed to ensure returns are available and accessible (e.g. reverse vending machine, more bottling depots, etc)
- Mechanisms for managing fees
- Oversight and governance (e.g. whether the scheme will be run by a Producer Responsibility Organisation with members of the steering group or the Board)
- Existing end markets (e.g. fibreglass cement, paving tiles, and other small-scale entrepreneurs), and how to support their establishment and participation in the scheme
- Options for enforcement, including the ability to issue fines established in law

These proposed amendments will then be confirmed and communicated in a public consultation, allowing stakeholders to input into the policy development. This will allow for more buy-in and uptake of the DRS.

A communications campaign will be prioritised to raise awareness of the scheme, given the current confusion and perceived discrepancies. Messages will be targeted depending on the stakeholder (e.g. awareness raising for retailers will be different than for consumers).

Further details on implementation steps can be found in Annex 2.

Plastic pollution reduction potential:

125 tonnes
by 2033.



PHOTO: BOTTLE DEPOT IN BARBADOS

SOCIAL IMPACT



↑ Higher volumes of post-consumer bottles returned = more jobs at bottle depots

↑ Promote community engagement and participation in recycling efforts

ECONOMIC IMPACT



↑ Recycling industry growth

Case Study: Industry-led DRS for plastic bottles:



Norway is known internationally for its world-leading implementation of their DRS, which has been in operation since the early 1970s.

Sources report as high as 97 percent of all plastic bottles are returned, and less than one percent of all plastic bottles sold in Norway end up in the environment. Customers have an economic incentive to return the containers and even if they are abandoned, the deposit means that someone else will likely return the container to reclaim the deposit. This results in low levels of DRS containers littered in the environment.

This success is underpinned by Infinitum, a not-for-profit organisation that runs the scheme, which is owned by the retailers and producers. All beverage producers and importers must join Infinitum when selling their products in Norway. The DRS legislation itself is contained within a single page, as Infinitum are entrusted to decide how best to operate the scheme to be as efficient as possible. They are incentivised to do so due to an environmental tax placed on all producers of plastic bottles, which is lifted if the scheme achieves a 95 percent return rate on the single-use plastic bottles.

By leaving the design of the DRS in the hands of industry, backed by a tax reduction on successful implementation, the Norwegian government has been able to avoid extensive legislative duties, which has proven very successful for boosting recycling rates across the country.

For a comprehensive list of Deposit Return Systems (DRSs) for single-use drinks containers and their recovery rates, please see Reloop, 2022. based on their Global Deposit Book (2022).



UP TO
97%
OF ALL
PLASTIC
BOTTLES
ARE
RETURNED

● Policy 1.2: Providing water refill points

Key considerations

Water refill schemes coupled with campaigns sensitise the public on the issue of plastic pollution whilst encouraging behaviour change towards reusable systems based on using refillable containers and water refill points. They also reduce the reliance on single-use plastic bottles, avoiding this as a key source of waste and litter in Barbados. Refill infrastructure will be established (e.g. in the workplace, in hotels, and/or via a network of public water fountains), and this may be supported by digital solutions (for example, an app to show refill points and provide rewards to users). Public awareness raising activities will be important and form part of a wider, long-term education and engagement programme.

The awareness raising campaign will be supported by outreach to enable key stakeholders to become informed and understand the benefits associated with refill schemes. This will build on existing refill initiatives, such as the one provided by Newport Water and the Safety and Health at Work Act 2005, which requires that employers provide all employees with an adequate supply of cool drinking water supplied from a public main or from some other source approved by the Chief Labour Officer. This policy could also be paired with other national strategies, such as the National Health or Sport Strategies, which have similar objectives. Research preceding the launch of the water refill scheme will need to determine whether we wish to promote the refill schemes with tap water, filtered water, and/or mineral water.

A pilot will be considered to start with in schools, given the current interest in providing chilled water dispensers to offset the elevated hot weather imposed by the drought conditions in 2021. The pilot will be accompanied by a communications and awareness raising campaign.



HYDRATE BARBADOS, A CAMPAIGN BY NEWPORT WATER TO PROVIDE WATER REFILL STATIONS TO COMMUNITIES ACROSS BARBADOS. FIND MORE INFORMATION HERE.

Implementation

Providing water refill points is likely to be a quick win, given some systems are already in place and the strong support for a water refill scheme in the stakeholder workshop.

A key barrier will be overcoming public perceptions of tap water, which may be avoided if mineral water is provided initially, with tap water introduced over time. Research will be required to understand consumer water preferences and health aspects of tap versus mineral water in more detail to inform messaging. This will help to ensure the policy is implemented in the most effective way.

The initial focus of implementation will be to drive behaviour change towards refill, over the use of single-use plastic water bottles. This will be done through awareness raising and education campaigns.

Implementing a water refill campaign ahead of other policies under Strategy 1 can help to sensitise the public and provide them with an alternative to single use plastic bottles, before introducing approaches to reduce the availability of single use bottles in the country, such as a phased ban on plastic bottles (see policy 2.3).

A demonstration pilot, for example at a school or a network of schools, alongside increasing awareness around existing refill points, will be a good introduction to water refill points for those currently unaware of such schemes.

Once the pilot project demonstrates success, the scheme will initially be deployed in highly accessible areas, such as closed environments (hotels, offices, workplaces, and schools) and urban areas with heavy footfall. Longer term, ensuring equity of accessibility will be important.

Plastic pollution reduction potential:

31 tonnes
by 2033.

SOCIAL IMPACT

- ↑ Promotion of healthier lifestyles
- ↑ Equitable access to drinking water
- ↑ Water refill points can serve as gathering points within communities, fostering social interaction and community engagement
- ↑ Cost savings for individuals, compared to purchasing water bottles.

ECONOMIC IMPACT

- ↓ Some negative impact on water bottling companies. However, there are opportunities to diversify into offering larger format bottles for return systems (e.g. 5L) and encourage decanting.

Case Study: Water refill campaign



On the Greek island of Paros, Common Seas has worked with the local water company, DEYAP, to encourage more people to drink tap water.

Activities have included:

- Rebranding water refill machines to promote their use;
- An island-wide communications campaign, targeted at locals, tourists, and the hospitality sector, to explain the benefits of switching to tap water;
- A guide to water filters for locals who prefer to drink filtered tap water.

The project engaged 270,000 people and led to a drop of two-thirds in the number of residents who believed that the tap water on Paros was not safe to drink (Common Seas, 2021).

In the Maldives, analysis by Common Seas showed that over half of identifiable plastic pollution was single use plastic water bottles.

As part of the government’s National Phase Out Plan to address this issue, the Ministry of Youth, Sports and Community Empowerment coordinated with Common Seas and the NGO “Zero Waste Maldives” to install water refill stations, targeting areas of high consumption like the sporting complex in the capital of Male and promoting behaviour change though public communications. Each water station is metered to allow the use and number of avoided plastic bottles to be calculated (Common Seas, 2023).



● Policy 1.3: Phased ban on single-use plastic bottles

Key considerations

Small plastic beverage bottles (under 500ml) make up a small proportion of the total number of bottles consumed in Barbados. Targeting these small containers represent a 'low-hanging fruit' opportunity, allowing us to make a statement against single-use plastic bottles and supporting our general messaging around discouraging the use of unnecessary single-use plastic (SUP).

A phased ban for single-use plastic beverage bottles is therefore identified as one of the policies to take forward as part of a wider strategy to reduce reliance on SUP bottles. It may be that SUP bottles cannot be banned outright. However, it is possible to start with the smallest packaging format such as plastic bottles under 500ml. These packaging formats could be added to the current list of products regulated under the Control of Disposable Plastics Act, making it more comprehensive.

If implemented, the ban will take effect on the finished product, irrespective of whether it originated as a preformed or fully formed bottle. To this end, the ban would cover the import, manufacture, and sale of bottles in scope.

Plastic pollution
reduction potential:

**4
tonnes**
by 2033.



Implementation

Single-use plastic bottle market research will help to define the scope and phases of this ban. Proposed phases would see <500ml PET bottles included in the existing ban (Control of Disposable Plastics Act), followed by a demonstration project for larger format bottles (which would sit a few years after the refill scheme has been operational). Stakeholder consultation will ensure businesses receive early notice of plans and have opportunity to feed into these, e.g. the timing of the ban. Banning single-use plastic bottles is ambitious, particularly given their widespread usage. However, it has been done in similar contexts where SUP bottle usage was high, but litter from these items caused significant impacts on the environment and the tourism industry that depends upon it (e.g. Maldives).

Enforcement will be the biggest challenge on a ban on SUP bottles. A penalty mechanism for not adhering to the ban will support compliance, alongside a public awareness raising programme. Training for customs officials will be rolled out, as well as assigning responsibility and training officials working at point-of-sale. It is important that the timing of this policy is coordinated to happen alongside other policy instruments which encourage and support the use of alternatives (e.g. DRS and water refill points), to help consumers adapt to the ban and receive the changes in a positive way.

Once the ban has been put in place for smaller format bottles, a pilot could investigate the feasibility for larger format bottles, e.g. particularly alongside expanding refill provision.

SOCIAL IMPACT



↓ Social impact reduced if implemented in med-long term, after consumers have begun transition away from single use systems.

ECONOMIC IMPACT



↓ Overtime phased ban will negatively impact bottling companies. Government will work with industry to identify and encourage suitable alternatives and delivery formats.

●
Strategy 2:
Tackle single-use plastic bags

SUP bags make up six percent of the total share of plastic waste generation in Barbados and were one of the key areas of concern in the workshop held in September 2023.

These items are not only very visible when littered in the environment, potentially attracting more litter (Keep Britain Tidy, 2016), but also are known to cause drain blockages - which can lead to flooding.

Plastic bags are also known to endanger turtle populations, a major tourist attraction in Barbados, as they often mistake the floating bags for food and consume them (International Bar Association, n.d.).

Petroleum-based single-use plastic (SUP) bags were banned in Barbados by the Control of Disposable Plastics Act 2019. However, research and stakeholder consultation suggest that it has had limited effect in terms of reducing littering of single-use bags due to a shift to biodegradable bags by retailers and consumers; the littering levels of which is high. This may be due to a perception that biodegradable materials will degrade in the environment.

Biodegradable plastics require very specific conditions to degrade, conditions which are only normally found in industrial composting facilities, which Barbados does not have. In addition, there is no agreed international standard for biodegradability, and it is often unclear what these bags are made of and what their end-of-life disposal arrangements should be. At present, they are presumably all landfilled or littered.

Given the limited effectiveness of the existing ban in reducing littering, we will consider introducing a charge on single-use bags of any type not already covered by the ban. This charge will be phased, increasing as time goes on, and finally followed by a ban on the most problematic single-use bags for which suitable alternatives exist.

Tackling single-use plastic bags by implementing the above actions, could reduce marine plastic pollution by 78 tonnes by 2033.

SOCIAL
IMPACT

↓ Some negative impact to those on lower incomes. Government will work with community organisations to consider providing reusable bags to low-income groups.

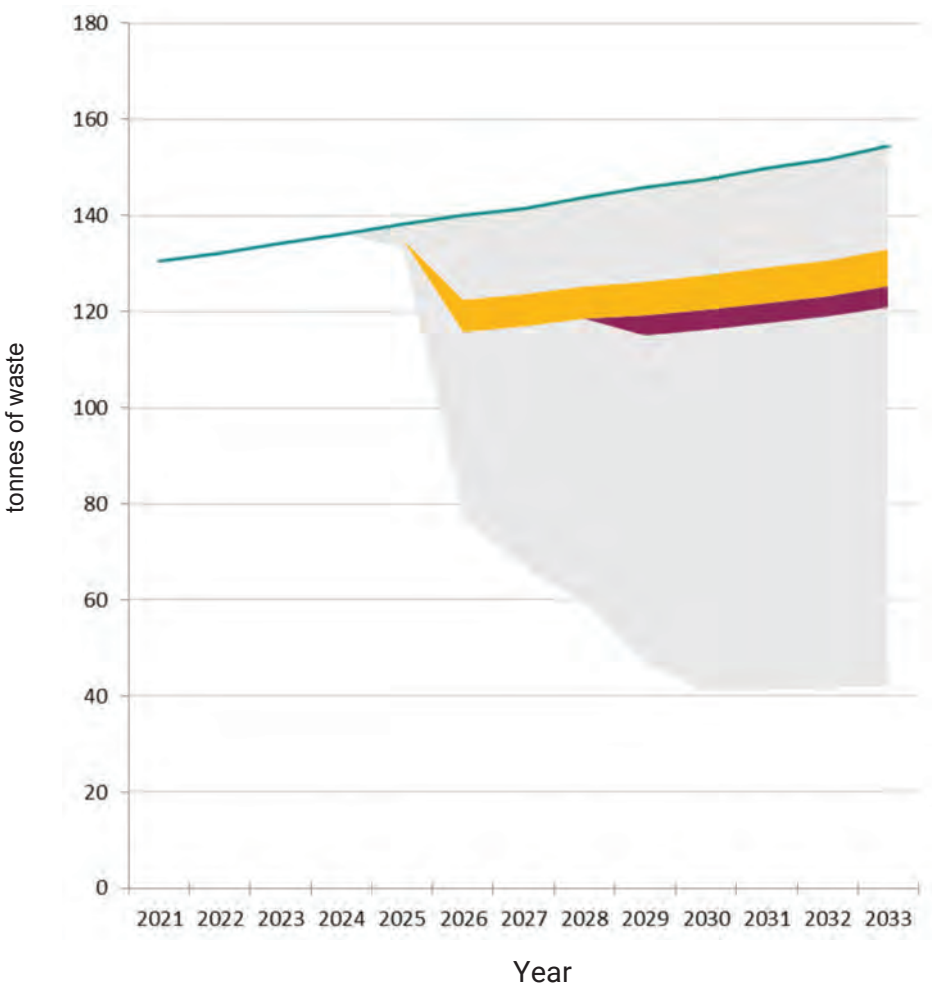
ECONOMIC
IMPACT

↑ Revenue from bag charges can be reinvested in funding development of reusable alternatives, and/or waste management and recycling infrastructure, benefiting communities and public spaces. This can create jobs and economic opportunities.

Figure 19. Strategy 2: Policies

- Policy 2.1: Charge on single-use bags
- Policy 2.2: Enhanced ban on single-use bags
- BAU

Shows the impacts of policies modelled within Strategy 2.



● Policy 2.1: Charge on single-use bags

Key considerations

Charges will be considered for any single-use plastic bag that is not covered by the existing ban, regardless of whether it is plant or petroleum based. This is to avoid a shift to alternatives that could also be detrimental for the environment. The charge will be paid by consumers and must be clearly shown as an addition to the product's original purchase price. This will ensure that the charge is clear to consumers and avoid any potential backlash on retailers. The level set must be high enough to encourage consumers to shift towards using a reusable alternative, which will not be charged. This will incentivise new circular business models and catalyse a behaviour change from disposable to reusable items.

Charging for plastic bags is now a pervasive practice at almost all retail outlets, particularly supermarkets, as a cost recovery measure for shifting from the now unavailable petroleum-based SUP bags. Introducing a separate charge as a government policy will be carefully considered as it can serve to increase consumer prices across the board.

Public and business engagement in implementing a charge is critical and will require a coordinated effort by the relevant ministries. Both the public and businesses must understand the motive behind the charge to avoid challenges in compliance, as well as understand how the funds generated by the charge will be used.

Engagement should also include public support for local manufacturing of reusable bags. For example, forming partnerships with charities to encourage people to buy charity-branded bags, on the understanding that this would support the charity with a donation.

It will also be important to identify poorer households and consumers and understand the impact a charge will have on these more vulnerable communities, to ensure they are not unfairly disadvantaged. This involves putting measures in place to ensure that there is not a net disadvantage to these groups.

Considerations for low-income groups have been taken for all policies in this NAP that involve a charge to consumers. For example, vulnerable households could be identified and provided with a 'reuse kit' containing items that are targeted under the NAP, such as a reusable bag.

Additionally, clear standards, and potentially labels, will be needed to ensure that customs, the supply chain and consumers know what attracts a charge. Technical assistance and training will be required for enforcement authorities, as well as ensuring there is sufficient enforcement capacity.

It will be crucial to ensure accounting is simple and transparent. A staged increase in rates over a period of a few years would allow those being charged to adjust and reporting and monitoring processes to be tested and refined. Using the revenue generated for environmental initiatives will reinforce the messaging around the need for a charge and reduces the risk of this being perceived as a revenue generating initiative.

Plastic pollution
reduction potential:
57
tonnes
by 2033.



Implementation

A legislative review will underpin the policy development to inform the scope of materials being included, to avoid confusion with the petroleum-based disposable bags already covered in the existing Control of Disposable Plastics Act 2019. A technical working group will be convened to lead this study, which will develop clear definitions, including:

- What is a single-use bag?
- Should a broader range of materials also be included (e.g. single-use paper bags)?
- What is a biodegradable bag? Are they covered by the fee? What standard must they meet to be labelled as biodegradable?
- What is the intended end of life disposal for biodegradable bags?
- What alternatives to single-use plastic bags exist in Barbados and what measures may be needed to increase availability, particularly to disadvantaged groups?

It will also be useful to research and understand any issues with the existing legislation (the Control of Disposable Plastics Act 2019) which currently bans petroleum-based plastic bags. The research phase should also seek to include the views of retailers who have decided to charge for bags unilaterally, to understand the appetite of consumers and their motivations for doing so.

An **impact assessment** on the system design will consider policy design issues and cost and benefits in the round e.g., would any particular group of stakeholders be adversely affected and are there particular mitigations that form part of the design to help alleviate the impact on these groups.

A **stakeholder partnership** will be convened with community groups, charity, retailers and other business stakeholders, and the Chamber of Commerce to promote and provide reusable bags. This partnership will ensure ongoing public and business engagement.

A **national public consultation** will be needed on the detailed policy proposals. This will also provide an opportunity to share the findings from the research phase and share information with the public, e.g. regarding the limited degradability of biodegradable bags in the natural environment.

Once the policy is designed, **reporting** structures and requirements must also be clearly communicated to businesses. This will allow for the impact of the charge to be monitored regularly (e.g. annually), to understand whether and how much the charge is discouraging use of the SUP bags, as well as to establish if it has given rise to any unintended consequences.

The policy will be designed to have a phased approach, with the charges increasing at a set frequency (e.g. every 2 years) to continue encouraging reductions in use. This will avoid sales potentially increasing back towards the pre-charged level, and ensure public buy-in in the long term, if the projected increases are announced early.

● **Policy 2.2:**
Enhanced ban on single-use bags

Key considerations

Once consumers are accustomed to the charge, and a suitable and accessible alternative exists on the market, then the same products in scope of the charge could begin to transition into a ban.

These new products could be added to the list of products already regulated under the Control of Disposable Plastics Act, making it more comprehensive. For example, the Act could be expanded beyond petroleum-based plastic products to restrict the importation of products that do not meet applicable standards for reusability, biodegradability, and environmental sustainability. This would eliminate a number of products of concern from entering the waste stream.

If implemented, it will be very important that this transition is communicated early (e.g. as early as the national public consultation phase for Policy 1.1). If it is communicated as a phased approach (i.e. incremental charges culminating in a ban), then the business community can prepare accordingly and align themselves with government objectives.

The introduction of the ban will represent another opportunity for a strong public awareness campaign. This could include sharing the successes of the prior charge, the motivations for the ban, and the small businesses supported as part of the reusable alternatives available.

Implementation

Implementation of the ban would happen in two phases. Phase 1 would focus on the existing ban, and the scope of products covered under the Control of Disposable Plastics Act 2019. The legislative review of the Act under Policy 1.1. will be key to paving the way for smooth implementation, identifying any improvements or changes needed to increase clarity and effectiveness (e.g. regarding training and enforcement) with the current ban. This pre-implementation work should be done before additional items are added to the ban.

Once the existing ban is strengthened, Phase 2 can focus on extending the ban to other single-use bags for which suitable alternatives exist. For this, an impact assessment will be carried out to understand the suitability of the ban before being fully considered for implementation. This should happen in the last couple of years of the charge, to prepare for effective implementation of the ban from day one.

Importantly, the **impact assessment** will include any disproportionate impacts on vulnerable communities. These impacts will be felt more acutely than under the charge, as the product will no longer be offered on the market, and thus deserve special attention. The impact assessment will also appraise the suitability and availability of alternatives to the banned products, as well as whether any exemptions will be required and to whom.

Plastic pollution reduction potential:

21 tonnes

by 2033.



Case Study:
Charge on single-use plastic bags

Fiji introduced a charge on single-use plastic carrier bags on 1 August 2017. The charge was initially set at \$0.10 per bag, but in 2018, the rate was doubled to \$0.20 per bag as part of a broader policy decision to raise more funds for environmental initiatives. The levy is collected by retailers at the point of sale, then remitted to the Fiji Revenue & Customs Service. The tax payment is separately itemised on customers' receipts, to increase its visibility to the consumer. Retailers are required to clearly display a notice in their premises, alerting consumers to the levy. The charge was immediately effective, with plastic carrier bag usage falling from 70 million bags in 2010 to below 44 million bags in 2018, soon after the initial introduction of the levy. Some of the reasons for this success include:

- Ensuring income is ring-fenced for environmental initiatives: The income from the levy was to 'directly fund environmental initiatives and programs that protect our natural environment and climate adaptation projects' (Fiji Government, 2017). This was communicated to the public which generated further trust and buy-in.
- Awareness raising: The levy was accompanied by numerous government led awareness raising efforts to ensure the public were informed of the reasons behind the levy, which decreased consumer resistance to the extra charge.
- Enforcement: the levy was monitored by inspections done by the Fijian Competition and Consumer Commission (FCCC), where if traders were found to be non-compliant, were given a warning in the first instance, followed by hefty fines or imprisonment for further non-compliance.

The charge was eventually replaced by a ban on plastic bags as part of their phase-out approach to SUP bags. The Fijian population was by this stage accustomed to having regulations on SUP items, making the ban even more of a success. Litter prevention officers visited businesses at the beginning of the ban coming into effect, to ensure that the outlets felt supported on the compliance requirements, further cementing buy-in by stakeholders (Fiji Government, 2020).

REDUCTION OF
26 Million
SINGLE-USE
PLASTIC BAGS



● **Strategy 3:**
Other single-use plastic items

There is a wide range of other single-use items that cause plastic pollution in Barbados, including single-use takeaway food containers, straws and lids.

The existing ban on petroleum-based plastic items of this nature, introduced by the Control of Disposable Plastics Act 2019 appears to have had mixed success in reducing these items. Whilst expanded polystyrene (styrofoam) packaging has been reduced, there appears to have been a switch to biodegradable plastic disposable food takeaway packaging. Littering of these items still occurs, as with single-use plastic bags.

While these materials may be biodegradable, they are likely to require industrial composting conditions to ensure their benign degradation and they are unlikely to degrade in the natural environment, as discussed above.

Again, it will be important to work with the food and beverage and tourism sectors to implement these measures. Tackling these single-use plastic items could reduce marine plastic pollution by 18 tonnes by 2033.



**SOCIAL
IMPACT**



↓ Some negative impact to those on lower incomes. However, charges will be introduced at the same time as the reuse system, to provide consumers with a non-charged alternative.

**ECONOMIC
IMPACT**

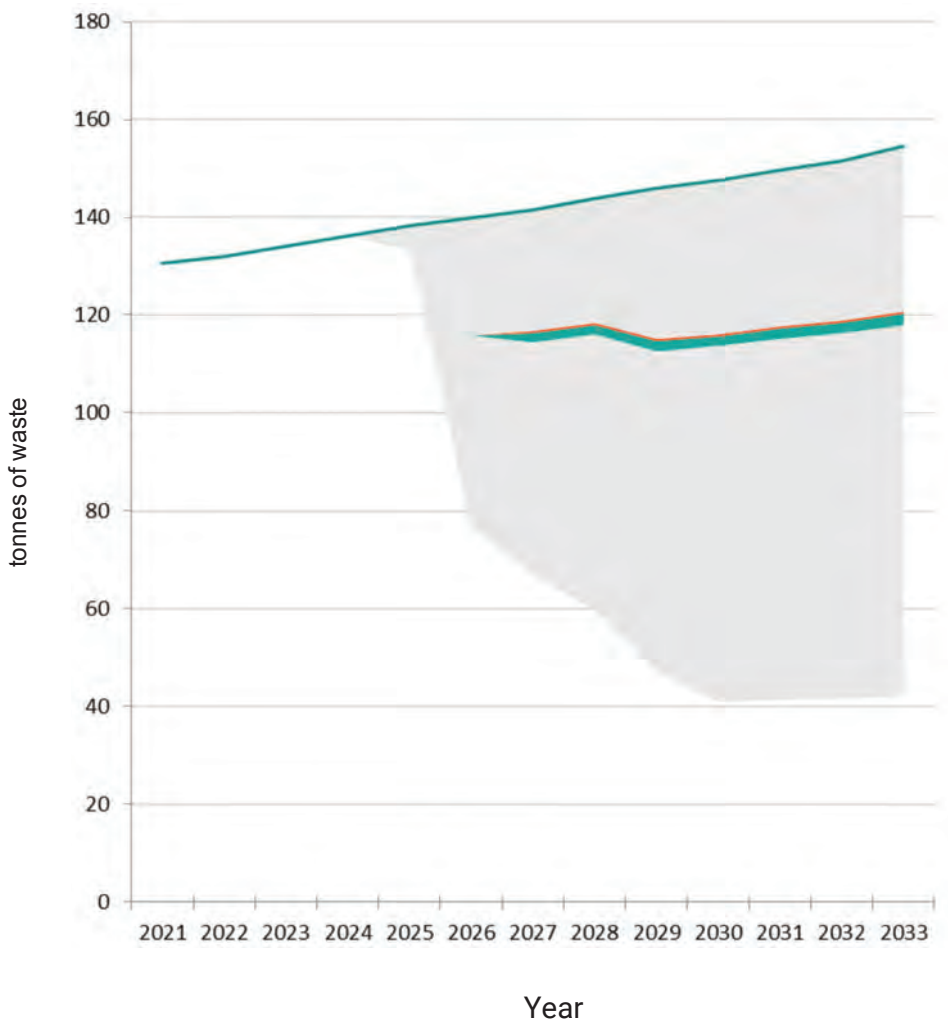


↑ Revenue from charges can be reinvested in funding development/operations of reusable alternatives and reuse system.
↑ Reuse system will create jobs and economic opportunities in the foodservice sector.

Figure 20. Strategy 2: Policies

- Policy 3.1: Charge on single-use plastic packaging
- Policy 3.2: Reuse system for single-use food service items
- BAU

Shows the impacts of policies modelled within Strategy 3.



● Policy 3.1: Charge on single-use plastic packaging

Key considerations

A consumer-facing charge on these types of single-use items could serve to reduce this type of plastic pollution and encourage a shift towards more sustainable reusable systems.

Charges will be considered for implementation on plastic packaging (take-away containers, disposable cutlery and plates, and single portion food packaging), as well as balloons and wet wipes. Similar to a potential charge on SUP bag, this would be paid by consumers and must be transparent in their purchases. The charge level must be high enough to incentivise behaviour change and reduce consumption of SUPs to encourage consumers to shift towards more sustainable reusable alternatives. This will again incentivise new circular business models and catalyse behaviour change towards a shift from disposable to reusable items.

Public engagement is critical and the relevant ministry responsible for implementation has a key role to play here. Communications around this charge should include strong support for reusable alternatives. Additionally, clear standards, and potentially labels, will be needed to ensure that customs, the supply chain and consumers know what attracts a charge. Technical assistance and training will be required for enforcement authorities, as well as ensuring there is sufficient enforcement capacity.

It will be crucial to ensure accounting is simple and transparent. A staged increase in rates over a period of a few years would allow those being charged to adjust, and reporting and monitoring processes to be tested and refined. Using the revenue generated for environmental initiatives, particularly for supporting refill programs, will reinforce the messaging around the need for a charge and reduces the risk of this being perceived as a revenue generating initiative.

The aim of a charge will be to reduce consumption of targeted SUPs. However, it is unlikely to eliminate the target SUPs entirely. There will need to be collection infrastructure in place for these items and clear guidance for consumers, particularly for 'biodegradable' packaging.

Overall responsibility for this will fall under the Ministry of Environment and National Beautification.

Plastic pollution
reduction potential:

4
tonnes
by 2033.



Implementation

For necessary packaging it is crucial that alternatives are accessible. As a charge directly facing the consumer, this policy may receive some push-back, so the design of this policy needs to be very carefully considered.

One way to introduce a charge on items, such as takeaway packaging, would be to establish enabling legislation that provides the mechanism for the scope of a charge to be extended to other items or materials (for example, via a plastics charge that has the advantage to focus on the material, while a list of specific products would have to be updated regularly). It should also allow the charge to be adjusted, without the need for new legislation. For instance, the Republic of Ireland's Circular Economy legislation started with single-use bags but allowed a charge to be included for other items over time. A similar approach could be taken here, where the legislative design stage for Policy 1.1: Charge on single-use bags can include the potential to extend the scope of such a charge to a wider range of materials, such as those described as part of Policy 3.1.

A research phase, as well as consultation with all relevant stakeholders, will underpin the policy development to inform the scope of materials being included in the charge initially.

It is also important that the charge is complementary with the existing Control of Disposable Plastics Act of 2019. It will be useful to research and understand any issues with the existing ban on petroleum-based plastics in the Control of Disposable Plastics Act of 2019, as also suggested in Policy 1.1. An impact assessment on the system design will consider policy design issues in the round e.g., would any particular group of stakeholders be adversely affected? A national, public consultation will be needed on the detailed policy proposals.

● Policy 3.2: Reuse system for single-use food service items

Key considerations

The introduction of a reuse scheme for food takeaway containers (including coffee cups) will provide an alternative solution to single-use food service items.

Reuse schemes offer consumers reusable containers that are typically shared across different food and drink outlets. Consumers are incentivised to bring back these containers to collection points once they are finished. This provides the same 'takeaway' convenience as single-use but avoids waste by relying on supporting infrastructure to collect, clean, and redistribute the containers.

There are several ways this scheme could be implemented (see case studies below for some examples), so a demonstration project will be critical to enable the testing of different modes of delivery and underlying business models. This will be a focus in the medium term, once public awareness on the importance of reducing single-use plastic items has been raised.

Supporting infrastructure, such as collection and washing facilities, will be developed, with accessibility issues associated with reuse considered. Various approaches to financing this policy, such as providing grants, seeking sponsorship, setting up a challenge fund (i.e., run a competition for grants, potentially funded by the charges imposed for single-use plastic items), will also be considered.

The scheme will also need to impose food hygiene standards or practices, so that these can be communicated to allay any potential hygiene concerns. There are some considerations over the health risks of reusable takeaway containers. Obtaining buy-in from staff and the general public is critical. Therefore, staff training and public education are essential to a successful reuse system, as it is reliant on effective behaviour change.

It will be important for the hospitality and foodservice sector be a key partner in piloting and implementing these measures.

Reuse will create a new local market for the manufacture of reuse containers and will provide an opportunity to create a unique local 'brand' of reuse containers.

We will consider influencing this move to reuse by imposing reuse targets for all hospitality and foodservice businesses or brands of a certain size, either by number of employees or size of the premise.

Plastic pollution
reduction potential:
**14
tonnes**
by 2033.



Implementation

Uptake will be affected and driven by making single use products less accessible by removing single-use or charging for single-use options. The reuse scheme will be implemented in the medium term, after the charge on single-use takeaway food containers is implemented in policy 3.2.

A desk-based review of reuse systems will be undertaken with particular focus on identifying schemes in comparable locations.

It may be possible to consider the demonstration as phase 1 of the roll out, rather than a standalone trial. This type of communication creates more certainty for consumers and allows them to buy-in to the system if they are confident it will be running over the longer term, even if it may be tweaked.

For example, to pave the way for a wider uptake of reuse systems, a demonstration project for a system of reusable coffee cups could be a good first step. During the co-design workshop, some participants noted that, prior to COVID19, people would bring their own coffee cups to refill at cafes, and thus some may already be familiar with the concept.



There are still concerns over the health risks of allowing people to use their own containers. This issue is also relevant for refillable takeaway containers and to a lesser extent reusable shopping bags.

The demonstration project presents an opportunity to address these concerns and create a clear message on the health risks and the simple steps coffee shops can take to reduce these risks. To amplify this message, partnership with the Ministry of Health will be essential. This in turn will encourage people to return to using refillable cups. Depending on the approach, and existing infrastructure, implementing the washing, collection and redistribution infrastructure is an important aspect to put in place ahead of wider roll-out. Expanding the scheme may include targeting events that use significant quantities of single-use food and drink containers, such as the Crop Over Festival.

Supporting behaviour change towards reuse systems is critical to their success. This may be assisted by the system mechanism (e.g., placing a deposit or incurring a penalty to encourage container return), but public awareness and openness to such systems, along with removing barriers to change, is key to driving uptake

Case Study: Scaling reusable packaging:



Scaling reusable, returnable packaging is increasingly being seen as a key strategy for reducing reliance on single-use plastics and its associated waste (Ellen MacArthur Foundation, 2023).

Several returnable coffee cup schemes exist, such as the Refill Return Cup in the United Kingdom. Trialed in the city of Bristol, the scheme is a city-wide, open scheme, currently live with 19 locations including independent cafes and universities. Participating cafes pay a subscription fee which includes all cups, training, marketing and the Refill app for managing and reporting. Users must create an account and cups are tracked with QR codes. After 3 months of running the pilot over 650 unique customers have participated in the scheme, with over 3,500 cups borrowed. The scheme has achieved a 90% return rate. The scheme has also reportedly led to an increase in customers remembering their own reusable cup. Those who ran the scheme have shared that customers love asking about the scheme and is a good conversation started for wider sustainability conversations. The scheme is currently exploring the impact of removing single-use altogether or introducing a levy on single-use.

The scheme was supported by City to Sea, a charity aimed at delivering campaigns to reduce single-use plastic waste through upstream interventions. They have recently published a blueprint for setting up and running a successful returnable cup scheme for hot drinks, with further case studies (City to Sea, 2023).



Reusable cups at Swanage carnival

Swanage Carnival is an 8-day family event that takes place every year at a sea-side town in the UK. The event uses reusable cups instead of single use options to abide by the council's environmental policy which seeks to reduce single use plastic in their coastal location.

The event hires approximately 30,000 reusable cups from StackCup, a reusable cup provider for major events. 20,000 of these cups are delivered at the beginning of the Carnival, and half-way through the week the used cups are collected for off-site washing and a fresh supply delivered. Customers are charged a £1 deposit when they buy their first drink, and then will get a fresh cup with every new drink at no additional cost, if they return their used cup to the bar (City to Sea, n.d.).

Carnival Chairperson Maria Foot said **“the introduction of reusable cups to our event was a huge success, massively reducing the waste accumulated at our event.”**



Further examples of reuse for food packaging exist as well. In Mumbai, a system of reusable lunch containers has been around since the late 1800s and is still widespread today.

Expertly run by the Mumbai Tiffin Box Suppliers' Association, armies of “tiffin wallahs” (or lunchbox delivery workers) provide the invaluable daily service of speedily delivering home-cooked lunches to more than 200,000 busy office workers. A recent report investigated the cost-benefit analysis of scaling up reuse systems in a similar way, and found that in Kolkata alone, transitioning about 80,000 street food vendors to a reusable system would reduce plastic waste by more than 86%; create more than 2,250 jobs; and give a return on investment of 21% and a payback period of 2.3 years (Zero Waste Europe, 2020).



● **Strategy 4: Implement Extended Producer Responsibility (EPR) to drive source segregation**

Barbados’ main landfill has a limited capacity. Modelling indicates that, with no action, Barbados will be landfilling approximately 16,000 tonnes of plastic waste per year by 2033.

It is essential for the health of Barbados to drive waste reduction and recycling to reduce the disposal of plastics waste, and other wastes.

Segregating plastic waste at the household and business level (also known as ‘source segregation’) will be key in diverting waste from landfill and driving up recycling in Barbados. It provides clean, segregated materials that can then be sorted and processed ready for recycling into new materials and products.

Extracting recyclable materials from mixed waste is costly, challenging and typically results in much lower quality and quantities of separated recyclable materials. As such, source segregation has been widely adopted as the way to effectively increase recycling of household and business waste. It is proposed that source segregation be implemented as a priority. Source segregation would demonstrate the government’s commitment to more effective waste management and sets the tone for future initiatives – it requires the householder to change their behaviour – but if done well this change in behaviour can be harnessed to reinforce other policies that also rely on individuals to change their behaviour, such as using a deposit return scheme.

In the medium term, it is proposed that Extended Producer Responsibility (EPR) is implemented to sustain and continue to improve source segregation. EPR is commonly used as an enabling framework for implementing source segregation and can also promote and help finance the local recycling industry more widely.

The concept of EPR places the responsibility for managing items at the end of their life on the producer or importer. By setting collection and recycling targets for producers to meet, it engages the producers and importers in implementing and financing source segregation.

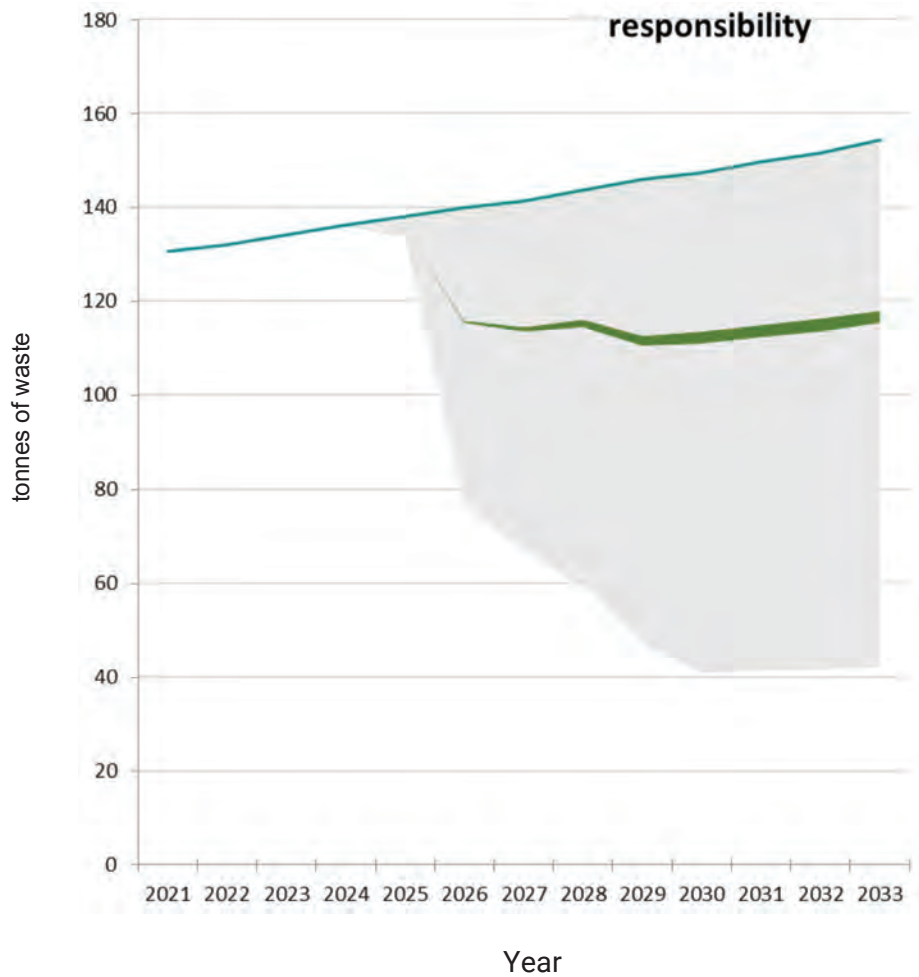
The implementation of source segregation and EPR will not directly affect plastic pollution emissions. Barbados has a well-functioning waste management system so leakage of plastic waste from residual waste management and landfill is not high. However, this intervention serves to divert plastic waste away from landfill and into recycling, providing an important impact in terms of reducing reliance on landfill and helping to drive up recycling.

Implementing source segregation and EPR could reduce marine plastic pollution by 16 tonnes by 2033.

Figure 21. Strategy 4: Policies

- Policy 4.1: Extended Producer Responsibility to support source segregation
- BAU

Shows the impacts of policies modelled within Strategy 4.



● Policy 4.1: Source segregation and EPR

Key considerations

The Government of Barbados has already started to invest in measures to promote recycling from collected waste. This includes collection of PET beverage containers via the existing Deposit Return Scheme.

In addition, the Residential Waste Collection Improvement Project from 2021, which saw the distribution of blue recycling boxes, shows that separating out the plastics at the household level, and collecting those items for recycling is a priority for Barbados. However, the baseline data indicates there is still quite some way to go before this is fully implemented, for example the status of the SSA vehicles due to have mechanical cart lifters installed is unknown at this stage. This National Action Plan represents an opportunity to roll-out this initiative with renewed priority.

The initial focus would be on identifying service and infrastructure needs. The most effective and efficient way to provide source segregation services for all householders and businesses will need to be considered. This will involve assessing logistics, route planning and vehicle capacity issues.

Consideration will also need to be given to the infrastructure needed for aggregating, sorting and processing collected materials ready for recycling. This will require proactive engagement with the private sector which already has existing infrastructure and will be interested to play a key role in developing capacity.

There is currently no significant capacity to recycle materials in Barbados. The potential to develop this capacity will depend on economies of scale, the quality of materials and potential markets for secondary materials made from recycled plastics. There may be scope to work with the private sector to develop this capacity and associated markets.

Alternatively, recycled materials can be exported to international markets, as it currently occurs. Again, the quantities and quality of materials collected will be key in ensuring a strong demand for materials, so it will be important to ensure that the source segregation scheme operates well.

Engagement with householders and businesses, also known as waste generators, will be critical to ensuring people know which materials to separate and how. A successful source segregation scheme depends on waste generators keeping recyclable materials separate and clean. A proactive and on-going public engagement and communication programme will be essential to raise awareness, provide information and communicate the need for source segregation and recycling.

While the source segregation of plastics won't necessarily have a direct affect on marine plastics pollution rates, it is likely to have a reinforcing effect on behaviours regarding waste. This will drive material away from landfill and could potentially provide opportunities to develop the capacity to recycle or derive value from plastic waste in Barbados, rather than via export markets.

To sustain effective source segregation in the longer term, an EPR scheme for packaging, including plastic and other materials, could be implemented. This will lead to producers and importers managing their own product waste, and being responsible for taking back products from consumers after use. This includes providing collection infrastructure and covering the end-of-life costs of their products, such as: collection, recycling, disposal, litter clean-up, education and programme administration.

Extended Producer Responsibility is a relatively complex policy that will require careful design and close collaboration with producers and importers. Given that implementing source segregation is a short-term priority, the design of EPR would be undertaken in parallel. This will allow partnerships to be developed with the private sector and the details of an EPR scheme to be considered and assessed. Box 1 provides some further information on the key considerations for developing EPR.

One way to ensure its success is to consider the other policies that will also be regulating plastic waste, and ensure they are aligned and working synchronously. For example, any plastic products that are deemed suitable for use in Barbados could be governed by a combination of EPR and DRS schemes to prevent or reduce entry into the waste stream or the environment.

The EPR scheme would encourage source segregation as its primary goals, and the DRS scheme would add value to those products at their “end-of-life”, which would reduce the potential for those items to become litter. The combination of EPR and DRS schemes would also serve to apply market pressure on consumers to transition to reusable alternatives, which would align with the overall objective of the framework governing the NAP.

Plastic pollution reduction potential:

21 tonnes
by 2033.

SOCIAL IMPACT



↑ Revenue from EPR can finance waste management and recycling infrastructure, benefiting communities by improving recycling facilities, collection programs, and public spaces

ECONOMIC IMPACT



↑ Increased quality and quantity of recyclate can provide jobs, skills development and waste & recycling sector business growth opportunities.

↓ Producer/importer fees may be passed down to consumers through higher prices for products

Box 1: Extended Producer Responsibility

At its most basic, EPR provides the revenue flows necessary to support the development and operation of the infrastructure needed to collect, sort and, reprocess recyclable materials. However, if used in a more ambitious way, EPR can also be used to promote waste reduction, reuse and refill. It can incentivise producers to redesign products and delivery systems to minimise the quantity of – or entirely avoid - waste generated at end of life. In this sense, EPR can be applied as an instrument to stimulate innovation as part of a transition to a circular economy.

An EPR scheme could be developed at the national level in Barbados and could have an initial focus on packaging, with the types of products or packaging covered being clearly defined (including plastic, glass, metal, paper/cardboard, wood, and composite product packaging). Inclusion of other items containing plastic will be considered over time (for instance, electronics, electrical appliances, tires, end-of-life vehicles, furniture, textiles, paint and coatings, pesticides and fertilizers).

The fees paid by producers, or importers, should cover the costs of the regulatory requirements, e.g., collection, recycling, litter, disposal etc, and advanced fee modulations approaches (which apply different levels of fee to different items to reflect differences in environmental impact and recyclability) will be used after a certain time (e.g., three years). The modulations would be important in ensuring transparency around how the funds are being used.

In terms of public awareness, consumers should understand that the current price of items they consume does not reflect the true price of their management at end of life. Awareness campaigns will aim to influence purchasing habits (towards reuse/refill) and create demand signals. Supporting policies around reuse/refill will assist with this and consumer information will encourage separation of recyclables at the household level.

It will be important to prioritise capacity building (regulatory, implementation, reporting, monitoring). A data collection system for import and export data may be needed if not already available, which will support monitoring progress towards targets. Auditing of the PRO to ensure proper management is essential, as well as auditing of producers selling products within the country to ensure they are signed up to the scheme and paying the required fees.

Labelling on packaging provides information on whether the producer has joined the PRO (and helps keep track of free riders) and on whether the packaging is recyclable. This all helps the consumer and contributes to improving recycling figures.

The scheme would be evaluated regularly to ensure the scope of products and packaging are up to date, whether the need for any exemptions has changed or not, and whether the level of any targets needs to be adjusted. Evaluation and improvements should be made at least every three-five years.

The issues associated with product design and supply chains extend beyond Barbados and into the broader Caribbean and global supply chain. International cooperation on EPR design will form a key part of this policy, starting with fostering collaboration between producer responsibility organisations (PROs) in neighbouring countries. A regional approach can help develop harmonised standards, policies, and targets across multiple islands simultaneously.

Barbados could establish itself as a key leader in applying EPR to tackle plastics pollution in SIDS, particularly as this concept gains traction in international negotiations for the UN Plastics Treaty.

Implementation

In the short term, the aim is that EPR will provide the revenue flows necessary to support the development and operation of the infrastructure needed to collect, sort and reprocess recyclable materials. SSA are already leading on this initiative.

B's Recycling is a key stakeholder for this initiative as the main organisation currently collecting material for recycling. The implementation plan will ensure blue boxes are both used correctly by the householders and collected properly by the collection crews. Typically, an implementation plan to roll-out source segregation collection service would cover the following elements:

- Containers
- Materials to be collected (end market routes for each material)
- Vehicles
- Collection (route optimisation, frequency, coverage)
- Resources (staffing)
- Information to householders
- Service monitoring

It is recognised that many of these areas may have developed plans associated with them already as part of the Residential Waste Collection Improvement Project, which will need to be accounted for.



Case Study: Example of the effects of source segregation (EU/UK)



Source separation in Wales leads to it being one of the highest recycling countries in the world.

The Welsh Government has developed a 'Collections Blueprint' as a recommended service profile for municipal governments to adopt for their kerbside collections. This blueprint hinges on a high level of waste segregation by householders and has been key in driving Wales to achieve one of the highest recycling rates in the world, due in part to the high-quality of the collected recyclate. This has numerous benefits, such as supporting the retention of the post-consumer material within the Welsh and UK economies for closed loop uses. By contrast, recyclate leaving material recycling facilities from municipalities operating other collection profiles are more likely destined for export markets, presenting a lost opportunity.

Early engagement with any businesses that would be covered by the EPR scheme is important to develop buy-in. This can be supported by involving international brands. They have become very supportive of EPR schemes because they can deliver a clean supply of recycled material. This helps them to meet their publicly stated goals around reducing the amount of virgin plastic in their packaging.

While the national scheme is developed, it is also key to develop regional collaborations, to help tackle the issue of finding recycling markets for recovered materials.

In the medium term, with the support of advanced modulated fees and well-designed targets, EPR could also become an instrument to incentivise reuse and refill.



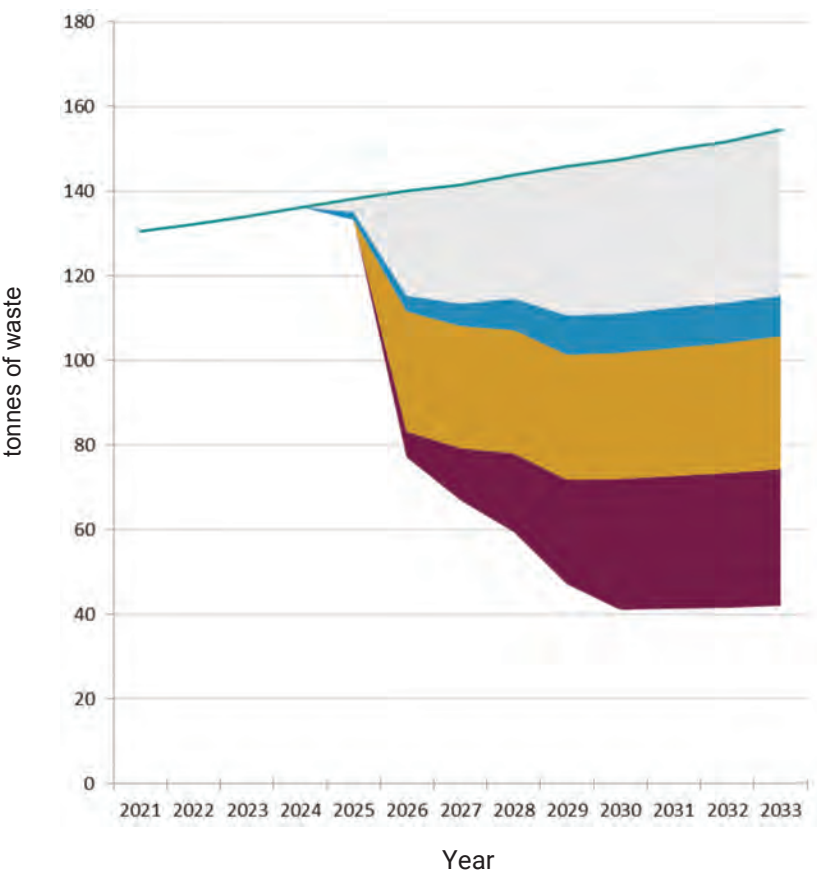
● **Strategy 5: Downstream measures**

Effective downstream measures are required to underpin the portfolio of policies presented above and to specifically target plastic leakage. Implementing effective downstream measures could reduce marine plastic pollution by 492 tonnes by 2033.

Please label as: **Figure 22. Strategy 5: Policies**

- **Policy 5.1:** Enhanced ‘on-the-go’ and ‘bulky’ waste collection to tackle littering and dumping
- **Policy 5.2:** Enhance enforcement against littering and dumping
- **Policy 5.3:** Enhance waste transportation, storage and handling
- **BAU**

Shows the impacts of policies modelled within Strategy 5



● Policy 5.1: Enhanced 'on-the-go' and 'bulky' waste collection to tackle littering and dumping

Plastic pollution
reduction potential:

66 tonnes
by 2033.

SOCIAL IMPACT



↑ Positive social impacts
related to having
cleaner public spaces

↑ Promotion of social
inclusion through
equitable access to
bulky waste collections

On-the-go waste is waste generated through consumption of items on-the-go, most of which are food/drinks-related packaging and cigarette butts (see definitions list on page 6). As the trend for eating and drinking on-the-go grows, the result is more food/drinks packaging in these litter streams. On-the-go collection activities include interventions that would capture this waste stream, such as; providing and maintaining street litter bins and sweeping in high footfall areas, engaging with local retailers and businesses to accept on the go waste for disposal from customers, awareness campaigns for the public, and collection/ maintenance activities for the services provided.

These measures relate specifically to the collection of waste generated through on-the-go consumption of items, often with the aim of increasing the capture of recyclable materials from this stream.

In addition, this policy will focus on the issue of illegally dumped waste including the littering of larger quantities or bigger ('bulkier') items of waste, such as mattresses, refrigerators or large pieces of electronic equipment. There is a working assumption that illegal dumping can be reduced through the provision of a well-communicated, accessible bulky waste collection system.

Littering was a very emotive topic for the workshop participants, who all believed that this behaviour needs to be urgently addressed. As such, it was one of the key policies selected to develop a roadmap for

Key considerations

A litter and illegal dumping strategy will be considered for development to effectively scope the approach, refine the resource requirements and funding needed to tackle this issue. The responsibility will be given to SSA for implementing measures to improve issues with littering and illegal dumping.

This policy will build upon Barbados' existing network of litter bins, and add more bins, particularly in high footfall areas. The type and position of the bin significantly impacts effectiveness, as convenience is one of the most important aspects of on-the-go waste collection. It is important to have enough bins in the right locations, close to where citizens are consuming the on-the-go food and drink.

A study of existing locations, food and drink outlets and high footfall areas, using big data solutions like Google locational analytics for example, can help pinpoint where additional locations could be added. The design of the bin is important as open bins can contribute to plastic litter as the contents are more likely to blow out or to overflow.

Litter overflowing or blowing away is further exaggerated if collections are infrequent. The implementation of this initiative will be supported by more regular bin emptying, and if necessary, an increased provision of street sweeping.

It will also be important to consider other key drivers of littering, in addition to the lack of availability of bins, to ensure they too are addressed. Education campaigns to encourage behaviour change and highlight the availability of the new bins, will be key.

This policy will lead to the implementation of an enhanced street cleaning and 'on-the-go' waste collection service to focus on littering. An 'on-the-go' recycling bin scheme can be introduced, but the timing of this will need careful consideration due to the widespread littering issues that currently exist. It may be prudent to stagger the implementation, firstly reducing levels of littering before introducing 'on-the-go' recycling.

Provision of a bulky waste collection service will address issues with larger items being illegally dumped. It is assumed that the current set-up relies on householders transporting bulky items to the landfill site, and in instances where this is not possible, items are being illegally dumped. The most effective approach is to provide a collection service of some sort.

Considering how regularly to provide this e.g. monthly, or if it is just bookable upon demand, will need to be contemplated. A charge could support the service, but if this is too high it may discourage use. The collection service provision will be supported by effective clearing operations.

Clearly, this increased level of service provision will have a cost impact. As such, it will be important to consider this carefully and ensure value for money. This includes targeting improved on-the-go waste collection in areas where it will have the most impact and ensuring that the on-going operational cost to both public and private sector operators is sustainable.

Implementation

Relevant existing legislation will be considered and SSA, local communities, environmental NGOs, consumers associations, restaurants and other key stakeholders will convene to share their insight on the situation with regards to enhancing on-the-go and bulky waste collection and recycling.

A study of existing bin locations, food and drink outlets, high footfall concentration, and littering hotspots, will inform the development of a baseline from which the litter focused implementation plan can then be developed. The plan will set out the required infrastructure (identification of bin type, number of bins, bin signage design, and possible use of technology), and resourcing. Increasing bins alone would not necessarily reduce litter, so behaviour change should also be a priority.

Running an initiative to encourage increased recycling as part of major events and festivals could support the wider public awareness campaign. Exemplary on-the-go recycling infrastructure could also be showcased at events.

A study of existing illegal dumping locations, and the type and volume of material dumped, will develop a baseline to inform the best approach for rolling out new bulky waste collection service and clean-up operations; as well as enhancing the current, on-demand bulky waste collection programme provided at a fee by the SSA. Lessons should be learned from the SSA's existing implementation challenges and solutions to these identified for any further bulky-waste collection services.

A strong and clear awareness-raising campaign to address littering and illegal dumping will underpin this policy and build on the growing awareness residents have of litter. Education, reinforced with household recycling provision, will promote proper use of litter bins and over time, leading to segregated waste and recycling bins.

● Policy 5.2: Enhance enforcement against littering and dumping

Illegal dumping is the disposal of waste in an area, on land or in water, that does not have a license to accept it. This is usually carried out by individuals or businesses to avoid disposal costs.

Litter refers to waste which has been disposed of improperly, such as without consent or at the wrong location. Regulation that tackles illegal waste typically takes the form of fines or imprisonment and can be enforced by local authorities or national government, depending on the scale of the incident.

As with many of the other policies, there was a strong push for increasing (or indeed establishing) an enforcement regime, making littering and illegal dumping a fineable offence. Most believed that Barbadians would not be motivated by 'clean neighbourhood' or 'clean school' campaigns, and instead thought fines would be needed. This may be supported by media coverage to communicate repeat offenders and the implications of littering and illegal dumping. Most believed that targeting behaviours around littering would help to support wider policies and measures on plastic pollution.

Littering was not just a problem amongst the general public, but also commercial and public contractors. One example was given where authorities responsible for cleaning gutters and drains would leave the refuse piled on the side of the road for another authority or agency to deal with. Similar examples were provided where an organisation would push the responsibility of dealing with litter or illegally dumped waste onto someone else with nearby jurisdiction (e.g. public parks).

To counter these kinds of behaviours, interventions under this policy could include a strong presence of mobile enforcement teams in key hotspot areas. It is important that enforcement activities are preceded by positive communication and the roll-out of alternative options for waste disposal, and recycling.

As this is a persisting and key issue, novel and practical ways to address these concerns should also be considered. Besides a progressive fine structure, some proposals could include:

1. Harmonisation of the public health inspectorate functions with others across the public service to expand the regulatory powers for illegal dumping and littering
2. Use of whistleblower reporting
3. Use of car dash-cams by certified inspectors or in public sector vehicles (remote reporting)

Key considerations

Existing legislation could provide the legal basis for enabling enforcement activity, but this will need to be reviewed. SSA should be given responsibility for appointing, training and managing 'Litter Wardens'. These wardens would have powers of enforcement to give on-the-spot fines to litterers, but also become local champions of cleanliness, providing identification and monitoring of litter and illegal dumping hotspots through; surveys; implementing public engagement campaigns and tracking down littering culprits.

A key factor towards the success of this intervention is the instatement of suitable penalties and fines that are high enough to act as sufficient deterrents. Where these do not exist, the impact of the regulation is likely to be very low as there is no incentive to comply, as we are seeing currently. This needs to be accompanied by effective monitoring and enforcement, which can in many cases be aided by suitable digital systems. This includes; traceability systems for waste at various stages in the management chain; registration of waste carriers; public reporting systems; consistent data gathering; and reporting techniques.

Implementation

With litter being a known issue, it is important to ensure that the roll-out of alternative options for waste recycling and disposal has occurred to a significant extent before stronger enforcement actions are taken (e.g. on-the-go waste collection bins, collection of large items including for instance electric and electronic waste). This is to support understanding and acceptance from local communities. The communication around new litter management services should be fully integrated with communication around enforcement, to show how they are complementary. A phased approach to enforcement could be taken, with warnings initially, and subsequent fines to follow. It is recognised that there are barriers to effective enforcement which currently presents a key challenge. Understanding more about what causes this will be critical for future action against littering and illegal dumping.

Defining the level of fines will be important, as well as making relevant enforcement responsibilities clear and having made capacity available and upskilled.

An effective policy will implement:

- Suitable penalties and fines that are high enough to act as sufficient deterrents
- Clear division of powers and duties with regards to enforcement
- Clear and consistent communication about enforcement
- Infrastructure enabling members of the public to report incidents

Plastic pollution
reduction potential:

**238
tonnes**
by 2033.

**SOCIAL
IMPACT**



↑ Revenue from littering
and dumping can be
reinvested in maintaining
clean public spaces

**ECONOMIC
IMPACT**



↑ Job opportunities
through deployment
of mobile enforcement
teams and litter
wardens

● Policy 5.3: Enhance waste transportation, storage and handling

This policy will enhance standards and enforcement procedures relating to storage, transport and management to reduce litter and other leakage of plastic waste items at various points in the waste management system.

Key considerations

Specific measures would depend on obtaining a more detailed understanding of the baseline. This could include further improving the containment of waste while it is waiting to be collected, deploying more enclosed vehicles to prevent loss of plastic while waste is being transported to Mangrove Pond landfill, and upgrades to the practices undertaken at the main landfill to prevent windblown release of plastic waste. For any significant infrastructure upgrades required at the landfill, funding will be a major consideration.

Implementation

The approach taken to improvements to waste transportation, storage and handling, as well landfill site upgrades will be informed by a baseline survey. SSA would be responsible for implementing this policy which focuses on reducing the escape of materials from the waste management system.

The baseline survey will focus on three main areas where plastic waste may leak into the environment: during waste collection, waste transport, and at waste management sites. Depending on the findings from the survey, options for interventions should be focused on the highest leakage points. Specific interventions could include:

- **Waste collection:** containing waste through mandating the use of covers/nets over receptacles when put out for collection at kerbside, use of bins with lids at community drop off points/communal bins and in street litter bins, regular monitoring of communal bins for litter overflow
- **Waste transport:** including careful handling (loading and unloading) as well as transport to and from transfer stations, enforcing speeding limitations on sorting plants and waste treatment facilities in vehicles that are covered/use tarpaulins to prevent loss of waste en-route
- **Waste management sites:** including a range of litter prevention, containment and collection measures at landfill, e.g. use of screens/nets to prevent loss of waste blown or washed away and regular clearing of litter in yards/holding areas

A key activity under this intervention will be the monitoring and enforcement of the standards and requirements set. In practice, the updates at the landfill may be staggered in their implementation depending on funding availability - with securing funding being a priority task.

Plastic pollution
reduction potential:

**188
tonnes**
by 2033.

**ECONOMIC
IMPACT**



↑ Jobs and business
growth opportunities
in waste and recycling
sector (e.g. installation
of materials/
interventions).

Enabling initiatives

Implementing this National Action Plan will require an ambitious, integrated approach to policy on plastics pollution, but this approach has the potential to maximise the effectiveness of different policies.

This will occur by combining effects, raising public awareness, and establishing Barbados as a leader in the region, and amongst SIDS, in tackling plastic waste. An integrated approach will be made possible by focusing on certain key enabling initiatives that underpin each of the strategies presented in the plan and have the potential to level-up the impact of the plan as a whole.

Engagement campaign

A public engagement and education campaign will be essential to raise awareness of the plastic pollution challenge and to encourage all stakeholders to play their part in implementing the policies identified in this National Action Plan, and make our aspirations a reality.

Positive action and behaviour change will be critical in achieving the National Action Plan’s overall aims of reducing the consumption of plastics, particularly of single-use items, and addressing the leakage of plastics into the environment through littering and illegal dumping.

A detailed Behaviour Change Campaign will be developed at the start of the National Action Plan implementation phase. It will be based on comprehensive stakeholder mapping to ensure that it targets the right stakeholders, in the right way, and at the right time. Clear and targeted messaging will be important to encourage

behaviour change, recognising that different stakeholders, such as householders, hotels, retailers and other businesses, will have different perspectives and priorities.

The campaign will utilise a range of engagement techniques as part of a clear long-term programme to raise awareness, promote changing behaviours and provide information. It is recognised that this will need to go beyond communicating the scale and nature of the plastic pollution problem in Barbados. The scope of this campaign will also provide information that helps consumers and business make positive change and reiterate communications, so that behaviour change is embedded in the long term.

Techniques are likely to include billboard, radio, television and social media messaging, as well as roadshows to provide direct face-to-face engagement with stakeholders. Inclusion of plastic pollution as an issue

covered by schools and other educational establishments will also be important (see above). These techniques are key to communicating the issue and to equipping the next generation with the understanding and tools needed to reduce plastic pollution in the long term.

One element of the campaign will be framing waste management as a key utility provided by the government. The rationale for such an approach is that if people understand the true cost of waste management, not just financially to the government but also its impact on the environment, they may be more willing to take on board the actions envisaged under the National Action Plan.

The Behaviour Change Campaign programme will be reviewed and refreshed periodically to ensure that the approach is appropriate and effective.

Legislative Review

A legislative review is required before the design and implementation of new policies to understand what the current barriers facing existing policies are. It is important to understand what is not currently working within the existing scheme, and how this could be improved before then deciding what the best way to introduce a new measure is. This may be deciding, for example, whether to amend existing legislation or develop new.

This is particularly pivotal for practices that require the management of funds, such as the Returnable Containers Act. The act currently sets refund value for glass containers at 20 cents and other containers at tent cents. This is a strong incentive to divert material from landfill and encourage recycling. However, this is not enforced consistently, causing confusion and lower than average levels of engagement. To extend the capabilities of existing frameworks, such as the Returnable Containers Act, it is important that existing challenges and barriers are identified and rectified first.

A review of existing legislation and the challenges associated with them is a common thread throughout each of the strategies presented. This will be done first for each of the initiatives and policies below, and will be incorporated into the ‘design’ stage of each strategy (see page 104 describing the phases of work).

Work with private sector

Working with the private sector will be key to implementing this National Action Plan. Real change and impact will not be felt without the cooperation and backing of businesses in the hospitality and tourism sectors.

The Government of Barbados recognises this and will meaningfully include the private sector in the design and implementation of the policies identified in this National Action Plan. By doing so, we can hope to tackle the biggest sources of plastics pollution and unlock innovation around plastics reduction, reuse and refill systems.

A key element of this activity would be developing a strong partnership with the tourism sector and working together to proactively position Barbados as a leader in tackling plastics pollution associated with this sector.



Policies for future consideration

An ambitious, integrated approach to policy on plastics pollution received great interest in the policy design workshop. For example, there was a lot of interest in developing a circular economy policy for Barbados, as an overarching policy that would include the strategies developed in this roadmap.

Introducing a broader circular economy policy could provide the basis for the progressive implementation of a range of measures to reduce plastics pollution and transition Barbados to a circular economy.

This overarching policy could also increase scope for newer, more ambitious strategies, e.g. tackling other waste streams that were identified in the research, and during the workshop, but were not prioritised for inclusion in this National Action Plan. We provide some suggestions below as potential areas for future consideration, which could support Barbados in going beyond a 70% reduction of plastic pollution.

Abandoned, Lost and Discarded Fishing Gear (ALDFG)

Assessment using available data suggested that the relative quantity of marine plastic pollution arising from abandoned, lost, or otherwise discarded fishing gear is relatively low (less than one tonne in 2021). However, given how important the blue economy is to Barbados, ALDFG (including nets, lines, traps, and other equipment) are an important item to consider - with impacts on protected marine animals and commercially important fish species, and as they constitute a safety hazard for shipping and maritime activities.

Measures to prevent and reduce loss of fishing gear are linked with design, use, and end-of-life collection and treatment.

More generally, responsible fishing practices need to be developed and included into fishing licenses. For instance, licenses should include fishing gear restrictions on items deemed particularly vulnerable to becoming ghost gear, require gear marking and gear design standards, as well as the reporting of lost gear, and retrieval. Reporting of lost gear can be made mandatory. GSP trackers and electronic identification systems could be explored to see if they can help trace abandoned, discarded, or lost fishing gear.

It is essential that collection, ease of disassembly, recycling and safe disposal are facilitated. Collection should be accessible (with disposal facilities at and around ports). EPR schemes applied to fishing gear could help fund the proper collection, recovery, recycling and disposal of these items. There could also be final incentives such as buyback or deposit-refund schemes to incentivise the return of abandoned and retrieve lost gear.

Fishers should be trained on proper gear handling and disposal practices, ahead of penalties for non-compliance and the possibility of suspending fishing licenses implemented. Remediation of legacy pollution from ALDFG also need to be considered.

Altogether, these measures could reduce plastic pollution caused by lost and abandoned fishing gear by an estimated three tonnes by 2030.

Microplastics

Measures to tackle microplastic pollution are nascent and have not been implemented globally to a great extent. However, microplastics are fast becoming one of the most problematic waste streams, due to their harmful impacts on the environment, animal and human health. A recent study led by Common Seas detected microplastics in human blood for the first time, finding tiny particles in almost 80% of the people tested (Common Seas, 2022).

However, it is very challenging to estimate the potential impact of measures tackling microplastics, particularly given the associated challenges in estimating emissions. Nonetheless, to provide a basis for Barbados to plan its future actions on microplastics, the potential impact of the following policies have been estimated:

- Regulations to reduce tyre wear by setting clear standards for tyre quality and wear rates. Plastics pollution reduction potential: 101 tonnes by 2030.
- Regulations to improve controls over pre-production handling of plastic pellets (the precursor of most manufactured plastic products and items). Plastics pollution reduction potential: 64 tonnes by 2030.
- Regulations to implement a fibre release threshold and clothing labelling to reduce microplastics emissions from synthetic textiles. Plastics pollution reduction potential: 2 tonnes by 2030.
- Extend wastewater treatment coverage and capacity (modelling on-going). Plastics pollution reduction potential: 0.4 tonnes by 2030.

Globally, these policies for addressing microplastics pollution are very much under development. However, it is important that the government of Barbados consider these types of pollution and the potential instruments for tackling them as part of its long-term planning. In particular, it will be important to engage internationally and with trading partners to develop solutions to these challenges.

Diapers

Diapers are an important item to consider due to the amount of waste generated (760 t per annum), with approximately 11 tonnes escaping into the environment in 2021. With the Ministry of Environment and National Beautification, and the Ministry of Health and Wellness working closely together, a pilot could be used to test incentives and different approaches for incentivising the use of reusable diapers and the reduction of disposable diaper consumption (e.g., provide a free set of reusables to new parents, introduce reusable nappies in hospitals and nurseries).

Encouraging a move away from disposable diapers will require a strong awareness raising and education campaign, as disposables are seen as cheaper and more convenient. This should also focus on the impacts of improper disposal of diapers.

The main agencies that engage with new parents will be key champions for the scheme, e.g., midwives, community health care practitioners, doctors, healthcare profession generally, support groups within the community for new parents.

The audience for this policy is rapidly changing due to the constant stream of new parents, presenting an ongoing communications issue. The window of opportunity is quite specific, as habits can form quickly, and children are in diapers for a relatively short period of time. Over the medium to long term, the intention will be to embed this change as a societal norm to facilitate ongoing uptake of reusables. In the long term, elder care can also be considered.

Plastic pollution reduction potential: 19 tonnes by 2033

Case Study:

Tyre wear – a significant source of microplastic pollution



While environmental regulations have long covered vehicle exhaust emissions, microplastics emitted from vehicle tyres remain largely outside of the scope of existing policy frameworks (OECD, 2021). To date, no country has introduced limits to curb microplastic emissions from tyres, despite accounting for a substantial share of the total microplastic released into the environment (Pew, 2023).

In November 2023, the European Commission (EU) released a proposal for legislation for vehicle emission standards, called Euro 7. The legislation will, for the first time, establish limits for tyre particle emissions in Europe. The legislation will apply to tyres on all passenger cars in the EU first (2026), then extend to light truck tyres in 2028 and heavy truck tyres by 2030. It will also set out brake particle emission limits, which are another source of microplastic pollution. Euro 7 will be introduced in July 2025, and is expected to provide a gateway for further regulations of this problematic waste stream (Pew, 2023).



Microplastics in the international plastics treaty

The UN Plastic Treaty provides a unique opportunity to tackle microplastic pollution. At negotiations at INC-3 in Nairobi, held from the 13- 19 November 2023, there were disagreements between plastic producer nations and burdened nations over microplastics. Regarding intentionally added microplastics, some nations urged strong controls, whereas others preferred clear guidelines on definitions first. Some countries also advised the establishment of a technical body to examine the impact of microplastics (AIChE, 2023; IISD, 2023).

The revised draft text ahead of INC-4 in April recognized that plastic pollution includes microplastics and it contains different options to tackle microplastics with varying levels of ambition. At the final INC meeting later this year, negotiators will need to ensure that the Treaty has the necessary tools to address microplastic pollution. The Environmental Investigation Agency (2023) believes this should include the following provisions:

- **Virgin polymer production, consumption, and use:** provisions that eliminate the production of problematic polymers and ensures the sustainable production, consumption and use of polymers that continue to be used.
- **Product design and use:** provisions to promote sustainable product design (eco-design) and use, targeting both intentionally added microplastics and use-phase microplastics (wear and tear).
- **Dedicated programmes of work:** provisions to establish dedicated programmes of work to develop sectoral strategies, including for sources of microplastics, to identify policies and measures for adoption at the international and national levels.
- **National action plans:** the Plastics Treaty will likely require national action plans that outline actions to be taken by governments to comply with their international obligations. These should include actions that align with the comprehensive sectoral strategies, including those on microplastics, developed under the dedicated programmes of work.

Construction waste

Plastics are increasingly being used in the construction sector due to their low cost and weight. An estimated 275 tonnes of plastic construction waste were generated in Barbados in 2021.

A programme focused on construction waste could help to encourage better construction waste management; improving storage; reducing consumption of unnecessary materials which become waste; improving disposal; and promoting source segregation of recyclable plastics wastes. This could contribute to reducing the estimated 194 tonnes of construction wastes which are likely to become plastic pollution in Barbados over the coming decade.

Case Study: Construction Waste management in Scotland



Construction waste is Scotland's biggest contributor to landfill. As such, the country offers a support programme to help design out waste in construction. Led by Zero Waste Scotland (ZWS), a not-for-profit organisation funded by the Scottish Government, the programme includes several resources that are freely available to support practitioners to reduce the consumption of virgin materials at the outset of construction projects. This includes optimising resource-efficient maintenance and repair; and maximising re-use of materials at the end. These resources include free consultation support with ZWS's circular construction team, a site waste management plan, a procurement plan, and a best-practice guide.

Besides these practical support packages, Scotland has also included construction as part of their Circular Economy route map. They outline seven 'packages' with specific measures under each that are needed to deliver a circular economy; one of these packages is to 'embed circular construction practices', as they recognise that it will be impossible to meet their waste reduction targets without accelerating action to reduce waste from construction and demolition. They propose several new measures, including working with industry to accelerate the adoption of best practice standards and explore options for mandatory compliance.

Other countries are also explicitly including the management of construction waste within their National Action Plans for plastics management, such as in Bangladesh and Sri Lanka. The Government of Bangladesh will expand their 3R strategy to include specific high waste sectors, including construction. To do this, they plan to create a waste exchange marketplace for the sector. In Sri Lanka, the Government has a goal to establish a monitoring and review system and legalise a mechanism for the usage, recovery, and safe disposal of plastic waste from the construction sector.

Agricultural plastics

Agricultural plastics are increasingly used to enhance productivity and crop yields, and to reduce losses, including with plastic mulching, greenhouse farming, and crop protection, especially in the vegetable, fruit, crop and livestock sector. These plastics are often not disposed, and even less recycled, and lead to the accumulation of plastics in soils and aquatic environment, in the form of macro-, micro- and nano plastics. This impacts both the terrestrial and maritime environment (with potential consequences on the long-term health of agricultural ecosystems) and human health.

Reducing the use of single-use plastics in the agricultural sector should be considered as well. Restriction or a ban of certain types of agricultural plastics, especially single-use items like plastic mulch and packaging, can be implemented. Avoiding the use of plastics is possible, with more sustainable practices encouraged. This includes conservation agriculture and cover crops, such as using alternatives e.g., natural mulching materials (straw, wood chips, or compost), and natural pest control (including the use of natural predators, trap crops, and companion planting), to reduce the need for plastic-based pest control methods. Exploring alternatives for greenhouse covers (using options like woven bamboo, shade cloth, or other breathable materials) is also feasible.

Single-use products can also be replaced with reusable ones, such as rigid harvesting crates instead of flexible bags. When avoiding is not possible, compostable alternatives (such as replacing plastic pots for paper-based pots), can be promoted.

Providing incentives for farmers and businesses adopting sustainable practices and alternatives to traditional plastics can be considered. The suitability of alternatives will depend on the specific agricultural practices, climate, and crop type.

Finally, it is essential that agricultural plastics that become waste are collected, recycled, or at least disposed of sustainably. This should include introducing agricultural plastics, that cannot be replaced or avoided in the short to medium term, into EPR schemes to help fund the collection and waste management of these items. Introducing labelling of products will be important to allow traceability.

Supporting research and innovation is also essential to promote solutions adapted to Barbados agriculture and to the availability of locally made alternatives.

Roadmap to Tackle Plastic Pollution

Without action, plastic pollution in Barbados is set to increase by 12 percent by 2033, and will require nine percent more landfill capacity compared to 2021.

To address this, the Barbados government has laid out a National Action Plan (NAP) of five key strategies (incorporating 12 policy interventions) that can reduce plastic pollution by 73 percent over 10 years, relative to the 2021 business as usual scenario.

Achieving this impact will require coordinated action by government stakeholders along the plastics value chain.

The Roadmap (page 108) outlines the major steps to delivering the NAP. Each stage of work – from policy design to post-implementation – is illustrated, along with key milestones, and accompanied by further details in Annex.

Stages of work

The Roadmap describes distinct stages of work, from policy design through to post- implementation. Actions in each stage will differ by policy, described in detail in the accompanying appendix.

However, generally, the **DESIGN STAGE** may involve a legislative review to understand the legal framework for implementing the policy. This will involve supporting research and a feasibility study to review the policy considerations, and the early stage of the consultation process. As part of this process, key stakeholders will be defined, and the feasibility study results will be presented to them. The policy design would be scoped and refined, and an impact assessment undertaken, along with ongoing stakeholder consultation. Governance arrangements would also be defined.

The **PRE-IMPLEMENTATION STAGE** involves any testing, trials, or demonstration projects. Public consultation would be undertaken during this stage, if required. An implementation plan would be developed and practical and logistical set-up arrangements, such as policy operator, infrastructure, reporting, training, and enforcement measures, would be put in place. A public awareness campaign and communication strategy would also be launched to drive behaviour change at the community level.

The **IMPLEMENTATION** stage sees the point at which the policy is rolled out. In some cases, this may be a phased approach.

POST IMPLEMENTATION stages are intentionally blank in the roadmap and accompanying annexes, as actions would be defined according to monitoring and review work. As such, this stage would involve monitoring the policy effectiveness and ongoing review of policy design. Policy specifics may be amended based on findings or supporting measures introduced. In some cases, the policy scope may be extended over time.

It is important to note that before the outlined stages of work and timeline presented below, the institutional and governance framework for this NAP must be established. This is necessary preparatory work to establish the ways of working, outline the roles and responsibilities, and establish targets and goals needed to drive action. This is covered in the next section titled 'Institutional Arrangements'.

For this reason, we outline the years in the timeline below under short, medium, and long term within a ten-year period. The specific, target years will be defined once this foundation is established, given the ambitious and fast-paced action needed to achieve the impact required.

Timeline

SHORT TERM – PREPARATION AND IMPLEMENTATION OF KEY POLICIES

The first year of the roadmap implementation will be focused on a review of existing legislation to understand policy effectiveness. For the most part, Barbados has the legislative framework in place (e.g. Control of Disposable Plastics Act, Returnable Containers Act, and an integrated Solid Waste Management Programme). The legislative review will evaluate the effectiveness of these policies in achieving their intended objective, as well as identify any gaps or areas for improvement, and any inconsistencies or conflicts with other laws. A thorough impact and risk assessment will also be undertaken.

While this preparatory work lays the foundations for change, some quick wins will be prioritised. These will build on existing successes, such as the trialling and rolling out of the first water refill points. We will also prioritise tackling litter and illegal dumping in the short term, to demonstrate the commitment of the Government of Barbados to a clean environment, leading by example. Policies 5.1 and 5.3, as well as the water refill points, will be accompanied by a public awareness campaign to begin sensitisation around the upcoming policies to tackle litter.

Clear leads for each component of the action plan will be identified, with responsibilities being shared amongst different departments to ensure appropriate expertise is in place and to draw on capacity across government. These responsibilities will be set out clearly when establishing the NAP governance arrangements. (See page 112).

KEY ACTIONS:

- Review existing legislation
- Rolling out first water refill points
- Prioritise tackling litter and illegal dumping
- Public awareness campaign

Following the design and pre-implementation stages, we will also see the first wave of key policies being implemented in the short term. These will be charges on single use bags (Policy 1.1), the relaunch of the DRS (Policy 2.1), source segregation at the household (Policy 4.1) and the issuing of warnings for the enforcement of litter and illegal dumping (Policy 5.2). At the same time, refill and reuse will continue to expand, with a reuse trial (e.g. for coffee cups in participating cafes) being trialled toward the end of the short-term period.

KEY ACTIONS:

- Charges on single use bags implemented
- Relaunch of DRS
- Source segregation at the household implemented
- Enforcement of litter and illegal dumping

Timeline continued

MEDIUM TERM - INCENTIVISE BEHAVIOUR AND REVIEW IMPACT

Following the implementation of key policies, we will begin providing incentives to influence behaviours in the medium term. Positive incentives will be provided through an island-wide reuse system being rolled out (potentially announced/launched at Crop Over) (Policy 3.2), as well as a final push for an extensive provision of water refill points (Policy 2.2).

Behaviours toward reuse will be further incentivised by charges to single use alternatives (Policy 3.1). Householders will also be encouraged to separate their waste at the household level (Policy 4.1), accompanied by education and public awareness campaigns. Further incentives will be provided in the form of fines for littering and illegal dumping.

KEY ACTIONS:

- Island-wise reuse system roll out
- Final push for water refill points
- Charges to single-use alternatives implemented
- Fines for littering and illegal dumping

Once the full suite of policies have been implemented, the end of the medium-term period will be focused on analysing data and reviewing the impact of policies. It will also begin the feasibility and design stage (e.g. legislative review) for more ambitious policies that will consider banning certain single-use plastic items in the longer term.

KEY ACTIONS:

- Analysis data
- Reviewing the impact of policies
- Design stage for considering banning certain single-use plastic items



LONG TERM - LEVEL UP AMBITION

Finally, in the long term we will potentially introduce further bans on certain single use plastic bags, as well as certain single-use plastic bottles (e.g. starting with the smallest format, under 500ml), depending on the results of the feasibility studies conducted in the medium term.

The post-implementation stage is intentionally blank in the roadmap and accompanying annexes, as actions would be defined according to monitoring and review work. As such, this stage would involve monitoring the policy effectiveness and ongoing review of policy design. Policy specifics may be amended based on findings or supporting measures introduced. In some cases, the policy scope may be extended over time.

KEY ACTIONS:

- Further bans on certain single use plastic bags
- Further bans on certain single-use plastic bottles
- Monitoring the policy effectiveness
- Policy specifics amended



Figure 23. The Roadmap

Legend

STAGE

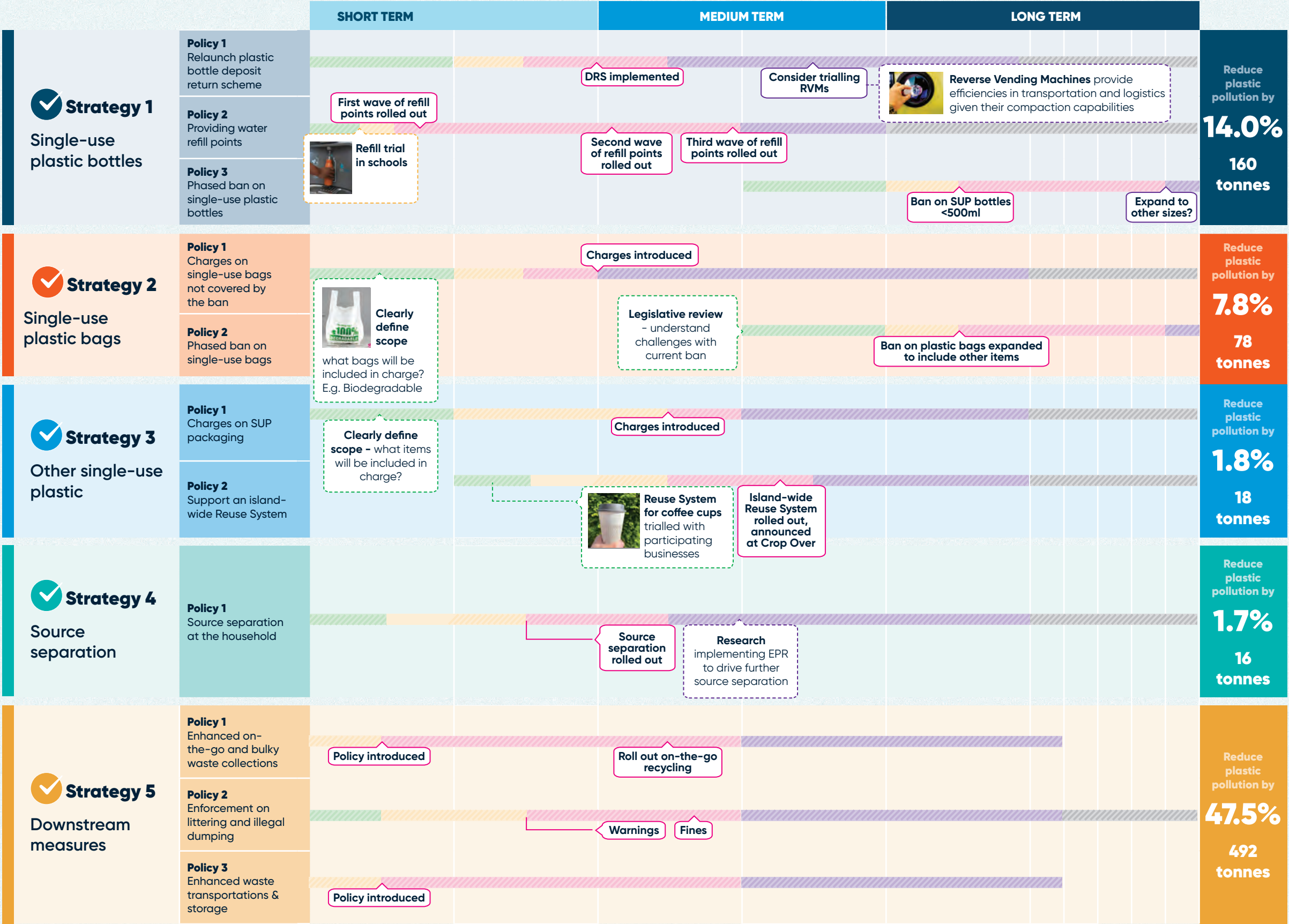
DESIGN

PRE-IMPLEMENTATION

IMPLEMENTATION

POST-IMPLEMENTATION

TO BE DETERMINED



Strategies explained

● Strategy 1: Single-use bottles

Providing water refill points is seen as a quick win, and a good intervention to inform the public on the benefits of reuse and refill. This will therefore be prioritised first, with a one-year lead-in time for public awareness and demonstration. Refill points will continue to be rolled out in a phased manner, expanding their reach.

Following the propagation of refill points, we will relaunch the DRS, still in the short term. This requires more groundwork to prepare and will be preceded by a legislative review and public consultation.

Finally, once these two complementary initiatives have been in place and people are sensitised to returning containers and moving away from single use (further supported by the policies in Strategy 1) we will consider the design of a ban on SUP bottles in the medium term, starting with the smallest format.

● Strategy 2: Single-use plastic bags

There is substantial bag litter in Barbados despite the ban on petroleum-based single-use plastic bags. Strategy two will thus focus on reducing this waste stream.

Firstly, we will identify which bags will be included in the scope of a new charge. This will likely be implemented in the short term. Once the charges have been in place, and further policies across other strategies encourage a move to reuse, the design stage of the phased ban will kick off in the medium term. This will firstly identify challenges with the current ban. Once suitable alternatives are readily available, such as reusable bags, we will consider expanding the ban to cover other formats.

● Strategy 3: Other single-use plastic items

Strategy 3 has overlap with Strategy 2, with policies focused on charging SUPs. The timeline for policy 3.1 will be similar as policy 2.1, to provide efficiencies with policy design, communications and behaviour change elements. For example, the research into the scope of items included in the charges could be done concurrently.

However, Strategy 3 will also focus on designing a large-scale reuse system, starting with coffee cups, to demonstrate reuse can be done at scale. For this reason, the implementation of charges for SUP packaging will be pushed to the medium term to align with timescales of the reuse system. The reuse system will take learnings from the coffee cup trial and the water refill campaign from Strategy 2, and then be implemented in the medium term. It could be communicated as a solution and alternative to the charges being introduced in the same year.

● Strategy 4: Implement Extended Producer Responsibility (EPR) to drive source separation

Source segregation at the household is currently fragmented in Barbados and should be urgently rolled out consistently across the island. This will take some time to design and implement in all neighbourhoods, so full execution is not expected until the end of the short-term period.

Next, once this has been in place for some time, it should be brought into a holistic strategy to encourage further recovery and recycling of plastic. This can be supported through an Extended Producer Responsibility scheme to support source segregation and will require some further design to align the current system and stakeholders to the holistic strategy.

● Strategy 5: Downstream measures

Effective downstream measures are required to underpin the portfolio of policies presented above and to specifically target plastic leakage. Policies 5.1 and 5.3 do not need large lead in times for design, as they are pre-existing and involve mainly some pre-implementation work to enhance these service offerings. This will be prioritised in the short term, so that we can demonstrate our commitment to a clean environment. Policy 5.2 will allow for some lead in time, focused on strong public engagement and awareness to start with, before warnings and fines are implemented for littering and illegal dumping from the end of the short-term period.

Institutional Arrangements to Implement

Summary of Governance/Key roles to implement

Clear leadership and ownership of the National Action Plan will be critical for its successful delivery.

The Ministry of Environment and National Beautification, Blue and Green Economy (MENB) will have overall responsibility for leading the implementation of the National Action Plan.

The issue of plastics pollution cuts across government so it will be important that other key ministries and agencies are also actively engaged in the delivery of the action plan.

The existing Plastic Drawdown Committee will serve as the steering group for the National Action Plan. The Committee includes members from across government, enabling it to draw upon the necessary inputs and support to ensure its effective implementation. The Committee will serve as the main group of individuals who will review key outputs and decisions associated with the delivery of the National Action Plan, including the approval of the National Action Plan once it has been finalised.

A National Action Plan Project Implementation Unit (PIU), sitting within the Ministry of Environment and National Beautification, Blue and Green Economy will be formed to deliver and co-ordinate the implementation of the National Action Plan. The PIU will have three main roles:

- 1. Facilitating the coordination of the Plastic Drawdown Committee, with respect to the National Action Plan. This will involve scheduling and organising meetings, and preparing and distributing documents, etc.
- 2. Coordinating and managing all the activities that will be necessary to implement the National Action Plan, such as commissioning feasibility studies, implementing pilot and demonstration projects, etc.
- 3. Monitoring and evaluating (M&E) the implementation of the National Action Plan in accordance with the M&E plan (see below).

The figure below illustrates the overall governance arrangements for implementing the National Action Plan. The table below summarises the key government stakeholders and their roles in delivering this.

Figure 24. Summary of governance arrangements

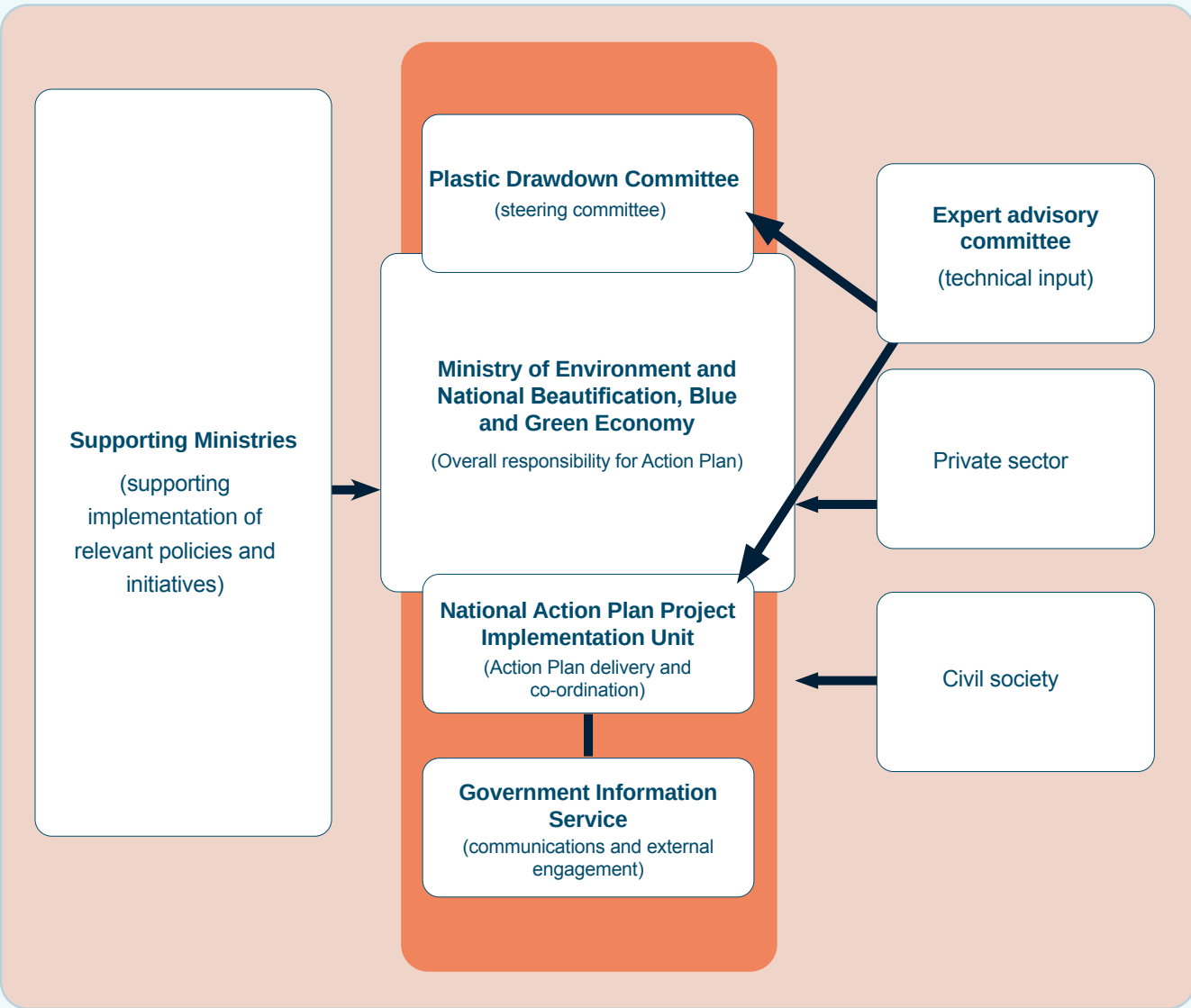


Table 4. Summary of government actors and their role in delivering the National Action Plan

Institution	Main roles and responsibilities in delivering NAP
The Ministry of Environment and National Beautification, Blue and Green Economy (MENB) Plastic Drawdown Committee	- Overall responsibility for leading and coordinating the implementation of the National Action Plan - The steering group for the National Action Plan, providing oversight of the Plan, reviewing and approving all key stages of implementation
National Action Plan Project Implementation Unit, MENB	- Providing the coordination for the Plastic Drawdown Committee. This will involve scheduling and organising meetings, and preparing and distributing documents, etc. - Coordinating and managing all the activities that will be necessary to implement the National Action Plan, such as commissioning feasibility studies, implementing pilot and demonstration projects, etc - Monitoring and evaluating (M&E) the implementation of the plan in accordance with the M&E plan (see below)
Ministry of Finance, Economic Affairs and Investment	- Helping design and facilitate financial incentives and instruments that form part of the National Action plan - Managing revenue flows related to new financial incentives
Ministry of Transport, Works and Water resources	Oversight of infrastructure development needed as part of the National Action Plan (e.g. improving landfill disposal capacity).
Office of the Attorney General	- Helping design and facilitate the legislative changes that will be needed to implement and enforce key parts of the National Action Plan - Conducting initial legislative review, a key first step of the National Action Plan

Institution	Main roles and responsibilities in delivering NAP
Environmental Protection Agency	- Responsible for environmental monitoring and pollution control . - Responsible for monitoring and control of conditions likely to affect the quality of land, air and water and the general health and environmental well-being of the inhabitants of Barbados
Ministry of Tourism and International Transport	Helping design policy and facilitate positive change particularly with respect to the tourism sector.
Ministry of Foreign Affairs and Foreign Trade	Key role with respect to the development of Global Treaty on plastics pollution, including representing Barbados at the Intergovernmental Negotiating Committee (INC) meetings
Ministry of Health and Wellness	Key partner in aspects related to health, including helping assess and address any health concerns related to refill schemes and reusable diapers.
Sanitation Services Authority (SSA)	- Key in implementing downstream policies and initiatives (e.g. source separation of waste plastics to enable recycling). - Responsible for waste collection & disposal. - Oversight of infrastructure development needed as part of the National Action Plan (e.g. improving landfill disposal capacity).
Department of Commerce	Regulatory enforcement related to DRS, bans on specific items and tackling litter.
Barbados Water Authority	Helping to address issues associated with wastewater flows, particularly in terms of flushed microplastic items and microplastic emissions.
Barbados Customs and Excise Department	A key role in designing and implementing financial and legislative instruments related to specific items (plastic beverage containers, etc.).

Monitoring & Evaluation

The Ministry of Environment and National Beautification, Blue and Green Economy will have overall responsibility for monitoring and evaluating the implementation of the National Action Plan. A detailed monitoring and evaluation (M&E) plan will be developed at the start of the National Action Plan implementation.

Key elements of the M&E plan will include:

- One or more indicators defined for each policy in the National Action Plan
- Time-bound targets will be defined for each indicator
- A programme of periodic reporting will be defined, including key review points and an identified body for review (e.g. Plastic Drawdown Committee)
- A data source will be defined for each indicator
- Where appropriate, tasks required to collect data at key points in the M&E programme will be identified and the necessary resources will be planned and implemented by the PIU (e.g. periodic waste composition analysis)
- A full review of the Action Plan in Year Five

The M&E plan will be developed and implemented by the National Action Plan Project Implementation Unit (PIU) within the MENB. The PIU will collect and collate relevant data and report progress against identified indicators. This will necessitate engagement with a range of other stakeholders, who will hold the necessary information and data to allow this M&E.

Key stakeholders and relevant data sources include; the Barbados Customs and Excise Department, which holds data on imports and production of key plastics products; the SSA, which collects data on waste management; and Barbados Statistical Service, which can provide wider contextual data, such a demographic information.

Periodic M&E reports will be prepared by the PIU and presented to the Plastic Drawdown Committee.

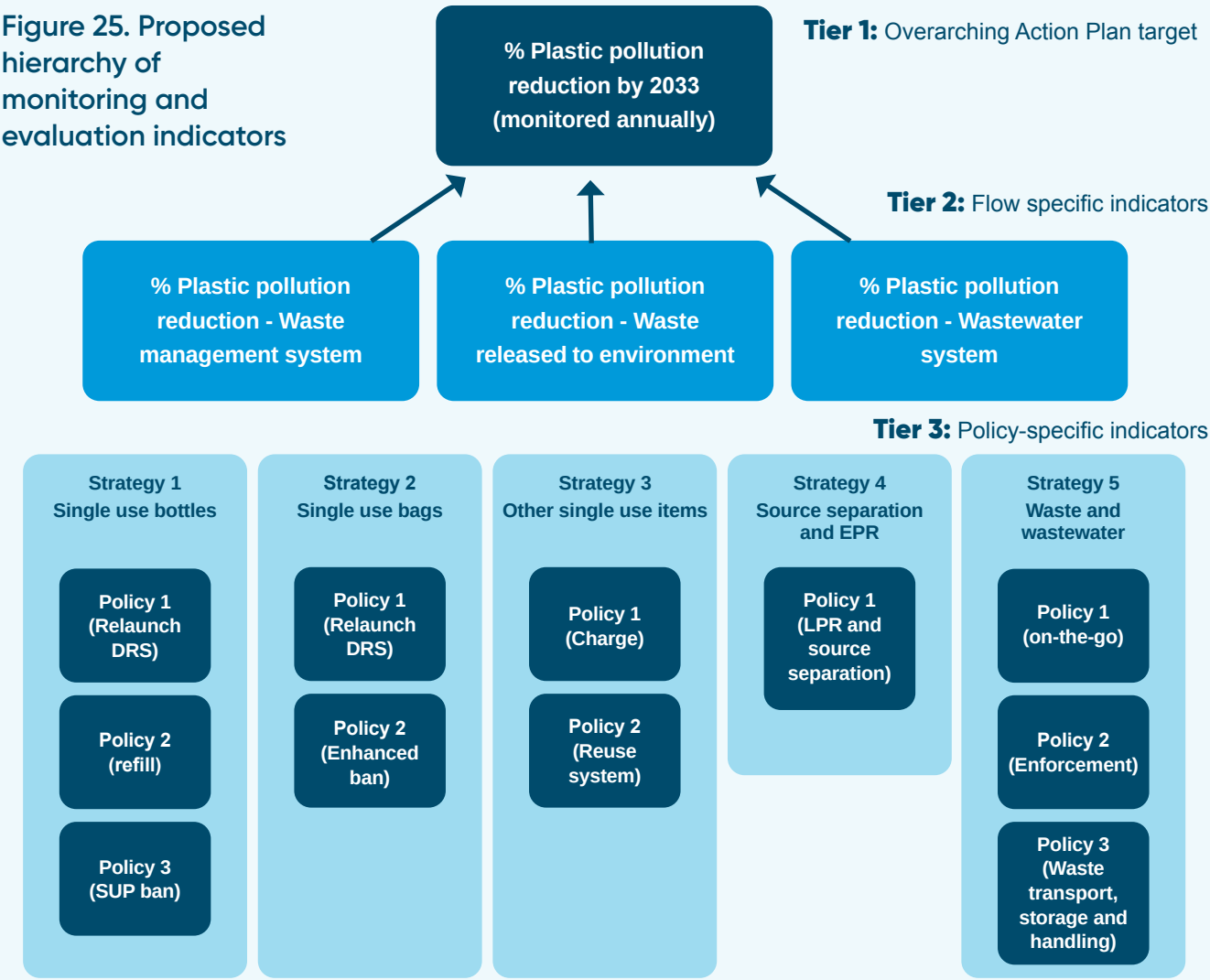
A full review of the National Action Plan will take place in year five. All indicators will be reviewed, and the National Action Plan updated as necessary. This review will be co-ordinated by the PIU, with delegation of specific elements as appropriate. The PIU will present an updated National Action Plan to the Plastic Drawdown Committee for review.

The indicators will comprise three tiers:

Tier 1: An overarching National Action Plan target in terms of reduction in plastics pollution compared to the forecast business as usual (BaU) case. This target will be assessed [annually] by using Plastic Drawdown.

Tier 2: Indicators and targets for each of the three main flows of plastics pollution in Barbados: 1) materials escaping from the waste management system; 2) direct releases into the environment in the form of littering and illegal dumping; and 3) plastics flushed into the wastewater system. These flows will be monitored using Plastic Drawdown and will allow performance against the Tier 1 target to be estimated. Various data will be required to allow these indicators to be calculated (e.g. waste composition data, surveys of waste management behaviours, waste management system data, etc).

Tier 3: Indicators for each individual policy in the National Action Plan so that progress in implementing each policy and their associated impact can be assessed and reviewed.



The strategies and policies identified in the National Action Plan will require resourcing, technical support and investment over time.

A clear financing plan will be developed for each key policy, identifying needs in terms of coordination and technical capacity, and capital and operational finance. Existing capacity in the government departments and agencies that will be responsible for delivery of each element of the National Action Plan (see institutional arrangements above) will be assessed.

As well as considering existing and future government capacity, there are a range of sources of technical assistance and finance that can be used to help develop and implement the National Action Plan. These are being proactively explored and include:

- 1. Technical support from international agencies and NGOs:** This National Action Plan has been prepared with the support of the international social enterprise, Common Seas. We will continue to engage with Common Seas and other partners, including UNEP that is providing Specialist Waste Management Financing support, working under the EU Cariforum Zero Waste Caribbean Initiative
- 2. Accessing international development and philanthropic finance** to design and implement the National Action Plan. Opportunities to access finance to implement the full range of policies set out in the National Action Plan are being explored. These could help deliver new infrastructure, support with behaviour change campaigns and test new approaches to tackling single-use plastics. Potential sources include the multi-lateral Problue Fund, administered by the World Bank, the Commonwealth Secretariat (for which some funding in support of this NAP has already been secured) and the Global Environment Fund
- 3. Collaboration with business and civil society:** There is real scope to collaborate with key business sectors, such as the tourism sector, to jointly deliver key elements of the National Action Plan. This will help to provide positive environmental outcomes and support businesses in addressing key corporate social responsibility aims
- 4. Extended Producer Responsibility has the potential to offer a basis for providing operational finance for improved waste management and recycling.** The policy would provide a mechanism by which producers help to create operational finance for collecting and recycling the products they place on the market. This is a well-established approach used to help fund waste management and recycling in many parts of the world. The existing deposit return scheme (DRS) for glass containers can be considered a type of EPR. Please see Strategy 4 for more information

Actions covered under the 'medium' and 'long-term' roadmap of this NAP could be supported by financing through the upcoming international UN Plastics Treaty. The Treaty is currently being negotiated, including means by which to support countries to meet obligations under the treaty (including developing and implementing NAPs).

Effective dissemination of Barbados' National Action Plan is essential for its success. The following key stakeholder groups should be engaged:

- Citizens:** The public should be informed about the problem of plastic pollution, the government's response, and how they can play a role. Public engagement strategies across multiple channels, including media and social awareness raising, engaging community and religious leaders, and education programmes in schools and universities are most effective. It will be important that measures that are being taken to alleviate the potential impact of change on poorer or more vulnerable members of the community are clearly identify and communicated.
- Private sector:** Early, regular, and tailored communication will ensure the private sector can play their role in disseminating the plan to employees, customers, and suppliers, and in driving innovation towards a circular economy. The government should use a variety of communication channels, such as email, websites, social media, and face-to-face meetings. Industry associations can communicate to their members, but efforts should be made to reach all sizes and types of businesses.
- NGOs and community-based organisations:** Often at the forefront of the fight against plastic pollution, they can help to raise awareness, support continued engagement with minority or at-risk groups, and help deliver solutions. Local partnerships and ongoing communications can ensure that the government benefits from their creativity, knowledge, and deep community connections.
- Public sector:** The Ministry of Environment and National Beautification, Blue and Green Economy will play a key role in strengthening communication links between government ministries, departments, statutory authorities, and municipal officials to ensure that they understand the importance of action, are clear on their role, and remain up to date as the plan is delivered.

Disseminating the plan regionally and internationally can also motivate other countries to deliver their own plans and help to develop best practices. This is particularly relevant as United Nations negotiations continue towards developing a legally binding agreement on plastic pollution by the end of 2024, which will include provisions on National Action Plans.

Barbados' support for an ambitious Global Treaty on Plastic Pollution

This National Action Plan demonstrates our dedication and ambition to significantly reduce plastic pollution in Barbados, paving the way for a more resilient and healthy future. However, we recognize that an ambitious and global UN Plastics Treaty is needed to help address the many cross boundary challenges related to plastics pollution that cannot be solved with national action alone.



Barbados supports a treaty that outlines globally legally binding obligations with time-bound aspirations, which serve as targets to be achieved, and to emphasize the urgency with which actions must be taken.

With specific reference to issues identified and tackled in this NAP, our analysis has identified key areas that require a coordinated global approach in order to have the most impact at a national level. These are:

- **Global bans** of categories of plastics such as the manufacture and use of unnecessary, avoidable, and problematic plastic items. This would complement and enforce our own bans implemented at a national level, as a largely import-based economy.
- **Obligations to establish EPR** that meet specific requirements and standards set by the treaty. This will 'level the playing field', and ensure that Barbados is not negatively impacted by implementing EPR, as a small, import-based economy.
- **Internationally agreed minimum requirements and standards** that could be applied in reuse and refill to drive improved circulation and resource management, as well as further reduction in plastic use even for products and materials that are not prohibited. This would support the establishment of reuse systems, by establishing the importance of reuse at a global level.
- **Microplastic controls**, particularly those that would limit the release of tyre dust and microfibre shedding from clothes, such as minimum product standards. Microplastics have been identified as one of the main sources of plastic pollution in Barbados, which must be addressed at the product design level, pre-consumption and disposal.
- **National Action Plans** should detail how countries will implement binding obligations and deploy additional policies beyond global requirements, while taking national circumstances into account. This will validate the efforts at a national level to tackle plastic pollution, and ensure this is prioritised over time.
- **Control on virgin plastic production and phased reductions**, which is a necessary precursor to achieving the sustainable production and consumption of plastics, achieving economic circularity, and establishing the enabling conditions for the reduction and elimination of plastic pollution at a national level.

For further information regarding Barbados' calls for a Global Plastics Treaty, as part of the International Negotiating Committee, please see (Government of Barbados, 2023).



Final remarks

This National Action Plan sets Barbados on the right course for radically reducing our reliance on plastic and the resulting plastic pollution. It provides us with a vision and plan for 2030 and beyond. A goal that we can collectively strive to achieve, and that will safeguard our people, environment, and economy.

It provides the impetus for urgent change and demonstrates Barbados' ambition to be a front runner in this space – all while supporting global efforts to deliver on the UN Sustainable Development Goals.

No single policy can solve the problem, but this document demonstrates how implementing five holistic strategies can reduce Barbados plastic pollution by 70%.

Achieving these policies will provide widespread benefits to Barbados. Reducing plastic leakage into our ocean will preserve our pristine natural environments that attract tourists and investments, supporting a transition to a more sustainable blue economy.

Likewise, less litter on our land and in our seas will protect both marine life and terrestrial animals from the ingestion, suffocation and entanglement of plastic. In turn, boosting biodiversity and conserving earth's healthy ecosystems.

Plastic production is undoubtedly linked to climate change. Throughout their lifecycle – from production to management as waste – plastics generate greenhouse gas emissions, with 3.7 percent of GHG emissions in 2019 related to fossil-based plastics (OECD, 2023). The policies addressed in this National Action Plan possess the power to move beyond the plastic problem, reducing emissions and supporting Barbados on its journey to be net-zero.

Already demonstrating leadership on the world stage for issues related to climate change, Barbados will now be positioned as an exemplar small island developing state for plastic management. The uptake of this National Action Plan shows ambition to tackle this global environmental and health problem.

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Appendices

Appendices are available online, and described below:

- 1. **Policy solutions explored:** Summarises the 18 key polices that were analysed using the Plastic Drawdown tool as a basis for consultation and policy co-design.
- 2. **Technical Report:** Provides details of the Plastic Drawdown tool and methodology used to analysis plastic waste and the solutions in Barbados. Summarises the material flow analysis for macro and micro plastics. Provides data sources and modelling assumptions drawn from stakeholder consultation and expert knowledge.





National Action Plan to End Plastic Pollution in Barbados

