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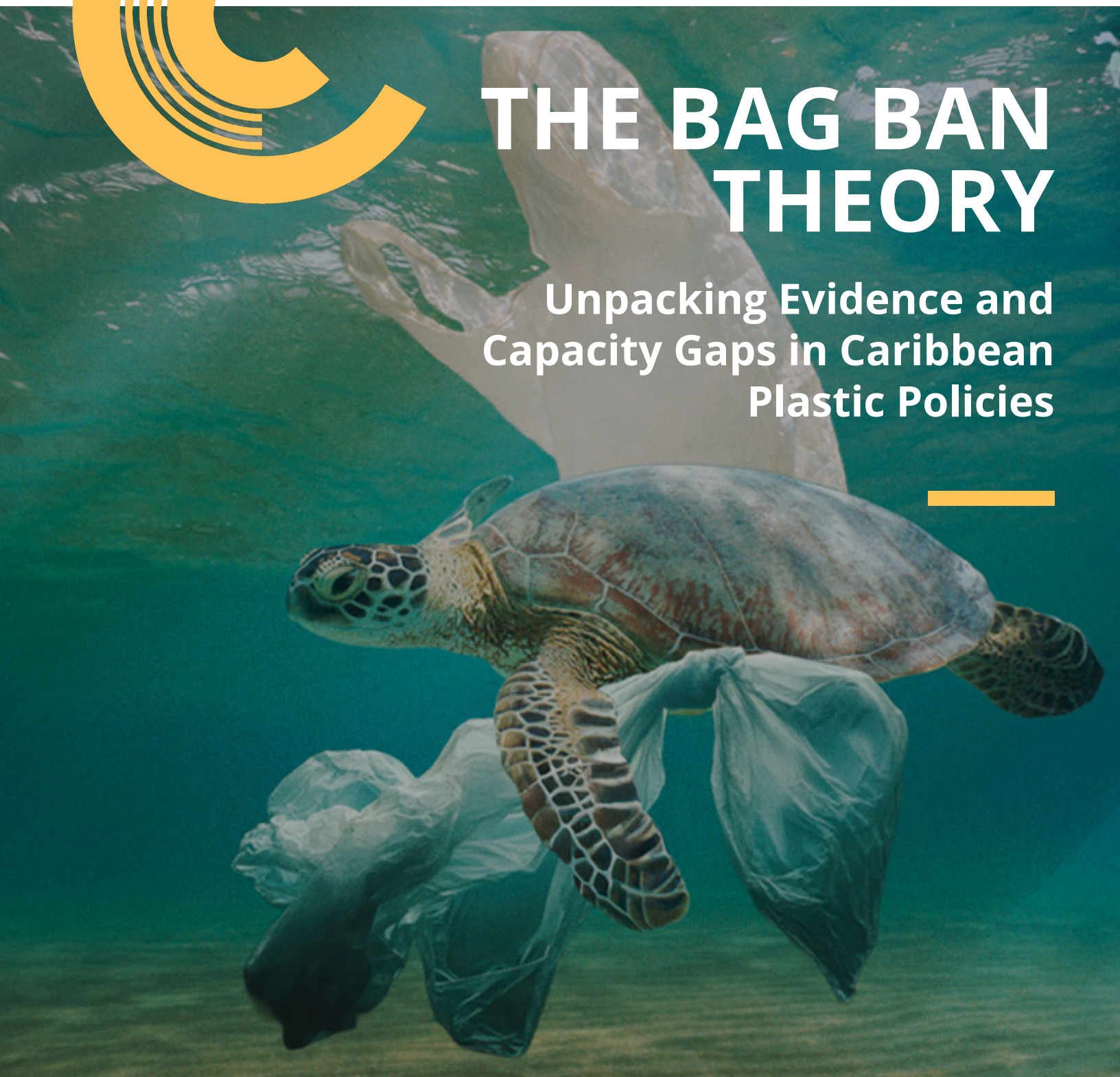
THE BAG BAN THEORY

Unpacking Evidence and Capacity Gaps in Caribbean Plastic Policies



The Bag Ban Theory

Unpacking Evidence and Capacity Gaps in Caribbean Plastic Policies

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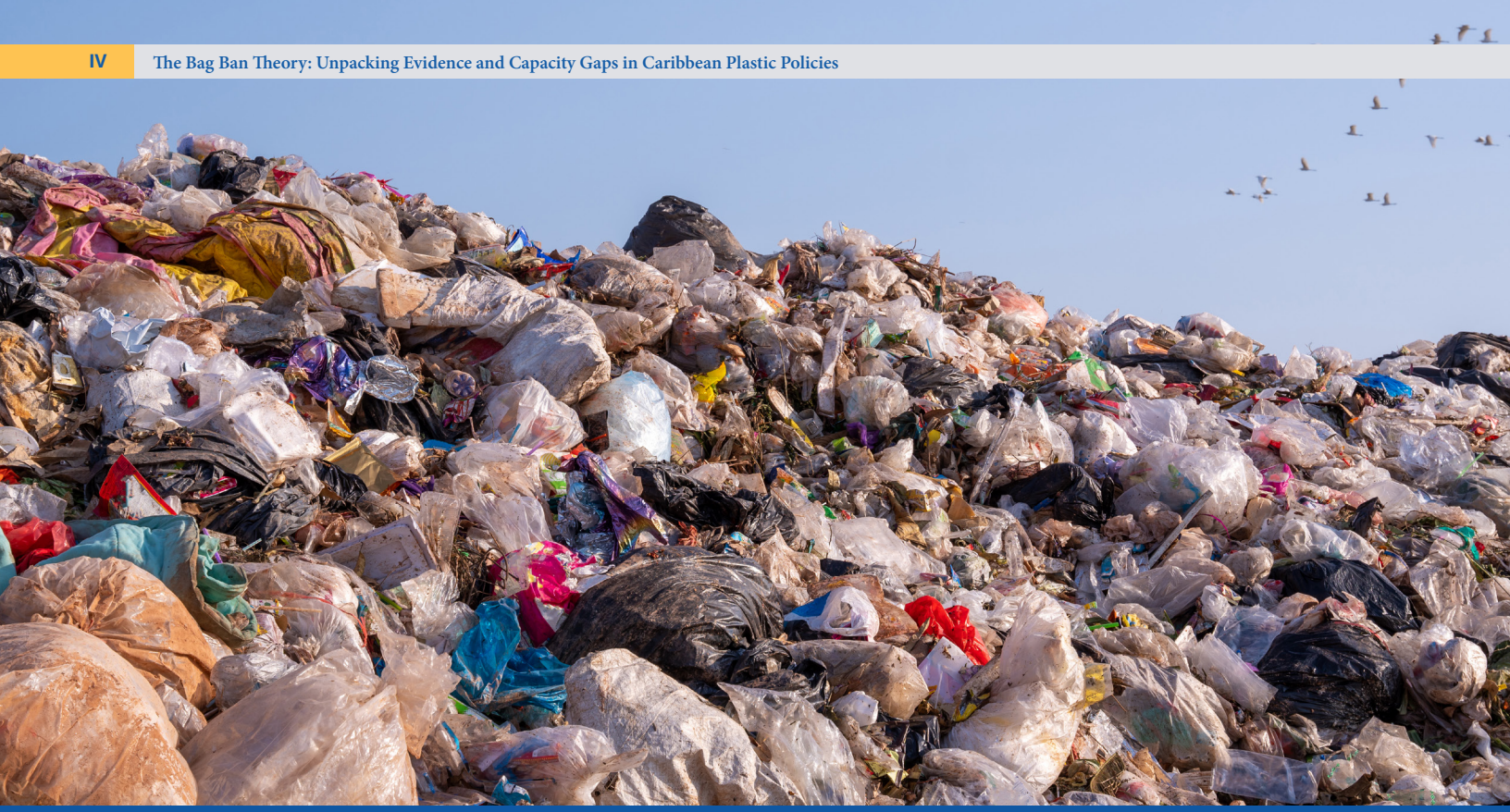
Acronyms

BNSI	Barbados National Standards Institution
COVID-19	Coronavirus Disease 2019
EPI	Environmental Performance Index
EU	European Union
HDPE	High-density Polyethylene
ICC	International Coastal Cleanup
JICA	Japan International Cooperation Agency
NCRA	National Compliance and Regulatory Authority
NEPA	National Environment and Planning Agency
NGOs	Non-governmental Organisations
NRCA	Natural Resources Conservation Authority
NSWMA	National Solid Waste Management Authority
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme



Executive Summary

Across all three countries, the bans have reduced the most visible sources of plastic waste and raised public awareness, but their broader environmental and health impacts remain inconclusive.

This report examines the effectiveness of single-use plastic bag bans in Antigua & Barbuda, Barbados, and Jamaica. These countries introduced bans with the shared aim of reducing single-use plastic circulation and litter, alongside broader objectives such as protecting marine ecosystems, reducing flood and health risks, and positioning themselves as regional leaders in sustainability. Each relied heavily on consumer behaviour change and substitution with alternatives, supported to varying degrees by public awareness campaigns and exemptions for food safety.

The analysis found that while some visible progress has been achieved, particularly in curbing plastic bag use in formal retail sectors, the absence of systematic monitoring means the effectiveness of the bans cannot be determined with confidence. None of the jurisdictions established baseline indicators or monitoring mechanisms, leaving evaluations to rely on fragmented administrative data, retailer self-reports, and beach cleanup results. These proxies lack methodological integrity and cannot serve as reliable evidence of impact.

In Antigua & Barbuda, the share of plastics in landfills dropped from 20 percent in 2006 to four percent in 2017, though much of this decline preceded the 2016 ban. Government distribution of reusable bags and awareness campaigns supported compliance, and surveys suggested public awareness improved. Yet enforcement inland was uneven, smaller retailers continued distributing banned bags, and health indicators such as dengue incidence fluctuated independently of the ban.

In Barbados, the 2019 Control of Disposable Plastics Act banned a wide range of products and linked the measure explicitly to sustainability and global reputation. Plastics accounted for 12 percent of municipal waste in 2015, declining to three percent in 2021, but cleanup data from 2023 and 2024 still showed plastics making up over 70 percent of litter. A 2017 baseline recorded 21 percent of coastal litter as macroplastics, and by 2021 an estimated 131 tonnes of macroplastics and 177 tonnes of microplastics were still entering the sea. Promised standards for alternatives were not delivered, leaving biodegradable substitutes unregulated and sometimes environmentally harmful. Retailers reported reductions in bag use, but these were self-reported and not independently verified.

Jamaica phased in bans from 2019, targeting bags, straws, and polystyrene containers. International Coastal Cleanup data suggest a fall in plastic bag prevalence from 13 percent of collected waste in 2018 to six percent in 2021, followed by a rise to

While some visible progress has been achieved, particularly in curbing plastic bag use in formal retail sectors, the absence of systematic monitoring means the effectiveness of the bans cannot be determined with confidence.

nine percent in 2022. Imports of plastics increased from US$191 million in 2015 to US$275 million in 2023, suggesting substitution into other plastics. Health proxy data showed that dengue incidence fluctuated considerably, with notable spikes in 2019 and 2023 and declines in the intervening years - patterns more closely linked to variations in rainfall and public health conditions than to the plastic ban itself. Enforcement was initially strong, with 52 prosecutions by the end of 2024, but activity has since declined, raising concerns about sustainability.

Across all three countries, the bans have reduced the most visible sources of plastic waste and raised public awareness, but their broader environmental and health impacts remain inconclusive. Plastics are still pervasive, substitutes are poorly regulated, and monitoring and enforcement are inconsistent. Achieving meaningful reductions in plastic pollution will require sustained enforcement, systematic data collection, and stronger regulation of alternatives.

To move from symbolic to substantive, governments must strengthen the design and implementation of plastic bans. This report recommends:

- **Establish systematic monitoring of plastics flows:** Ministries responsible for environment and trade should require quarterly importer and manufacturer reports on plastic bags and substitutes, while waste management authorities should conduct regular waste characterisation studies disaggregated by product type and make results public.
- **Set and enforce standards for plastic alternatives:** National standards bodies should adopt internationally recognised benchmarks for biodegradable and compostable plastics, require independent testing, and publish annual lists of approved alternatives to guide importers, retailers, and consumers.
- **Strengthen enforcement capacity:** Customs agencies should expand inspections to prevent imports of banned items, while environmental agencies should increase inland spot checks of retailers and informal markets, publishing annual compliance reports that detail inspections, breaches, and penalties imposed.
- **Institutionalise monitoring of green procurement outcomes:** Annual reports should be tabled to Parliament on compliance and the costs and volumes of alternatives procured.
- **Strengthen public education with measurable targets:** Campaigns should set clear targets—such as household adoption of reusable bags—and publish participation rates and outcomes.

In their current form, the bans risk remaining largely symbolic unless governments invest in the capacity to monitor, enforce, and evaluate them.


NO
MORE
PLASTIC

Recommendations

1

Establish systematic monitoring of plastics flows

- Ministries responsible for environment and trade in each jurisdiction should require importers and manufacturers to submit quarterly reports on the volumes and types of plastics and substitutes placed on the market.

- National Solid Waste Management Authorities should conduct biennial waste characterisation studies, disaggregated by product type, and publish the results to track progress.

Set and enforce standards for plastic alternatives

- The Barbados National Standards Institution, the Antigua and Barbuda Bureau of Standards, and the Bureau of Standards Jamaica should adopt internationally recognised technical standards for biodegradable and compostable plastics.

- Independent testing should be mandatory before alternatives are approved for sale, and approved lists should be updated annually and made public.

2

3

Strengthen enforcement capacity at ports and inland

- Customs agencies should expand container inspections to block prohibited plastics from entering.

- Inland, NEPA (Jamaica), the Environmental Protection Department (Barbados), and the Ministry of Health and Environment (Antigua & Barbuda) should increase random spot checks of retailers and informal markets, and publish annual compliance reports detailing inspections, breaches, and penalties.

Recommendations

4

Institutionalise monitoring of green procurement outcomes

- Annual green procurement reports should be tabled in Parliament, documenting compliance rates, plastics eliminated, and the costs of alternatives procured.

Strengthen public education with measurable targets

- Ministries of Information (or equivalents), in partnership with NGOs, should mount annual campaigns with specific targets—for example, household adoption rates of reusable bags or student participation in reduction initiatives.

5

1 When Plastic Becomes Policy

At least 16 countries in the region now prohibit importation, distribution, or use of plastic bags.

Caribbean countries have banned plastic bags, but without data, no one knows if the bans are working. Plastic reduction measures and interventions are warranted: plastic waste makes up about 80 percent of the litter polluting the Caribbean Sea, with nearly all of it coming from land-based solid waste sources that account for up to 85 percent of marine debris.[1] Among the most harmful are single-use plastic bags: lightweight and difficult to recover, they clog drains, worsen flooding, damage marine life, and threaten tourism, fisheries, and health.[2]

In response, Caribbean governments have joined the global movement to restrict single-use plastics. At least 16 countries in the region now prohibit their importation, distribution, or use.[3] Yet despite the ambition of these measures, their effectiveness is largely unknown. With few monitoring mechanisms in existence, no established baselines, and limited data collection, there is little evidence to demonstrate whether the bans have reduced plastic waste.

This study examines anti-plastic bag measures in three countries—Antigua & Barbuda, Jamaica, and Barbados—which introduced bans in 2017, 2019, and 2019, respectively. These policies were designed to reduce plastic waste, protect ecosystems, and promote public health, though their scope varies: Antigua & Barbuda began with plastic bags before later expanding to Styrofoam and other single-use plastics, while Jamaica and Barbados included straws, cutlery, and containers from the outset. For comparability, this report focuses solely on plastic bags.

The Report's Objectives

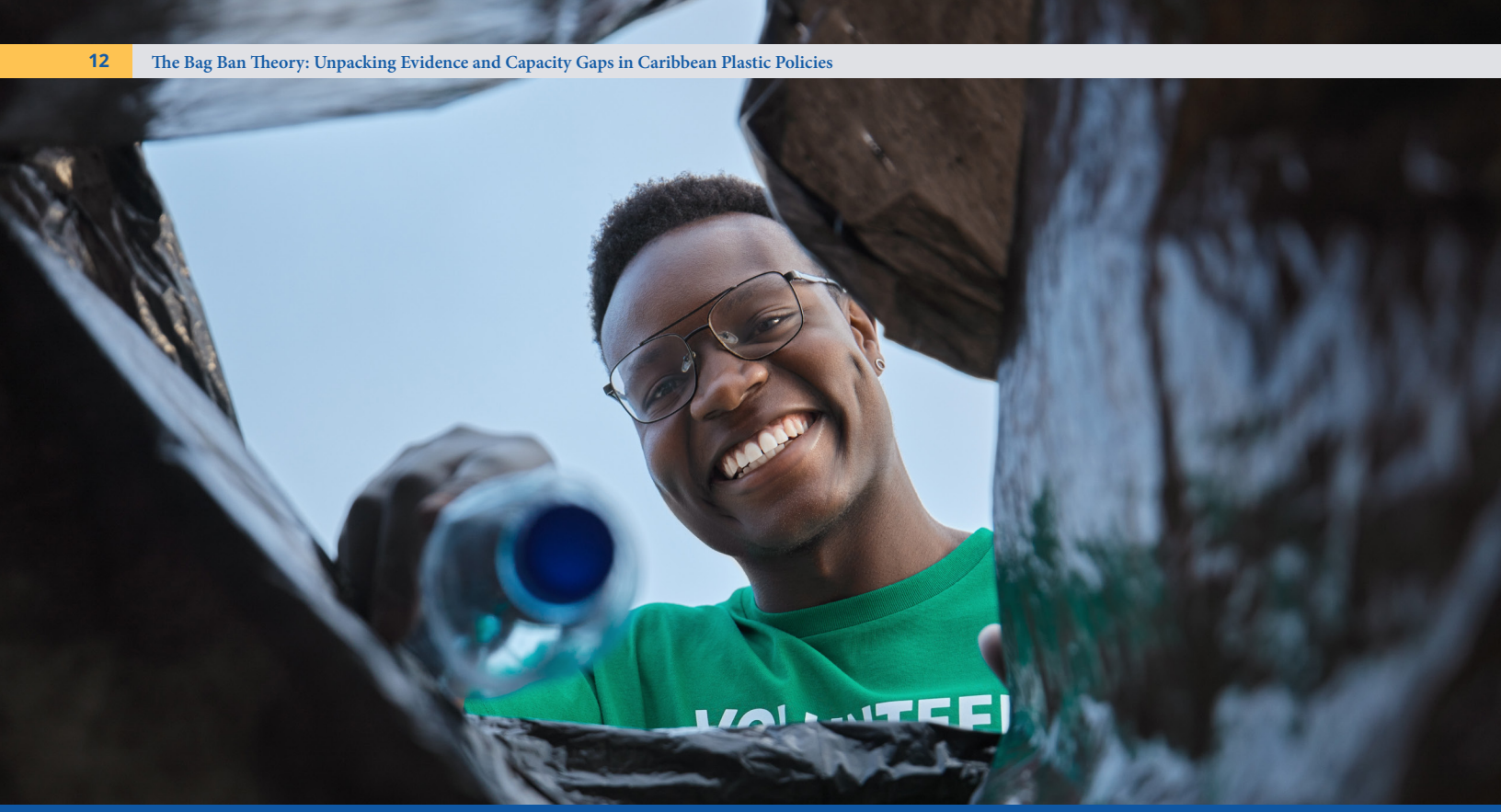
This study evaluates the effectiveness of anti-plastic bag measures in the three countries, assessing both successes and shortcomings. It identifies explicit and implicit objectives as set out in legislation, policy documents, and official statements, and evaluates the extent to which these objectives have been achieved.

Effectiveness is assessed through a goal-based evaluation framework that consolidates each policy's objectives, maps them against measurable indicators, and compares outcomes with intentions. A "mixed-methods approach" was employed, comprising desk reviews, stakeholder interviews, data from relevant agencies, and news reports. Quantitative evidence was supplemented with qualitative perspectives and anecdotal accounts to capture information on enforcement and compliance that were absent from official reporting.[4]

The report explores key questions: What are the explicit and implicit objectives of these bans? To what extent are these objectives measurable? Have the bans achieved their aims, and what evidence supports this?

By applying this framework, the study highlights both the achievements and gaps in the design and implementation of plastic bag bans. The findings are intended to inform practical recommendations to strengthen existing regulations, draw lessons from the Caribbean and comparable jurisdictions, and propose solutions to enhance the effectiveness of current and future single-use plastic policies.

Plastic reduction measures and interventions are warranted: plastic waste makes up about 80% of the litter polluting the Caribbean Sea, with nearly all of it coming from land-based solid waste sources that account for up to 85% of marine debris.



2 The Battle Against Plastic

Plastics contribute to **3.4%** of global emissions, and projections suggest it could rise to **19%** by **2050** if current trends continue.

Plastic pollution is recognised as one of the most urgent environmental challenges. Plastics contribute to 3.4 percent of global emissions, and projections suggest it could rise to 19 percent by 2050 if current trends continue. This is not a new problem: since the 1950s, when plastic consumption first surged, observers noted the risks of a material that was cheap, durable, convenient, and multipurpose, yet slow to break down.[5]

Single-use plastic bags exemplify the dilemma. Their strength-to-weight ratio, low cost, waterproof characteristic, and convenience make them attractive to retailers and consumers. These same features, however, render them environmentally damaging. Most are derived from non-renewable petroleum-based inputs, and they do not biodegrade in natural environments.[6] Instead, they fragment into microplastics, persist for centuries, and enter food chains and waterways. Lightweight and windborne, they frequently escape collection systems, clog drains, exacerbate flooding, and accumulate along coastlines and in waterways, including gullies, with negative consequences for public health, ecosystems, and the economies of fisheries-dependent and tourism-centric economies.

Governments worldwide have responded to escalating concerns by introducing a variety of measures to reduce plastic bag consumption. As of 2023, 60 countries had implemented some form of intervention, ranging from outright bans to levies, taxes, or voluntary agreements with industry.[7]

The record on these measures is mixed: success is often contingent on enforcement capacity, public acceptance, and the availability of affordable alternatives. While some countries report sharp reductions in bag use, others find that consumption shifts to unregulated substitutes, raising questions about whether bans or levies achieve lasting reductions in plastic pollution without complementary monitoring and waste management infrastructure.

Anti-Plastic Bag Measures Across the World

In Europe, the most employed policy intervention is a tax. A 2017 European Union Directive required member countries to achieve a target of 40 plastic bags per capita by the end of 2025, down from an estimated average of 198 bags per capita in 2010. That directive led to the widespread adoption of a plastic bag tax with rates set at €0.80 per kilogramme of non-recycled plastic packaging waste.[8] The measure was designed to prevent and reduce the environmental and health impacts of certain plastic products, while promoting the transition to a circular economy; it accounted for a decrease of nearly five billion lightweight plastic carrier bags consumed across the EU in 2022 with 30 billion consumed compared to the previous year's 35 billion bags.[9]

On a country-by-country basis, however, the outcome has been uneven. Belgium, Poland, and Portugal reported the lowest plastic carrier bag consumption in that year with four, seven, and 13 bags per person. However, 18 of the 27 countries in that year surpassed the 40 bags per capita mark, with 13 countries reporting over 80 bags per capita.[10]

Among the ostensive successes were Belgium and Ireland. Belgium's Environmental Levy specifically targeted single-use plastic bags, disposable cutlery, and other items; it proved highly effective with the distribution of single-use plastic bags dropping by 60 percent in just one year (2008–2009), and revenues from the bag levy falling as use declined.[11] Ireland's plastic bag levy, introduced in 2002, coincided with a decline of plastic bags as a proportion of total litter from five percent in 2001 to 0.25 percent in 2010, and by 2014 they accounted for 0.13 percent of litter.[12]

Even with these measures, the EU has not banned all single-use plastic bags, and so-called "very light bags" continue to contribute to the prevalence of plastics in the EU amidst the directive. Some retailers deliberately increased the thickness of their plastic bags to cross the legal threshold from "single-use" to "reusable."[13]

Effectiveness is assessed through a goal-based evaluation framework that consolidates each policy's objectives, maps them against measurable indicators, and compares outcomes with intentions.

Bans and levies have been the policy tools of choice in Africa and Asia.[14] These measures have been implemented with varying degrees of enforcement, public compliance, and outcomes across countries. Bangladesh was an early adopter with a nationwide plastic bag ban in 2002. That ban restricted the importation, consumption, and production of polyethylene plastic bags, largely in response to severe flooding linked to clogged drains.[15] However, the results two decades later post-ban are not promising, largely due to the inadequate supply of suitable alternatives and weak enforcement.[16] In 2020, the per capita plastic consumption tripled to nine kilograms from three kilograms in 2005, with only 31 percent of the 977,000 tons of plastic produced in 2020 being recycled. Furthermore, the pandemic further eroded the ban's efficacy given the heightened demand for disposable packaging, which boosted industry growth. Even as a new (2024) government introduced a new anti-plastic policy, progress will likely be limited due to alternatives remaining unaffordable, industry pressure, and widened gaps in enforcement.[17]

Rwanda was also a first mover in anti-plastic measures, implementing a ban on single use plastics in 2008. From as early as 2003, the Rwandan Ministry of Environment assessed the impact of plastic pollution to include blocked water channels, restricted water infiltration into the soil, clogged drains, and air pollution from burning plastic waste.[18] The government claimed strong enforcement, and a whole-of-society participatory approach called Umuganda, based on a national community service initiative that mandates persons aged 16 to 65 to do monthly volunteer work. This initiative was later incorporated into the plastic ban, with the aim of promoting long-term behavioural change through regular clean-up efforts and community improvement activities.[19]

Several public statements attest to positive changes in the Rwandan effort, including improved cleanliness and public adoption of alternatives. However, there is limited empirical data to quantify the impacts of the ban or to assess the extent to which progress aligns with its stated objectives.[20] Regardless, Rwanda's claim at success has earned global recognition, and positioned the country as a global model, and Rwanda was one of two countries that spearheaded discussions that culminated in the United Nations Environment Assembly 5 (UNEA 5.2) resolution to develop a legally binding agreement to end plastic pollution by 2024.[21]

North and South America have seen fewer interventions but bans remain the most commonly used approach where measures do exist.[22] California became the first U.S. state to introduce a statewide prohibition on single-use plastic in 2014.[23] At the time, it was estimated that plastics accounted for between eight and 25 percent of the US$428 million annual cost of protecting California's waters from litter.[24] The measure introduced a minimum 10-cent charge on reusable bags. It faced significant shortcomings: a loophole permitted retailers to provide thicker plastic bags for a fee, which contributed to increased plastic waste. By 2021, approximately 231,072 tons of plastic grocery and merchandise bags were disposed of in landfills – 47 percent more than the 157,385 tons recorded before the ban in early 2014.[25] COVID-19 pandemic restrictions temporarily discouraged the use of reusable bags. In response, California is set to adopt a revised approach to take effect on January 1, 2026, whereby retail customers either pay at least 10 cents for a paper bag, bring a reusable bag, or carry their purchases without a bag.[26]

In 2018, Chile became the first South

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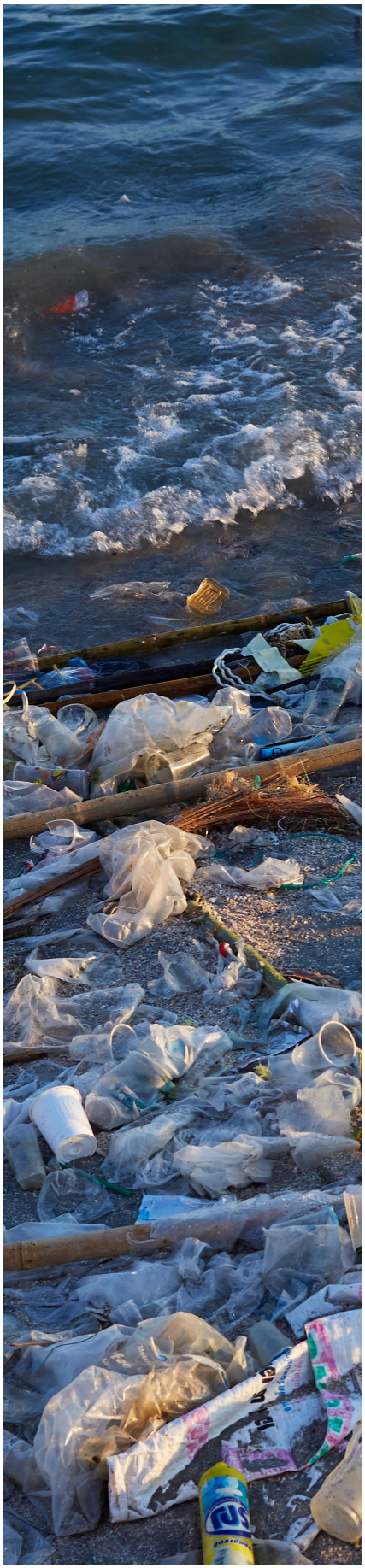


American country to ban plastic bags in commercial establishments, later (2021) expanding restrictions to phase out single-use plastics in the food sector.[27] The policy cut plastic bag consumption by nearly 250 kilotons in four years, down from an estimated 498 kilotons in the absence of the ban, reducing their market share from 97 percent to less than 50 percent, as paper and biodegradable alternatives gained prominence. Yet it also drove a 50 percent rise in bin liner sales as consumers replaced the secondary uses of free bags.[28] Even with these trade-offs, Chile's ban stands out as one of the region's more effective plastic regulations.

What Bans Entail

Plastic bag bans generally prohibit the manufacture, import, or sale of plastic bags, usually defined by thickness. Bags thinner than 30–50 microns are typically classified as single-use and banned, while thicker bags are often exempt as "reusable." Grocery bags usually fall between 30 and 100 microns.[29] The absence of a global standard makes thresholds inconsistent: negotiations toward an international plastics treaty began at the 2022 UN Environmental Assembly, but as of August 2025 consensus had not been reached.[30]

Targeting thinner bags makes sense because they are more likely to escape into the environment, but exempting thicker bags often substitutes one form of disposable plastic for another, undermining policy objectives. Loopholes of this kind have weakened bans in several jurisdictions, with California's exemption for "reusable" bags leading to a surge in garbage bag sales, and Australia's ban on conventional high-density polyethylene (HDPE) bags offset by increases in other types, resulting in minimal impact on litter and ocean plastics.[31]

Alternatives such as paper or biodegradable bags introduce their own problems. Paper bags require greater energy and water in production, while reusable bags can pose hygiene risks if not washed. Biodegradable and compostable plastics have shown little environmental advantage over conventional bags: many do not degrade faster, and in landfills the lack of oxygen and sunlight prevents effective breakdown. When they do fragment, they often become microplastics with harmful ecological and health effects. Misleading labels can worsen outcomes, as consumers perceive such products as harmless and are more likely to litter them; one survey found 'biodegradable' labels increased littering among young people.[32]

The unintended consequences of bans lead to a supposition that public education campaigns and complementary measures are needed to mitigate them. Awareness campaigns can improve compliance and shift norms, as seen in Germany, while South Africa's levy reduced consumption but transferred costs to consumers and retailers. Ideally, over time, bans might reshape behaviour by normalising reusable bags, discouraging unnecessary bag use, and making single-use plastics socially undesirable.[33]

The Policy Context of Environmental Regulation in the Caribbean

Since the 1980s, Caribbean governments have built legal frameworks to regulate and protect the environment, from St. Kitts and Nevis' National Conservation and Environment Protection Act (1987) to the Cayman Islands' National Conservation Law (2013).[34] These laws created protected areas, set pollution controls, and aligned national practice with international environmental obligations.[35] They also established institutions for licensing, enforcement, and penalties, and have been revised over time in response to new challenges.

Climate change has become the defining frame of the 2020s, given the region's vulnerability to sea-level rise, extreme weather, and coastal degradation. Programmes such as Barbados' Roofs to Reefs and Dominica's National Ocean Policy and Strategic Action Plan illustrate efforts to combine resilience with sustainable development, though systematic evaluation remains limited.[36]

Plastic pollution has emerged as a highly visible threat, prompting 16 Caribbean states to enact bans on single-use plastics and Styrofoam. These policies aim to reduce waste, protect tourism and fisheries, and limit ecosystem damage. St. Lucia's *Styrofoam and Plastics Food Service Containers (Prohibition) Act (2019)* exemplifies this ambition, phasing in restrictions with baseline assessments and a plastics flow analysis. However, no comprehensive evaluation of effectiveness has followed, leaving impact unclear.[37]

What evidence there is points to deeper contradictions. Bans have been introduced in contexts dominated by imported plastic-packaged goods, with little recycling capacity and limited alternatives. This "plastic policy hypocrisy" creates measures that appear progressive but lack the institutional support to be effective. Small businesses face higher costs, consumers remain reliant on plastics, and governments struggle with weak monitoring and enforcement. Without systematic data, it is uncertain whether bans reduce plastic flows or merely shift them.[38]

Caribbean governments have developed increasingly sophisticated environmental frameworks, but ambition often outpaces implementation. Persistent gaps in monitoring, enforcement, and evaluation limit the ability to assess outcomes and adapt policies—gaps this report seeks to address in relation to plastic bag bans.

In 2020, Bangladesh's per capita plastic consumption tripled to nine kilograms from three kilograms in 2005, with only **31%** of the 977,000 tons of plastic produced in 2020 being recycled.

3 Country Cases

"Plastic Policy Hypocrisy"

creates measures that appear progressive but lack the institutional support to be effective.

Antigua & Barbuda, Barbados, and Jamaica all introduced phased bans on single-use plastics within a couple of years of each other; as expected, their approaches contain both commonalities and important differences. Each policy was designed to mitigate the environmental and economic impacts of plastic pollution, particularly on tourism, fisheries, and waste infrastructure, but the scope, coordination, and long-term planning varied.

Antigua & Barbuda concentrated narrowly on plastic shopping bags, framing its ban around landfill reduction and public awareness. Barbados and Jamaica pursued broader bans that extended to polystyrene containers, cutlery, and straws. Barbados explicitly linked its initiative to wider sustainability goals such as fossil fuel independence and global environmental recognition, while Jamaica embedded its measures within existing legislative frameworks and reinforced them with public education and institutional enforcement. Jamaica also stands out for its incremental expansion, with new phases introduced up to 2024.

Despite these variations, all three countries face persistent challenges of enforcement, compliance, and wider waste management. Barbados has attempted to address these gaps with measurable targets in a follow-up action plan, whereas Antigua & Barbuda and Jamaica launched their bans without detailed baselines or long-term monitoring frameworks. Together, these experiences provide a basis for comparing approaches and identifying opportunities to strengthen implementation through clearer metrics, improved infrastructure, and sustained public engagement.

In 2019, **Antiguan** plastic waste was estimated to reduce fisheries revenues by nine percent, while studies suggested visible beach litter could deter 9 out of every 10 tourists.

Antigua & Barbuda

In 2016, Antigua and Barbuda became the first Caribbean country to ban single-use plastic bags. The External Trade (Shopping Plastic Bags Prohibition) Order prohibited the importation, distribution, sale, and use of shopping bags made from polyethylene and petroleum-based plastics, which had accounted for an estimated 90 percent of plastic debris in the environment.[39] The ban was phased: imports were restricted in January 2016, sales in major supermarkets from July 2016, and smaller shops from October 2016.[40]

The ban was introduced amid concerns about plastic's impact on tourism, fisheries, and health. Plastic waste was estimated in 2019 to reduce fisheries revenues by nine percent, while studies suggested visible beach litter could deter 82–97 percent of potential visitors. Clean-up costs were projected at up to 259 percent of the national waste management budget. [41] The policy's objectives included reducing plastic bag use at the Cooks Sanitary Landfill, controlling litter, and mitigating polystyrene-related health risks, while also raising public awareness and positioning Antigua & Barbuda as a pioneer in marine pollution control. [42] Health risks linked to polystyrene and plastic pollution were further emphasized, including clogged drains contributing to mosquito-borne diseases and reported increases in cancer incidence. Operationally, the ban relied on the phased removal of supermarket plastic bags, coupled with exemptions for essential uses. [43]

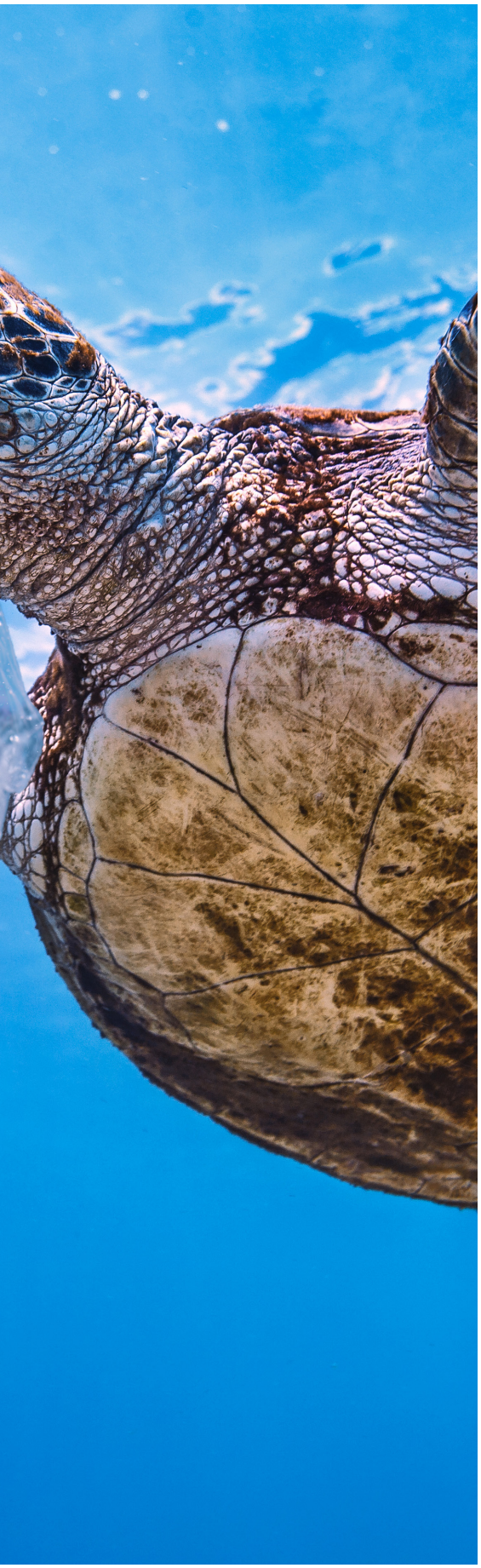
Policy Design

- **Instrument:** A regulatory policy instrument prohibited the importation, distribution, sale, and use of shopping bags made from polyethylene and petroleum-based plastics with specific exemptions outlined for essential and primary packaging uses.
- **Coverage:** The Order includes a schedule of exemptions covering plastic bread wrapping; plastic bags, wraps, and sheets used solely for packaging fresh meat, fish, or poultry; primary packaging for fruits, nuts, confectionery, dairy, cooked food, liquids, frozen goods, seeds, small hardware, medicinal and veterinary products; polythene tubes for seedlings; laundry and dry-cleaning bags; and plastic bags used for waste storage and disposal such as bin liners and refuse bags.[44]
- **Enforcement:** Enforcement authority was provided under the Litter Control and Prevention Act (2019), with penalties of EC$5,000 for individuals and EC$20,000 for companies.[45]

Findings related to goal attainment

- **Landfill composition:** Plastics declined from 19.5 percent of waste in 2006 to 4.4 percent in 2017.[46] However, most of this drop occurred before the 2016 ban. Total municipal waste also fell sharply from 138,000 tonnes in 2014 to 95,900 tonnes in 2015, suggesting broader waste trends predated the legislation.[47] Post-ban, mixed waste remained stable (131,944 tonnes in 2019; 132,800 in 2020).[48] The main effect of the ban appears to have been on composition—reducing the prevalence of plastic bags—rather than overall waste volumes.
- **Retail practices:** Prior to the ban, supermarkets used about 40,000

Biodegradable and compostable plastics have shown little environmental advantage over conventional bags: many do not degrade faster, and in landfills the lack of oxygen and sunlight prevents effective breakdown.



bags per week.[49] To facilitate transition, the Ministry of Health and Environment distributed around 120,000 reusable bags.[50] Larger retailers complied readily, but smaller operators were slower to adapt.[51] A garment manufacturing training programme sponsored by the Chinese government was meant to promote the production of locally made reusable bags. Tax incentives on imported reusable non-plastic bags were intended to make them more affordable, but there is no data on whether those incentives were applied for or granted.[52]

- **Public awareness:** Surveys suggested more than 70 percent of respondents reported heightened awareness due to campaigns, though reliance on perception surveys means that there is no certainty as to whether awareness translated into lasting behavioural change.[53]

- **Health context:** Dengue incidence spiked to 1,344 per 100,000 in 2019 but later fell to 52 per 100,000 in 2022.[54] These fluctuations are more likely driven by broader public health and climatic factors, as well as the pandemic lockdowns, than by the plastics ban.

- **Fisheries:** Marine capture production remained steady (3,114–3,291 tonnes pre-ban; 3,165–3,265 tonnes post-ban), suggesting no observable change attributable to the ban.[55]

- **Recognition:** Antigua and Barbuda gained symbolic status as a regional leader. The Environmental Performance Index ranked it the world's lowest emitter of ocean plastics in 2022 (EPI 83.7).[56]

Evaluation of the instrument's effectiveness

The ban's coverage was broad and legally clear, but exemptions and ministerial discretion created scope for "creep."[57] Enforcement capacity was uneven: while customs could block imports, inland monitoring of small businesses was weaker. The Ministry of Health and Environment reported confiscating over 1,000 tonnes of plastic in 2018, but no systematic data on enforcement or compliance have been published.[58] Overall, the most that can be said with certainty is that the ban likely consolidated earlier waste-reduction trends, reduced plastic bag use in supermarkets, and raised public visibility of plastic pollution; its broader environmental and health impacts remain uncertain. Without consistent monitoring, independent evaluation, or standards for alternatives, its effectiveness cannot be fully measured.

Barbados

In 2019, Barbados enacted the *Control of Disposable Plastics Act*, led by the Ministry of Maritime Affairs and the Blue Economy. The Act prohibited the importation, distribution, sale, and use of a wide range of single-use plastics, including bags, containers, cutlery, and straws.[59] Implementation was phased: imports were restricted from April 2019, sales from July 2019, and use of petroleum-based plastic bags from January 2020.[60] Enforcement of the bag ban was temporarily suspended in April 2020 due to COVID-19 supply chain disruptions, with exemptions granted for businesses unable to source alternatives.[61]

The government framed the Act as part of a broader sustainability agenda, explicitly linking it to marine ecosystem protection, a transition to fossil-fuel independence by 2030, and strengthening Barbados' global image as an environmentally responsible destination.[62] Stated objectives were to reduce plastic pollution by removing single-use plastics from circulation and to incentivise biodegradable or reusable alternatives. Implicit goals included protecting tourism, supporting green innovation, and easing landfill pressure.[63] A 2023 National Action Plan to End Plastic Pollution projected a 73 percent reduction in annual plastic pollution by 2033.[64]

Policy Design

- **Instrument:** There was a regulatory ban, reinforced by fines and penalties, but allowing for exemptions and temporary licences (three months, subject to fees). A Bio-Based Innovation Committee was created to guide research, monitoring, and education on alternatives.[65]

- **Coverage:** The ban applied to plastic bags, cups, plates, straws, cutlery, stirrers, lids, caps, stoppers, food service containers, and other packaging. Exemptions included raw meat and fish packaging, baked goods, medical and veterinary plastics, waste disposal bags, airport/security bags, agricultural plastics, straws for persons with disabilities, plastics manufactured for export, and straws attached to tetra-pak boxes.[66]

- **Enforcement:** Penalties were set at up to B$100,000 or one year's imprisonment for importers, distributors, and retailers. Consumers faced a lower fine of B$5,000. Enforcement responsibility was assigned to the Customs and Excise Department and the Department of Commerce and Consumer Affairs.[67]

Findings related to goal attainment

Waste composition: Plastics made up 12 percent of municipal solid waste in 2015.[68] By 2021, single-use plastics represented just 3 percent of waste by weight, suggesting some progress in reducing targeted items.[69] Yet beach cleanups show plastics remain pervasive: in 2023, they accounted for 72 percent of litter collected, and 71 percent at a 2024 Long Beach cleanup.[70]

Marine environment: In 2017, macroplastics made up 21 percent of coastal litter by weight.[71] By 2021, 131 tonnes of macroplastics and 177 tonnes of microplastics were estimated to enter the sea annually, underscoring the persistence of leakage despite the ban.[72]

Retail behaviour: The supermarket chain Massey reported 60–90 percent reductions in plastic bag use across its three operating countries, including Barbados.[73] However, this is company PR, region-wide rather than Barbados-specific, and not independently verified.

Global recognition: Barbados' Environmental Performance Index (EPI) score declined from 56 in 2018 to 53 in 2024.[74] Since the EPI combines a range of environmental indicators without one directly measuring plastic waste management, it is unclear whether plastics contributed to the decline, but nevertheless the country fell in its standing.[75]

Evaluation of effectiveness

The Act's scope was broad and penalties clear, but exemptions and temporary licensing sustained plastic circulation in key sectors. Enforcement capacity was limited, particularly in informal retail, and no system of mandatory reporting was created. The Bio-Based Innovation Committee and the Barbados National Standards Institution were tasked with providing technical guidance on alternatives, but no public standards were issued, leaving businesses uncertain about compliance and creating space for unverified "biodegradable" products.[76] Reports of fluorine in some alternatives raise further concerns about health and safety.[77]
The available evidence indicates that while single-use plastics may have declined in formal waste streams, plastics remain a dominant share of environmental litter. Monitoring and enforcement remain weak, and the absence of baseline measures makes it impossible to determine the ban's overall impact. Where data exist, they show either persistence of plastics (cleanup results) or deterioration (EPI score). Claims of progress, such as retail substitution or consumer awareness, remain anecdotal and unverified.

Jamaica

In 2019, Jamaica introduced a phased ban on single-use plastics under the *Plastic Packaging Materials Prohibition Order of 2018, enacted through the Trade Act and the Natural Resources Conservation Authority (NRCA) Act*. The ban emerged from extensive stakeholder consultations involving manufacturers, retailers, civil society, and the public, and was framed as both an environmental and public health measure.[78] Its goals were to minimise plastic's availability in waste streams and waterways, reduce the environmental and health risks associated with improper disposal, and encourage behavioural change through substitution and awareness.[79] Implicit objectives included safeguarding tourism and fisheries by protecting coastal aesthetics and reducing urban flood risk linked to clogged drains.

Implementation was staged:

- Phase 1 (Jan 2019): Prohibited single-use plastic bags (≤24"x24" and ≤1.2 mil thickness) and plastic drinking straws.

- Phase 2 (Jan 2020): Restricted expanded polystyrene food containers.

- Phase 3 (Jan 2021): Banned plastic bags up to 24"x24" and ≤2.5 mil thickness (department-store type) and straws affixed to juice boxes and pouches.

- Phase 4 (Jul 2024–Jan 2025): Extended prohibitions to food containers made of polyethylene, polypropylene, or polylactic acid; and personal care products containing intentionally added microplastics.

Exemptions were made for food safety and health needs (e.g., raw meat, flour, sugar, rice, baked goods, medical and veterinary use, straws for persons with disabilities, and plastics for export).[80]

Policy Design

- **Instrument:** A regulatory ban, with strong penalties, was implemented in phases. Labelled "biodegradable" or "compostable" bags were explicitly excluded from exemptions to prevent loopholes.[81]

- **Coverage:** The ban applied to import, manufacture, distribution, and retail use across supermarkets, shops, restaurants, and vendors.

- **Enforcement:** Penalties under the NRCA Act increased in 2023 to J$5 million for individuals and J$10 million for companies, with up to five years' imprisonment.[82] Enforcement is shared among the National Environment and Planning Agency (NEPA), Jamaica Customs Agency, and the National Compliance and Regulatory Authority.[83] Support measures included public education campaigns, but no requirements were made for retailer reporting or systematic monitoring of alternatives.

Tax incentives on imported reusable non-plastic bags were intended to make them more affordable, but there is no data on whether those incentives were applied for or granted.

Findings related to goal attainment

- **Plastic litter:** During International Coastal Cleanup (ICC) Day in 2018, 98,456 plastic bags were collected, representing 12.7 percent of total waste.[84] This fell to 6 percent in 2021 but rose again to 8.8 percent in 2022, suggesting some initial decline but inconsistent progress.[85] In 2019, the ten most collected items at cleanups were all single-use plastics or polystyrene.[86]

- **Plastic imports:** Jamaica's plastics imports increased from US$191 million in 2015 to US$275.5 million in 2023, suggesting overall reliance on imported plastics remains high, possibly due to substitution with unregulated types.[87]

- **Health impacts:** Dengue incidence fluctuated widely: 7.64 and 34.96 cases per 100,000 in 2017–2018 (pre-ban), compared to 267.6 in 2019, 31.7 in 2020, 288.1 in 2023, and 71.6 in 2024.[88] These swings indicate factors other than the ban (e.g., rainfall, vector control) drove health outcomes. While in theory the ban may reduce potential breeding sites by cutting bag litter, there is no provable causal link.

- **Waste diversion:** A NSWMA/JICA project collected 63,503 kg of plastics in 2016–2017, while 32,000 kg were recycled in 2024.[89] These figures show continuity of efforts but also their modest scale relative to national plastic flows.

Evaluation of effectiveness

The phased design gave clarity and time for adjustment, and penalties remain among the strongest in the region. However, exemptions (food safety, export), persistent smuggling, and substitution with thicker plastics or paper bags undermine the policy's intended scope. Enforcement has been uneven: 52 prosecutions were recorded by end-2024, with 37 cases concentrated in the early years and only 15 pursued since mid-2020, possibly suggesting declining enforcement intensity.[90] However, it would also be consistent with greater compliance due to the threat of enforcement. NEPA itself has acknowledged human-resource limitations, and the National Compliance and Regulatory Authority (NCRA) does not collect data on production, imports, or sales, leaving large monitoring gaps.[91]

Overall, the evidence suggests Jamaica's ban has curtailed the circulation of targeted plastic bags in formal retail and raised public awareness, but anecdotal evidence suggests that the bags are still used in informal retail settings (markets and stalls), and so outcomes remain partial and inconsistent. Cleanup data point to modest reductions in bag prevalence, though plastics overall remain dominant. Rising import values and weak monitoring highlight substitution risks and data gaps, making it impossible to determine whether the ban has reduced total plastic flows or environmental leakage.

Penalties under the NRCA Act increased in 2023 to **J$5 million** for individuals and **J$10 million** for companies, with up to five years' imprisonment.

4 The Limits of Plastic Bans

None of the jurisdictions established baseline indicators for their stated or inferred objectives, nor were monitoring mechanisms incorporated into the policy design.

The governments of Antigua & Barbuda, Barbados, and Jamaica introduced plastic bag bans with the shared aim of reducing single-use plastic circulation and litter. Antigua & Barbuda and Jamaica also cited health risks such as flooding from clogged drains and mosquito-borne diseases, while Antigua & Barbuda and Barbados explicitly linked their measures to international standing and sustainability leadership. Promotion of alternatives and gradual behaviour change was common across all three, with each framing its ban as both an environmental and public health measure, supported to varying degrees by outreach campaigns and limited exemptions for food safety. Despite differences in scope, timelines, and enforcement capacity, all three relied primarily on consumer behaviour change and substitution with alternatives to achieve their stated goals.

The effectiveness of the bans cannot be determined, owing to a fundamental evidentiary gap. None of the jurisdictions established baseline indicators for their stated or inferred objectives, nor were monitoring mechanisms incorporated into the policy design. Consequently, assessments are limited to fragmented administrative records, ad hoc studies, retailer self-reports, and cleanup data. These sources lack methodological integrity and are not suitable as reliable evidence for evaluating outcomes. In the absence of credible baselines and systematic monitoring, no causal claims can be made regarding the impact of the bans.

Available evidence suggests some progress in restricting targeted items and shifting consumer behaviour, particularly within formal retail. In Barbados, major supermarkets reported sharp reductions in bag use, though these data were self-reported and regional rather than Barbados-specific. In Antigua & Barbuda, the distribution of reusable bags and the reported reduction in supermarket bag use point to some impact, though persistent use among smaller operators highlights uneven enforcement. In Jamaica, International Coastal Cleanup data suggest an initial decline in plastic bag prevalence, followed by fluctuations, with bags still present in large numbers. Together, these outcomes could be interpreted to suggest the bans have helped reduce the visibility of the most common forms of plastic waste and catalysed some behavioural change, especially in formal markets.

Broader environmental and health impacts remain inconclusive. In Antigua & Barbuda, the proportion of plastics in landfills fell sharply before the 2016 ban, making it difficult to attribute subsequent changes to the policy itself. In Barbados,

In Barbados, penalties for consumers were reduced after the first year on the basis of reported compliance, though no supporting data were released.

plastics continue to dominate cleanup data despite reductions in formal waste streams. In Jamaica, import data show overall plastic imports rising from US$191 million in 2015 to US$275 million in 2023, indicating substitution into other plastics even as targeted items were restricted. Health indicators such as dengue incidences in both Antigua and Jamaica showed dramatic fluctuations that cannot be causally linked to plastics regulation; rainfall and public health interventions are more likely explanatory factors.

Implementation challenges further limit the effectiveness of the bans. Enforcement capacity remains weak across all three jurisdictions. In Barbados, penalties for consumers were reduced after the first year on the basis of reported compliance, though no supporting data were released. In Antigua & Barbuda, customs enforcement at ports are stronger than inland monitoring, where small retailers continue to circulate banned bags. In Jamaica, enforcement across multiple agencies has been uneven, with most prosecutions occurring early in the ban's implementation and declining in recent years. Across all three countries, inland inspections are sporadic, and informal markets remain a leakage point.

Alternatives pose additional problems. "Biodegradable" and "compostable" plastics continue to circulate despite limited evidence of superior environmental performance, and public misconceptions about their disposability risk worsening litter. In Barbados, the absence of publicly available standards from the National Standards Institution creates uncertainty for businesses and leaves consumers vulnerable to greenwashing. Reports of fluorine content in some alternatives raise further questions about health impacts. In Antigua, exemptions and ministerial discretion create scope for exemptions to expand over time, while in Jamaica, plastic imports have not been matched with systematic oversight.

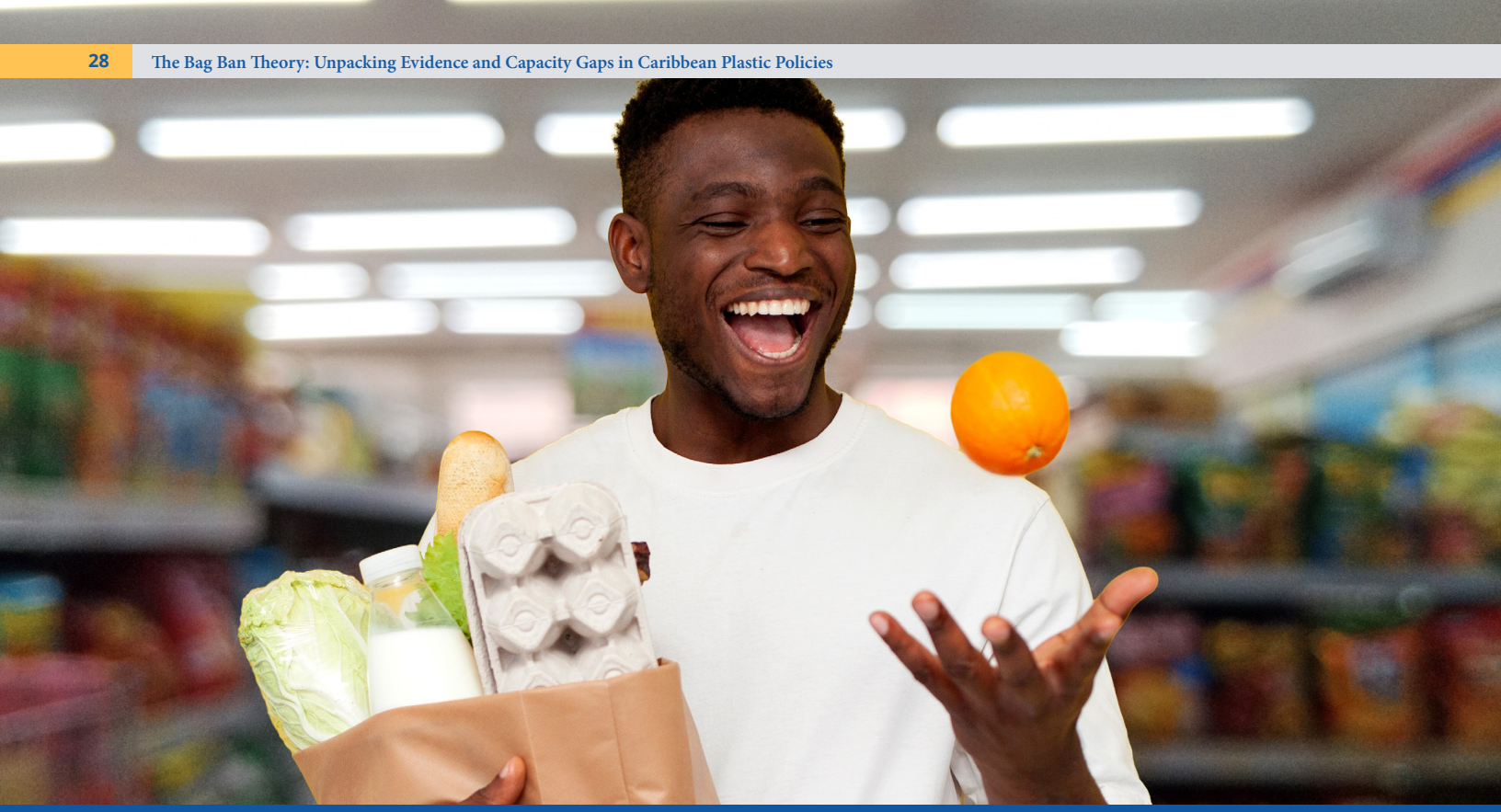
Where to Go From Here

A proper evaluation of plastic bag bans would require systematic data collection, including:

- Baseline waste characterisation: composition of municipal solid waste and landfill inputs disaggregated by plastic type.
- Import, production, and sales data: quantities and values of plastic bags and substitutes, collected from customs, manufacturers, and retailers.
- Litter and leakage monitoring: regular, standardised coastal and inland litter audits to track prevalence of banned items.
- Behavioural surveys: consumer practices, adoption of alternatives, and attitudes toward bans and alternatives.
- Public health indicators: integrated analysis linking waste reduction with flooding, vector-borne disease incidence, and other health outcomes.
- Environmental impacts: long-term monitoring of marine litter, microplastics, and ecosystem health.

Without these datasets, collected on a continual, regular basis, any assessment of the impact of bans will remain speculative, reliant on proxies, and anecdotal claims. pandemic. However, this digital approach may inadvertently exclude individuals without internet access or digital literacy, particularly in rural areas or among the elderly, groups that the programme specifically aims to reach. The Ministry of Labour and Social Security may also face additional administrative burdens, especially if a large number of Solidarity Programme beneficiaries are eligible for referral into longer-term support schemes.

Enforcement has been uneven: **52 prosecutions** were recorded by end-2024, with 37 cases concentrated in the early years and only 15 pursued since mid-2020.



5 Conclusion

A proper evaluation of plastic bag bans would require systematic data collection.

Taken together, the evidence suggests that plastic bag bans in Antigua & Barbuda, Barbados, and Jamaica have achieved at least some of their immediate objectives in signalling political commitment, restricting circulation of some targeted items, and promoting awareness and behavioural change in formal retail markets. However, their broader impact on plastic pollution, health, and environmental outcomes remains unproven. The persistence of plastics in the environment, rising overall imports, continued circulation of unverified alternatives, and weak enforcement all limit effectiveness. In their current form, the bans risk remaining largely symbolic unless governments invest in the capacity to monitor, enforce, and evaluate them.

In their current form, the bans risk remaining largely symbolic unless governments invest in the capacity to monitor, enforce, and evaluate them.

Recommendations

1

Establish systematic monitoring of plastics flows

- Ministries responsible for environment and trade in each jurisdiction should require importers and manufacturers to submit quarterly reports on the volumes and types of plastics and substitutes placed on the market.

- National Solid Waste Management Authorities should conduct biennial waste characterisation studies, disaggregated by product type, and publish the results to track progress.

Set and enforce standards for plastic alternatives

- The Barbados National Standards Institution, the Antigua and Barbuda Bureau of Standards, and the Bureau of Standards Jamaica should adopt internationally recognised technical standards for biodegradable and compostable plastics.

- Independent testing should be mandatory before alternatives are approved for sale, and approved lists should be updated annually and made public.

2

3

Strengthen enforcement capacity at ports and inland

- Customs agencies should expand container inspections to block prohibited plastics from entering.

- Inland, NEPA (Jamaica), the Environmental Protection Department (Barbados), and the Ministry of Health and Environment (Antigua & Barbuda) should increase random spot checks of retailers and informal markets, and publish annual compliance reports detailing inspections, breaches, and penalties.

Recommendations

4

Institutionalise monitoring of green procurement outcomes

- Annual green procurement reports should be tabled in Parliament, documenting compliance rates, plastics eliminated, and the costs of alternatives procured.

Strengthen public education with measurable targets

- Ministries of Information (or equivalents), in partnership with NGOs, should mount annual campaigns with specific targets—for example, household adoption rates of reusable bags or student participation in reduction initiatives.

5

Appendix: Methodology

This study evaluates the effectiveness of single-use plastic bag bans in three Caribbean countries, Antigua & Barbuda, Jamaica, and Barbados, using an adapted stepwise evaluation framework drawn from environmental policy evaluation literature. The framework provides a structured and transparent means of linking stated goals with measurable outcomes, comparing observed impacts against objectives, and incorporating both quantitative and qualitative perspectives.

Policies are understood here as statements of intent, while instruments such as bans, permits, and standards are the means through which intent is translated into action.[92] The Caribbean plastic bag bans are an example of a top-down regulatory instrument where government defines the rules and applies sanctions for non-compliance.[93] The evaluation therefore examines whether the enacted bans achieved their environmental, economic, and social objectives.

Evidence was gathered through a combination of desk reviews, stakeholder interviews, and data obtained from relevant agencies. The desk review included legislation, policy documents, implementation reports, and academic and grey literature. Interviews were conducted with government officials, implementing agencies, private sector actors, and civil society representatives to capture on-the-ground perspectives. Where quantitative data on imports, retail distribution, and waste management were available, these were analysed; where data were limited, anecdotal evidence and stakeholder observations were used to supplement the assessment.

The analysis applied a modified stepwise evaluation framework, originally developed in a 2013 study of Dutch noise policy.[94] First, the explicit and implicit objectives of each plastic bag ban were identified through official documents and stakeholder accounts. Second, the instrument itself was mapped in terms of its scope, coverage, and enforcement mechanisms. Third, goal attainment was assessed by comparing observable outcomes against baseline data and available indicators. Fourth, the effectiveness of the instrument was evaluated in relation to its coverage, enforcement, and coherence with broader environmental policies. Finally, findings were validated through expert and stakeholder perspectives.

Although originally designed for assessing policy mixes, this framework is well suited to single-instrument evaluations, such as plastic bag bans, particularly in contexts where monitoring systems are limited. Its strength lies in providing a systematic and comparable basis for evaluation across countries with varying enforcement capacities.

Limitations

Reliable baseline and longitudinal data on plastic waste are scarce in the Caribbean, which constrains the ability to measure changes precisely. Environmental outcomes are also difficult to attribute solely to policy interventions, as they are influenced by consumer behaviour, market dynamics, and institutional capacity. Moreover, experimental counterfactual designs are neither practical nor ethical in this context; it would not be feasible to expose some populations to bans while withholding them from others.[95] For these reasons, the study relies on a combination of quantitative indicators, trend data, and expert judgement to assess effectiveness.

Despite these limitations, the methodology provides a rigorous and transparent framework for evaluating whether plastic bag bans in the Caribbean have achieved their intended outcomes, identifying gaps in implementation, and drawing lessons to strengthen existing and future regulations.

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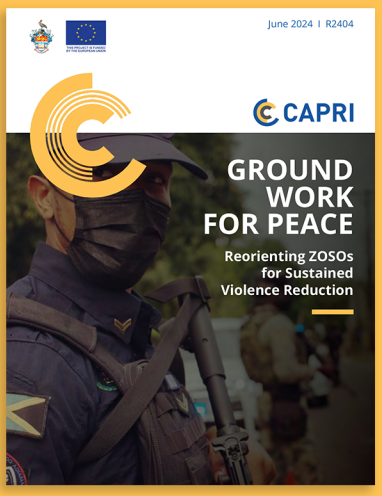

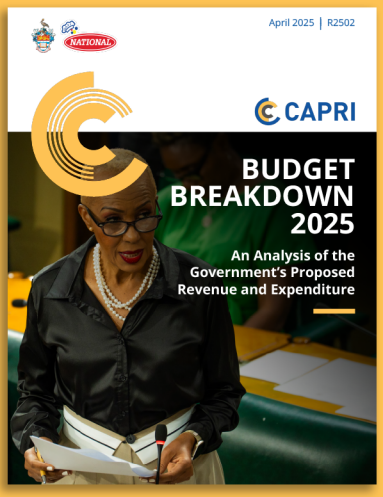

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