



# MANAGING PLASTIC WASTE

## SINGLE-USE PLASTIC BAGS



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## Globally, plastic production has been growing rapidly.

Between 1964 and 2014 the production of plastics increased twenty-fold, from 15 million tons (MT) to 311 MT; this figure is expected to double within the next twenty years.<sup>1</sup> Plastics currently offer unrivalled properties including versatility, durability and low cost, making it the preferred material of the modern economy. However, current usage levels and disposal methods have significant environmental and economic costs.

In Jamaica, current usage levels and improper disposal of single-use plastic bags<sup>2</sup> are generating significant economic costs. These materials often clog drainage ways causing floods. They also place significant burden on the resources of the National Solid Waste Management Authority (NSWMA).

This report identifies and evaluates policies and best practices used in other countries to manage plastic bag waste and makes recommendations taking into account the specifics of the Jamaican context. For management of single-use plastic bags, we recommend the implementation of bag fees over bans, due to the high risk of emergence of black markets which has occurred in almost all countries where bans have been applied, undermining the ban's effectiveness. Fees have been shown to discourage plastic bag use with no major compliance issues, achieving reduction rates that were close to elimination within a year.

The success of the proposed policy relies on the existence of certain preconditions. It requires extensive consultation with key stakeholders, and public education and awareness campaigns to sensitize the public and increase cooperation. Prior to the introduction of bag fees, the government should promote and facilitate the increased availability of sustainable alternatives like reusable bags, to encourage support for the initiative.

Summary of recommendations for the government to manage single-use plastic bag waste in Jamaica.

1. Pass a law requiring retailers to charge for single-use plastic carrier bags.
2. Require large retailers to report on proceeds from the fee scheme.
3. Direct the enforcement agency to revise usage reduction targets and fees regularly.
4. Consult and collaborate with stakeholders towards effective implementation of fees.
5. Implement bag fees within three months of the law being passed.
6. Launch a national clean-up day.

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<sup>1</sup> Plastics – The Facts 2015,” PlasticsEurope,. ([www.plasticseurope.org](http://www.plasticseurope.org))

<sup>2</sup> Lightweight high density polyethylene (HDPE) bags produced for one-time use.

# ACRONYMS

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**EU:** European Union

**NEPA:** National Environment and Planning Agency

**NGO:** Non-Governmental Organisation

**NSWMA:** National Solid Waste Management Authority

**RJR:** Radio Jamaica

**STATIN:** Statistical Institute of Jamaica

**UNEP:** United Nations Environment Programme

**UK:** United Kingdom

**US:** United States





## PURPOSE

This report seeks to outline policies to effectively manage the plastic waste arising from light-weight High Density Polyethylene (HDPE), also known as single-use plastic carrier bags, in Jamaica. The objectives of the report are to:



Provide an overview of the current situation regarding single-use plastic bag usage and management in Jamaica.



Examine measures used in other countries to manage single-use plastic bags.



Propose policy measures to better manage single-use plastic bags.

## 1 - Background

### 1.1 Jamaica does not manage solid waste effectively

Jamaica currently lacks the necessary capacity to collect and dispose of its solid waste in an efficient and environmentally sound manner. In Jamaica, and throughout Latin America and the Caribbean (LAC), solid waste management has not been given the attention it requires as it has to compete with other pressing economic and social issues such as fiscal deficits, poverty and unemployment. Consequently, only 54% of the region's solid waste is disposed of in sanitary landfills.<sup>3</sup> In recent years several reports in the Jamaican media have highlighted the resource deficiencies of the National Solid Waste Management Agency (NSWMA) citing shortages of trucks for garbage collection and frequent garbage pile-ups.<sup>4</sup>

About 75% of solid waste generated is collected at legal dumpsites;<sup>5</sup> the uncollected waste is either buried, burnt or littered, often ending up in drains, rivers, gullies, beaches and ultimately the ocean.

### 1.2 PET bottles and single-use plastic bags place an increasing burden on solid waste management in Jamaica

The composition of waste collected in Jamaica is mostly organic and compostable. However, plastics, which are inorganic and non-compostable,<sup>6</sup> make up around 15% of the waste generated, making it the second most collected waste material.<sup>7</sup>

With growth and modernization, the consumption of plastics in Jamaica continues to rise; as shown in Figure 1 plastic bags are the second most dominant packaging material, and have shown a significant upward trend in consumption in recent years.



# 75%

**of solid waste generated is collected at legal dumpsites.**



**Plastics make up**

# 15%

**of the waste collected.**

<sup>3</sup> IDB (2010).

<sup>4</sup> "NSWMA Still Faced with Garbage Truck Shortage," Radio Jamaica (RJR) News Online, July 1, 2016. (<http://rjrnewsonline.com/local/nswma-still-faced-with-garbage-truck-shortage>)

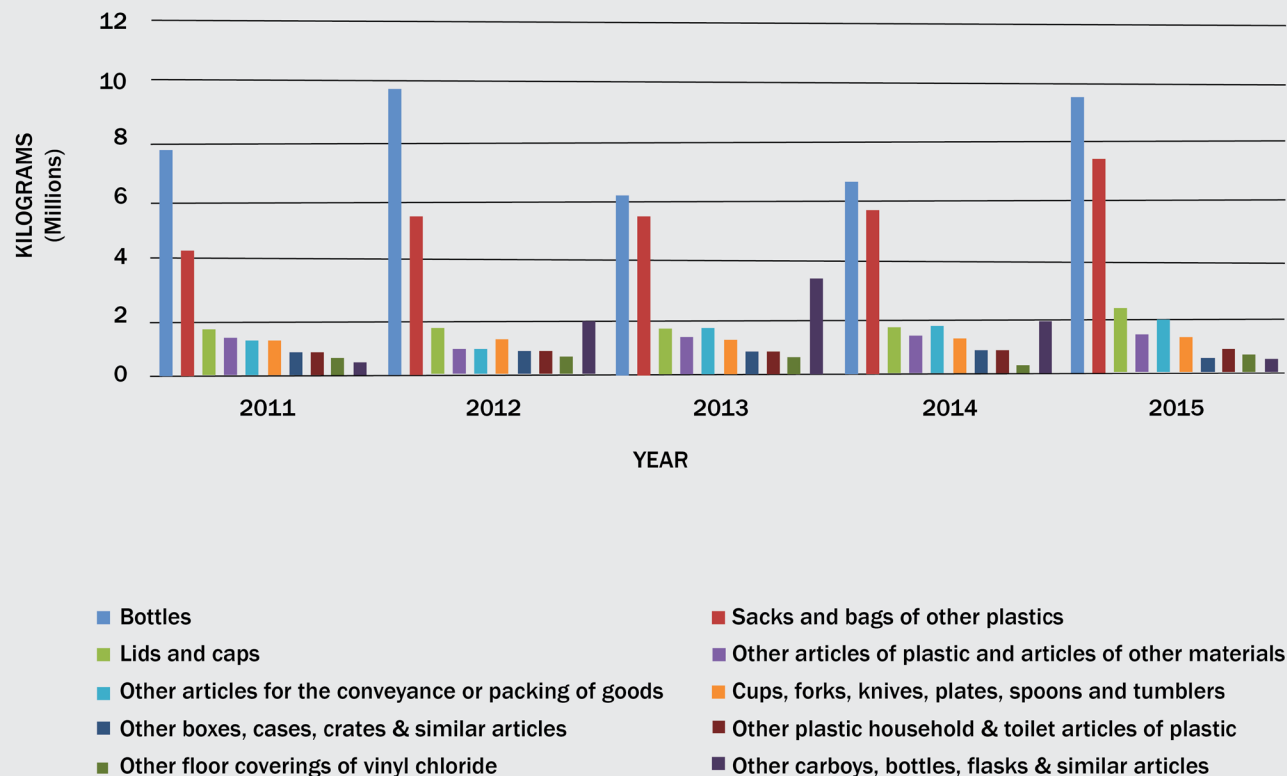
<sup>5</sup> "NSWMA Undertakes Plastic Bottle Recycling Project," Jamaica Information Services (JIS), July 30, 2016. (<http://jis.gov.jm/nswma-undertakes-plastic-bottle-recycling-project/>)

<sup>6</sup> NSWMA, "Waste Characterization Study 2015". ([www.nswma.gov.jm/resources/NSWMA%20-%20Waste%20Characterization%20Studies%20-%202015.pdf](http://www.nswma.gov.jm/resources/NSWMA%20-%20Waste%20Characterization%20Studies%20-%202015.pdf))

<sup>7</sup> "Waste Characterization Study," *ibid*.



**Figure 1: Imports of Plastic for Packaging or Conveyance: 2011-2015, kg**



*Source: International Merchandise Trade; Statistical Institute of Jamaica (STATIN)*

As illustrated in Figure 1, plastic bag imports practically doubled from 2011 to 2015, going from 4 million kilograms or 720 million bags to 7 million kilograms, or approximately 1.3 billion bags.<sup>9</sup> In Jamaica, plastic bag usage is relatively high at approximately 500 bags per person in 2015,<sup>10</sup> compared to more developed countries where plastic bag usage of 170-200 bags per person are common.

Indeed, single-use plastic bags are some of the most common items found in waterways, drains, gullies, oceans and beaches. As these plastics persist in the environment, they pose a threat to infrastructure and cause lasting unsightly scenery and damage to the environment.

With no formal waste separation or recycling policy, single use plastic bags are disposed of comingled with all domestic waste; however, a considerable amount becomes litter.

<sup>8</sup> Chart with statistics taken from “The Increased Demand for and Relevancy of Waste Statistics,” Environment Statistics Section United Nations Statistics Division (UNSD)/DESA, Issue 40. December 2016. <https://unstats.un.org/unsd/environment/envpdf/Issue40.pdf>

<sup>9</sup> Average weight of an HDPE bag is 5.5 grams (Shopping Bag Quantity Assumptions, 2013)

<sup>10</sup> Jamaica’s population is 2.7 million. ([http://statinja.gov.jm/Demo\\_SocialStats/PopulationStats.aspx](http://statinja.gov.jm/Demo_SocialStats/PopulationStats.aspx))

## Box 3.1: Some Initiatives in Jamaica

### Government

- The National Environment and Planning Agency (NEPA) launched a public education initiative in July 2016. This was done with the unveiling of a ‘plastic bag monster’ made of single-use plastic bags to encourage the use of re-usable shopping bags.
- Senate approved a motion proposing a ban on the use of plastic bags and Styrofoam containers in October 2016, and a working group on plastic packaging material was established to develop a policy framework for the management of these materials. The preliminary recommendation of the group is to implement a ban on single-use plastic bags.

### Non-governmental Organizations NGOs

- The Jamaica Environment Trust (JET) has been promoting the use of re-usable bags through its Nuh Dutty Up Jamaica public awareness and education campaign.

### Corporate

Corporate entities have shown support for a reduction in the use of single-use plastic bags.

- Major retailer PriceSmart is known for its non-distribution of single-use plastic bags and instead, offering reusable bags for sale to its customers.
- In 2015 restaurant chain Island Grill traded its plastic bags for paper bags.
- Packaging manufacturer Flexpak Limited in 2017 launched a line of “oxo-biodegradable” plastic bags. The use of an additive to the regular petroleum-based plastic resin is supposed to speed up the degradation of the conventional plastic bag.



NEPA's "Plastic Monster"

## 1.2 PET bottles and single-use plastic bags place an increasing burden on solid waste management in Jamaica

### Economic

Plastic bags, if improperly disposed of, block drains which can result in flooding. A flooding incident on Marcus Garvey Drive, one of Jamaica's busiest thoroughfares, in September 2016 resulted in J\$200-J\$300 million loss for the Sugar Company of Jamaica;<sup>11</sup> the company suffered damage to their building and much of their equipment was severely damaged or destroyed. A flooding incident in Montego Bay in November 2017 caused significant damage to infrastructure, buildings and personal property, the cost of which was estimated to be J\$1 billion.<sup>12</sup>

Single-use plastic bags are extremely lightweight and are often blown out of trash cans, garbage trucks and landfills, eventually ending up in the sea. This can result in the entanglement of marine organisms, killing them. Microplastics resulting from plastic bag degradation in the environment may also be ingested by marine animals resulting in their injury or death. Death of marine animals results in economic loss associated with the intrinsic value of sea life, but also in economic loss of the instrumental value that such sea life holds for the tourism and fishing industry, both of which represent significant economic value for Jamaica.

### Health

Serious human and ecological health impacts can result from the improper disposal of plastic bags. When plastic debris is left lying outside, it collects rainwater and facilitates the creation of artificial habitats and potential breeding sites for disease-carrying insects like the *Aedes Aegypti* mosquito, facilitating the spread of diseases like Zika and dengue fever.

When burned, plastic materials release toxic chemicals into the air which can result in respiratory problems if inhaled, posing a health risk to humans and animals. Furthermore, as mentioned previously, microplastics are consumed by marine animals and end up in the food chain; since plastics act as substrates for toxic chemicals and other harmful substances, these substances are also ingested with plastic particles, possibly having negative health implications.

In Jamaica a number of initiatives to deal with the reduction of plastic waste have been launched by public and private sector, as well as by the NGO community. However, these initiatives are sporadic in nature and are not supported by any specific regulation or national policy. Many activities are not coordinated or sustained, limiting their overall effectiveness. A coherent and cohesive policy framework is required for a sustained and effective approach to reduce single-use plastic bags.

This study explores actions taken in both developed and developing countries in this regard, and recommends appropriate measures for Jamaica. Chapter two reviews measures to manage single-use plastic bag waste, and chapter three makes policy recommendations based on the findings of this report.

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<sup>11</sup> "Sugar Company, Fisheries Division hardest hit by flooding on Marcus Garvey Drive," Jamaica Observer, September 12, 2016. ([www.jamaicaobserver.com/news/Sugar-Company--Fisheries-Division-hardest-hit-by-flooding-on-Marcus\\_73788](http://www.jamaicaobserver.com/news/Sugar-Company--Fisheries-Division-hardest-hit-by-flooding-on-Marcus_73788))

<sup>12</sup> "\$1-B damage," Jamaica Observer, November 30, 2017. ([www.jamaicaobserver.com/observer-west-front-page/-1-b-damage\\_118571?profile=1373](http://www.jamaicaobserver.com/observer-west-front-page/-1-b-damage_118571?profile=1373))

<sup>13</sup> Microplastics are extremely small pieces of plastic debris.

<sup>14</sup> UNEP (2016).



## Box 3.2 Plastic Bag Levy in Ireland

In 2002 Ireland imposed a levy on plastic bags with a law requiring retailers to charge a €0.15 cent levy to customers at point of sale. This resulted in 90% of customers turning to reusable bags within a year, and one billion fewer plastic bags used.



In 2007, however, the country began to see an increase in the use of plastic bags again. The levy was raised to €0.22 cents; the €0.07 cent increase led to a subsequent decline in plastic bag usage and a significant reduction in roadside litter. Millions of dollars have been generated from this tax and put into a green fund to help finance environmental projects. To maximize compliance, retailers must pay the money accumulated from the levy to Revenue (the tax authority in Ireland), who later passes it on to the Department of Environment. Revenue carries out checks on a selective basis, to ensure full compliance with regulations. In addition, retailers must record:

- opening stock of plastic bags,
- plastic bag purchases, and
- plastic bags supplied to customers where the levy applies.

## 2 - Managing single-use plastic waste

### Fees

Fees are any charges on plastic bags that are additional to the market value and may or may not be in the form of a tax. By obliging consumers to pay for each plastic bag, which would normally be distributed with no direct cost to the consumer, they are likely to use fewer bags, re-use or bring their own. This is the rationale behind placing a fee on single-use plastic bags. The implementation of bag fees is usually accompanied by the promotion and increased availability of more sustainable alternatives such as reusable shopping bags or biodegradable bags.<sup>15</sup>

Plastic bag fees can be applied either directly by charging consumers at the point of sale, or indirectly by applying a fee at the manufacturing or import level.

### Direct Implementation of Fees

In England, the law requires large retailers to charge customers for all single-use plastic carrier bags at point of sale; smaller businesses can charge on a voluntary basis. Following the introduction of a £0.05p (US\$0.08 cents) charge on bags, plastic bag usage declined by 85% within six months.<sup>16</sup> The bag fee is not a tax and the money does not go to the government, however, retailers are encouraged to give the proceeds of the scheme to support environmental and other causes. Further, retailers are asked to report to the government on the number of bags distributed each year and what was done with the funds obtained from the charge.<sup>17</sup> Similar approaches to bag fees have been implemented in Wales and Scotland which saw decreases in plastic bag use as high as 96% and 80%, respectively.<sup>18</sup>

Closer to home, in Barbados large retailers and NGOs voluntarily came together to implement a plastic bag charge of Bd\$0.20 (US\$0.10 cents) per bag as of June 2017.<sup>19</sup> Retailers account for 60-70% of single-use plastic bags distributed to consumers. Effects of the fee in Barbados have not yet been assessed.

Another example of direct implementation of bag fees can be viewed in Ireland, where the government imposed a tax on plastic bags to customers at point of sale.<sup>20</sup> Similar taxes have been implemented in other countries, including Botswana and South Africa.

### Indirect Implementation of Fees

In 1994, Denmark introduced a tax on plastic bags for manufacturers and importers who are required to pay the tax based on weight. Retailers in turn, pay a tax-loaded price when they purchase bags, and while they are not required to pass on the tax to their customers, some retailers have used the tax as a lever to charge customers for plastic bags and promote the use of re-usable bags. Other retailers integrate the cost of the tax into the price of other goods as opposed to charging a fee per bag. Usage of single use plastic bags in Denmark declined by 66% within the first year of implementation of the tax.<sup>21</sup>

In general, direct application of fees on customers achieves higher reduction rates in usage than indirect applications. For example, in the case of Denmark's indirect application, the tax is paid by retailers when they purchase bags, rather than by shoppers, achieving significantly less reduction in usage than in Ireland, where the tax is applied directly to consumers.

<sup>15</sup> These alternatives will be discussed further in this chapter

<sup>16</sup> "England's plastic bag usage drops 85% since 5p charge introduced," The Guardian, July 30, 2016. ([www.theguardian.com/environment/2016/jul/30/england-plastic-bag-usage-drops-85-per-cent-since-5p-charged-introduced](http://www.theguardian.com/environment/2016/jul/30/england-plastic-bag-usage-drops-85-per-cent-since-5p-charged-introduced))

<sup>17</sup> "Carrier bags: why there's a charge," Department for Environment, Food and Rural Affairs, UK, 2018. ([www.gov.uk/government/publications/single-use-plastic-carrier-bags-why-were-introducing-the-charge/carrier-bags-why-theres-a-5p-charge](http://www.gov.uk/government/publications/single-use-plastic-carrier-bags-why-were-introducing-the-charge/carrier-bags-why-theres-a-5p-charge))

<sup>18</sup> "List By Country; 'Bag Charges, Taxes And Bans,'" Big Fat Bags, 2017. ([www.bigfatbags.co.uk/bans-taxes-charges-plastic-bags/](http://www.bigfatbags.co.uk/bans-taxes-charges-plastic-bags/))

<sup>19</sup> "Retailers on Caribbean island of Barbados introduce a voluntary plastic bag charge," Cyan Caribbean, May 28, 2017. ([www.cyancaribbean.com/single-post/2017/05/28/Retailers-on-Caribbean-island-of-Barbados-introduce-a-voluntary-plastic-bag-charge](http://www.cyancaribbean.com/single-post/2017/05/28/Retailers-on-Caribbean-island-of-Barbados-introduce-a-voluntary-plastic-bag-charge))

<sup>20</sup> Further details on its impact and implementation in Ireland are discussed in Box 3.2.

<sup>21</sup> "List By Country," *ibid*.

## Box 3.3: Rwanda Plastic Bag Ban

In 2008, Rwanda became one of the first countries in the world to place a ban on non-biodegradable plastic bags. Plastic bags were causing several water sources to become highly polluted and plastics were being found inside many dead fish.



The policy involved extensive public sensitization. In 2004, the Ministry of Environment began conducting studies on the use of plastic bags in Rwanda and subsequently implemented a national clean-up day. The president took part in this event, bringing increased awareness of the problem of plastics to many Rwandans. Further to this, NGOs were engaged and participated in the design of alternative bags that were more environmentally sustainable.

The ban has proven to be highly effective in maintaining a clean and healthy environment, and the country has developed an international reputation for cleanliness – its capital city Kigali is often lauded as Africa's cleanest city and was officially named the cleanest city in Africa in 2008 by United Nations (UN) Habitat.

Rwanda's plastic bag ban has its challenges. The private sector resisted, citing fears that it would increase their operational cost and raise prices as they would have to seek more expensive alternatives. Furthermore, the ban brought about the emergence of a thriving black market.

However, authorities continuously carry out random and robust checks to suppress this illegal activity, and smugglers are subject to fines and jail time once caught.



## Bans

A ban makes the sale and use of plastic bags illegal. Bans have the potential to eliminate plastic bag use, however, they can be met with significant resistance, particularly from industry players. The implementation of bans is usually accompanied by the introduction of alternatives, similar to the case of plastic bag fees.

In 2002, Bangladesh became the first country to place a strict ban on plastic bags. After the ban was implemented, the bags were not used for at least a year. However, more than a decade later, plastic bags are once again freely exchanged due to lack of enforcement and of cost-effective alternatives.

The business community, particularly small retailers and vendors, cite that the lack of cost-effective alternatives erodes profits as in some instances, alternatives cost as much as ten-fold that of a plastic bag.<sup>22</sup> Rwanda, who implemented the ban a few years later, becoming the first African nation to introduce a strict ban and achieved somewhat greater success.<sup>23</sup>

China adopted a hybrid approach as it imposed a ban on ultra-thin plastic bags in 2008, and banned the distribution of free plastic bags to shoppers in retail outlets.<sup>24</sup> The results of this ban vary across China's jurisdictions.

However, the overall move led to a 66% decline in plastic bag usage, equivalent to forty billion fewer plastic bags— within the first year.<sup>25</sup> It also resulted in the closure of the state's biggest plastic bag manufacturer.

In July 2016, Antigua and Barbuda became the first Caribbean nation to impose a ban on plastic bags, prohibiting the importation and use of plastic bags except for those used for garbage collection. The government pledged to distribute 120,000 reusable bags.

The move was embraced by major supermarkets who joined the government in distributing one reusable bag to each customer. Prior to the implementation of the ban, Cabinet decided to waive taxes and duties on the importation of reusable shopping bags to encourage supermarkets to support the initiative and make the bags more affordable.<sup>26</sup> Just over a year later, the country has experienced mixed results as large supermarkets and businesses have been conforming but compliance among smaller retailers has been problematic. To improve compliance, the government has stated that it will distribute more reusable bags to smaller supermarkets.<sup>27</sup>

In 2007 and 2011, the government of Kenya attempted to abolish the use of polythene plastic bags,<sup>28</sup> but failed largely due to strong opposition from manufacturers and lack of enforcement.<sup>29</sup> In September 2017 however, a total ban was reintroduced. Now Kenyans producing, selling or even using plastic bags will risk imprisonment of up to four years or fines of US\$40,000.<sup>30</sup> This is now the world's strictest law against plastic pollution.

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<sup>22</sup> "Plastics proliferate despite ban," Irin News, March 2, 2011. ([www.irinnews.org/report/92072/bangladesh-plastics-proliferate-despite-ban](http://www.irinnews.org/report/92072/bangladesh-plastics-proliferate-despite-ban))  
<sup>23</sup>

<sup>24</sup> Plastic bags under 0.025mm.

<sup>25</sup> "One year after plastic bag ban, how is China doing?" China Daily, May 26, 2009. ([www.chinadaily.com.cn/bizchina/2009-05/26/content\\_7944466.htm](http://www.chinadaily.com.cn/bizchina/2009-05/26/content_7944466.htm))

<sup>26</sup> "Plastic Bag Ban Implemented As Gov't Launches Reusable Bag Initiative," Business Focus Antigua. Sept 22, 2016. <http://businessfocusantigua.com/13042/>

<sup>27</sup> "Mixed http://jamaica-gleaner.com/sites/default/files/styles/jg\_article\_image/public/media/article\_images/2017/03/14/OmniIndustriesJ20170313IA.jpg?itok=tYH2id2m on plastic bag ban," Antigua Observer, November 9, 2017. (<https://antiguaobserver.com/mixed-results-on-plastic-bag-ban/>)

<sup>28</sup> The legislation covered bags up to a size of 0.3mm in 2007, and 0.6mm in 2011.

<sup>29</sup> "Kenya Manufacturers Decry Ban on Plastic Bags," The East African. March 15, 2017. ([www.theeastafrican.co.ke/news/Kenya-manufacturers-decry-ban-on-plastic-bags/2558-3851186-pst56y/index.html](http://www.theeastafrican.co.ke/news/Kenya-manufacturers-decry-ban-on-plastic-bags/2558-3851186-pst56y/index.html))

## 2.1 Benefits and challenges: bans and fees

	BENEFITS	CHALLENGES
BAN	<ul style="list-style-type: none"> <li>&gt; Reduce use of bags with potential to completely eliminate</li> <li>&gt; Reduce litter</li> <li>&gt; Promote and create market for alternatives</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Engender strong opposition from key stakeholders</li> <li>&gt; Increase cost to retailers resulting from more expensive alternatives eroding profit. This also results in increased cost to consumers.</li> <li>&gt; Can foster the emergence of black markets.</li> </ul>
FEES	<ul style="list-style-type: none"> <li>&gt; Reduce use</li> <li>&gt; Shape consumer behavior</li> <li>&gt; Reduce litter and waste</li> <li>&gt; Could provide revenue to fund environmental projects (albeit a temporary gain if fees are effective as revenue would decline if less bags are being purchased).</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Difficult to ensure compliance with reporting requirements, especially with smaller retailers.</li> <li>&gt; Effectiveness can be modest if applied indirectly on the consume</li> </ul>

## 2.2 Benefits and challenges: bans and fees

For both bans and fees to be effective, certain conditions and strategies are essential in implementation. These include: education, existence and availability of alternatives, and penalties. These are discussed below.

- **Education**

Education is critical to addressing the issues associated with plastic bag use. Members of the public need to be made aware of the negative impacts of plastic bag usage and waste. Such awareness will help to shape the attitudes of the public to become more supportive of environmental and waste management policies such as bans or fees.

- **Alternatives**

Restrictions on plastic bag use require the widespread availability and promotion of more sustainable alternatives to facilitate an effective transition away from plastic bag use. Cost-effective alternatives are necessary to ensure compliance amongst retailers, especially in the case of a ban.

- **Penalties**

Robust penalties and the enforcement of such penalties are important to ensure that all actors conform to the requirements of the existing framework (ban or fee). Where bag fees are implemented, fee revisions are necessary to ensure effectiveness. It is important that fees increase periodically so as to maintain the incentive and ensure the bag fee continues to be high enough to act as a deterrent.

## 2.3 Other measures

Recycling single-use plastic bags is rarely pursued as a solution as it is not cost-effective. Most recycling facilities are set up to handle predominately hard materials that are easier to separate mechanically, for example aluminum cans, glass bottles, plastic containers and lids, metal cans and cardboard/paper. Used plastic bags can be recycled into new materials, but they require a different collection and processing system from that which curbside recycling programmes typically provide.

**When recycled the bags often get stuck in recycling machinery, adding to maintenance costs.**

San Jose, California estimated an annual loss of US\$1 million per year due to plastic bag-related repairs in recycling facilities.

The introduction of alternative materials to be used as bags often emanates from a ban or charge on single-use plastic bags. Reusable bags that are offered as an alternative to single-use plastic bags are made from a variety of materials including canvas, natural fibers such as jute, woven synthetic fibers, or a thick plastic that is more durable than disposable plastic bags. Several studies, taking into consideration the entire life cycle, have concluded that non-woven plastic reusable bags made of propylene have the least impact on the environment, require very few resources, are low cost and have high reuse rates.<sup>32</sup> Other alternative materials used are paper bags and biodegradable bags. The latter has been attracting a lot of attention all around the world as an alternative to single-use plastic bags, and is discussed in more detail below.

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<sup>31</sup> "The Problem with Plastic Bags," Californians Against Waste (CAW), 2015. ([www.cawrecycles.org/the-problem-of-plastic-bags/](http://www.cawrecycles.org/the-problem-of-plastic-bags/))

<sup>32</sup> "The Most Environmentally Friendly Bag," 1 Bag at a Time, 2017. <https://1bagatatime.com/learn/environmentally-friendly-bag-recycled-content/>

### 3 - A closer look at biodegradable bags

Plastics are considered to be biodegradable if they can be broken down by micro-organisms available in the environment, such as bacteria and fungi, and converted into natural substances such as water and carbon dioxide.<sup>33</sup> Some biodegradable plastics can take as little as three months to decompose fully, whilst others can take up to several years.<sup>34</sup> The rate of biodegradation depends on surrounding environmental conditions – higher rates of degradation are achieved at constant high temperatures and humidity in industrial composting facilities. Biodegradable bags are not suitable for home composting and do not decompose in reasonable time when littered. The several variations of biodegradable plastic bags fall into two basic categories:<sup>35</sup>

#### i. Bio-based

These are derived from renewable materials like plant biomass such as corn starch. Companies like NatureWorks and EverCorn have been producing biodegradable plastic bags from corn for several years. Bio-based biodegradable bags are considered suitable for recycling and energy recovery. Notably, some bio-based plastics are not biodegradable and instead exhibit properties more usually associated with conventional plastics. This is because the property of biodegradation depends on the chemical structure of the plastic, rather than source of the material.<sup>36</sup>

#### ii. Petroleum-based with biodegradable additives

These are conventional plastic bags with artificial additives which enhance or speed up biodegradation. An example of this is the oxo-biodegradable plastic bags (mentioned in Box 3.1,) which

require exposure to oxygen and light to degrade, and are therefore unlikely to degrade in a landfill with anaerobic conditions, as is the case in Jamaica.

#### Controversy over use

Despite their ostensive promise as a solution to the plastic bag problem, biodegradable bags are not considered a suitable alternative to conventional plastic bags. The label “biodegradable” when applied to a plastic bag is often misunderstood as the bag decaying within a short period of time under natural conditions. This is a misconception that could cause consumers to be careless in the disposal of these bags. Biodegradable bags are lightweight, like their traditional counterparts, and are thus prone to being blown about and contributing to litter. The problems associated with litter such as blocked drains and contamination of waterways and marine animals, may thus persist.

Several countries and regions including the European Union (EU) do not regard oxo-biodegradable bags as a potential solution to the plastic bag waste problem. The contention is that oxo-biodegradable plastics are still conventional plastics with additives which merely fragment into small pieces that remain in and potentially harm the environment.<sup>37</sup> The EU is currently undertaking an assessment on the impact of these bags on the environment and will propose measures to limit their consumption as appropriate. France in 2015 prohibited the sale and use of packaging of this nature, while Spain recently announced plans to ban the sale of these bags from 2018 onwards. Debate and research is ongoing on the time that it takes oxo-biodegradable plastic material to be reduced to a form where it possibly biodegrades.

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<sup>33</sup> Conventional plastics, rather than being converted into natural substances like biodegradable plastics, break down into tiny plastic debris or micro-plastics.

<sup>34</sup> “How Long Do Biodegradable Bags Take to Decompose,” Science Focus, 2016. ([www.sciencefocus.com/qa/how-long-do-biodegradable-bags-take-decompose](http://www.sciencefocus.com/qa/how-long-do-biodegradable-bags-take-decompose))

<sup>35</sup> “Biodegradable Plastics,” Plastics Europe 2017. ([www.plasticseurope.org/what-is-plastic/types-of-plastics-11148/biodegradable-plastics.aspx](http://www.plasticseurope.org/what-is-plastic/types-of-plastics-11148/biodegradable-plastics.aspx))

<sup>36</sup> Gilbert and Ricci (2015).

<sup>37</sup> “Oxo-Degradable Plastics,” European Bioplastics, n.d. ([www.european-bioplastics.org/bioplastics/standards/oxo-degradables/](http://www.european-bioplastics.org/bioplastics/standards/oxo-degradables/))

## 3.1 Benefits and challenges: biodegradable bags

### BENEFITS

► Use of bio-based variety has the potential to improve resource efficiency through reuse of the biomass for material or energy recovery purposes.

No depletion of fossil fuel resources with use of bio-based bags.

► No depletion of fossil fuel resources with use of bio-based bags.

### CHALLENGES

► Problem of litter and many of the associated issues (of conventional bags) remain.

► Biodegradable labelling on bags may worsen the problem of littering as persons may believe it is more acceptable to discard them carelessly versus traditional plastic bags.

► Disposable lifestyle responsible for much of the problems associated with traditional plastic bag use continues to be promoted.

► Growth of crops to manufacture bio-based biodegradable bags can be viewed as creating competition for land on which to grow food.

## 3.6 Summary and Implications for Jamaica

### Chapter Summary

Various stakeholders in Jamaica are undertaking several initiatives, from educational campaigns to the production of alternatives, to reduce usage of single-use plastic bags. However, these efforts need to be harmonized so as to optimize and sustain results.

**There is a need for a national policy or framework to co-ordinate activities among stakeholders to reduce or eliminate the use single-use plastic bags.**

Internationally, governments are either banning the use of traditional plastic bags or imposing charges on their use. Both bans and fees have been shown to be effective in achieving significant reduction in plastic bag usage, but results vary according to jurisdiction, enforcement, resources available to maintain bans or fees, and public awareness and buy-in. Levying fees on single-use plastic bags is a market-based approach to incentivize customers to alter their own behaviour – the direct effect on the customer promotes greater effectiveness than indirect application. On the other hand, outright bans are effective through removal of the choice to use the bags. Meanwhile, biodegradable bags (as an alternative to conventional bags) do not eliminate many of the problems associated with the use of traditional plastic bags and do not provide a sustainable solution.

### Implications for Jamaica

Around the world, both bans and fees have reduced but not eliminated the use of single-use plastic bags. In territories where a ban has been implemented, strong opposition, lack of cheaper alternatives, and inadequate enforcement are common features thwarting its effectiveness.

It is unlikely, however, that the National Environment and Planning Agency (NEPA), Jamaica's environmental enforcement agency, would have adequate resources to effectively enforce a ban. A 2016 Auditor General's report revealed that despite an increase in enforcement activities in recent years, NEPA's monitoring activities are limited and are not being carried out in a timely manner. NEPA in response claimed that human resource constraints have restricted its monitoring activities.<sup>38</sup>

In addition to extant weaknesses in enforcement capacity, for those vendors and small businesses that use plastic bags to run cost-effective businesses. The absence of cost-effective alternatives in Jamaica could significantly increase business costs and reduce profits, thereby creating an incentive for a black market for plastic bags to emerge. Moreover, in Jamaica, a strong democratic society where freedom of choice is highly valued, preserving the element of free choice, or the appearance of free choice, should inform policy. In this regard, fees would incentivize behavioural change towards less use of plastic bags, which favours sustained results and therefore, should be introduced in Jamaica.

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<sup>38</sup> "Follow-Up Performance Audit Report: National Environment & Planning Agency," Auditor General's Department. September 2016. ([http://nepa.gov.jm/new/services\\_products/publications/reports/docs/agd/agd\\_audit\\_2016.pdf](http://nepa.gov.jm/new/services_products/publications/reports/docs/agd/agd_audit_2016.pdf))



## 4 - Recommendations for managing single use plastic bags

### 1. Pass a law requiring retailers to charge for single-use plastic carrier bags

GoJ should legislate that large retailers charge a standard fee for single-use plastic carrier bags below the size of 24" by 36".<sup>39</sup> This excludes bags used in the retail trade for packaging that comes into direct contact with food, such as bread, meat and produce. Large businesses (not just supermarkets) who distribute plastic bags to customers should be required to charge for bags at the point of sale.<sup>40</sup> Large businesses are targeted as they are responsible for the distribution of the majority of single-use plastic bags in Jamaica and are usually easier to monitor than smaller businesses. Smaller retailers would not be subject to reporting requirements, but would be encouraged to charge on a voluntary basis, on that assumption that removing reporting requirements (as well as the potential of the charge to add revenue) is likely to incentivize their participation in the scheme.

From examination of the value of bag fees in several countries, initial bag fees were found to range from J\$8 to J\$35. It is recommended that the value of the initial bag fee implemented in Jamaica fall within this range, towards the lower end, at least at the outset.

### 2. Require large retailers to report on proceeds from the fee scheme

The charge is not a tax, as a tax will require a more complex system with more rigorous reporting requirements and therefore could reduce compliance. Since the fee is not a tax the funds obtained will not go to government, but the government should encourage retailers to use the proceeds to support environmental or related causes.

Retailers should be required to report annually on the number of bags sold by giving an account of its opening stock of bags and closing stock. They should also be encouraged, but not necessarily required, to give an account of how the bag sales' proceeds are used.

Based on the aforementioned, the enforcement entity should regularly publish a publicly available report detailing the level of the fee in that year (and the previous five years, once the system has been in place that long), and the number of bags in circulation under the fee system (also for the five previous years). The enforcement entity should also periodically conduct, in consultation with experts and stakeholder groups, an assessment of the fee level in terms of its efficacy as a deterrent to plastic bag use.

### 3. Revise usage reduction targets and fees regularly

Using data acquired from the retailers' reports, the enforcement entity (or other relevant entity) should determine the impact of the scheme. Results of the analysis should then be used to determine targets and revise fees to facilitate the continued decline in plastic bag use.

### 4. Consult and collaborate with stakeholders and raise public awareness

Stakeholder consultation and public awareness campaigns are important for the successful implementation of the scheme. Suppliers, retailers and consumers ought to be consulted prior to implementation and allowed sufficient time to adjust and put in place the necessary systems needed to facilitate operation of the scheme. Government should collaborate with retailers to promote and make more sustainable alternatives like reusable bags available.

<sup>39</sup> Small garbage bag size as defined by major local plastic bag and packaging suppliers Flexpak and Agri & Industrial Packaging Limited.

<sup>40</sup> Definition according to Jamaica Ministry of Industry, Investment and Commerce (MIIC) – over fifty employees or generates annual sales of J\$150 million or above. This is the size of the company that runs the entire business, not just the size of an individual branch.

## **5. Implement bag fees within three months of the law being passed**

With most large retailers already keeping inventory of their stock of goods (including plastic bags), preparation for the scheme will mostly entail public awareness campaigns to sensitize consumers. A period of three months is deemed sufficient for retailers to inform their customers of the impending introduction of the new charge.

## **6. Launch a national clean-up day**

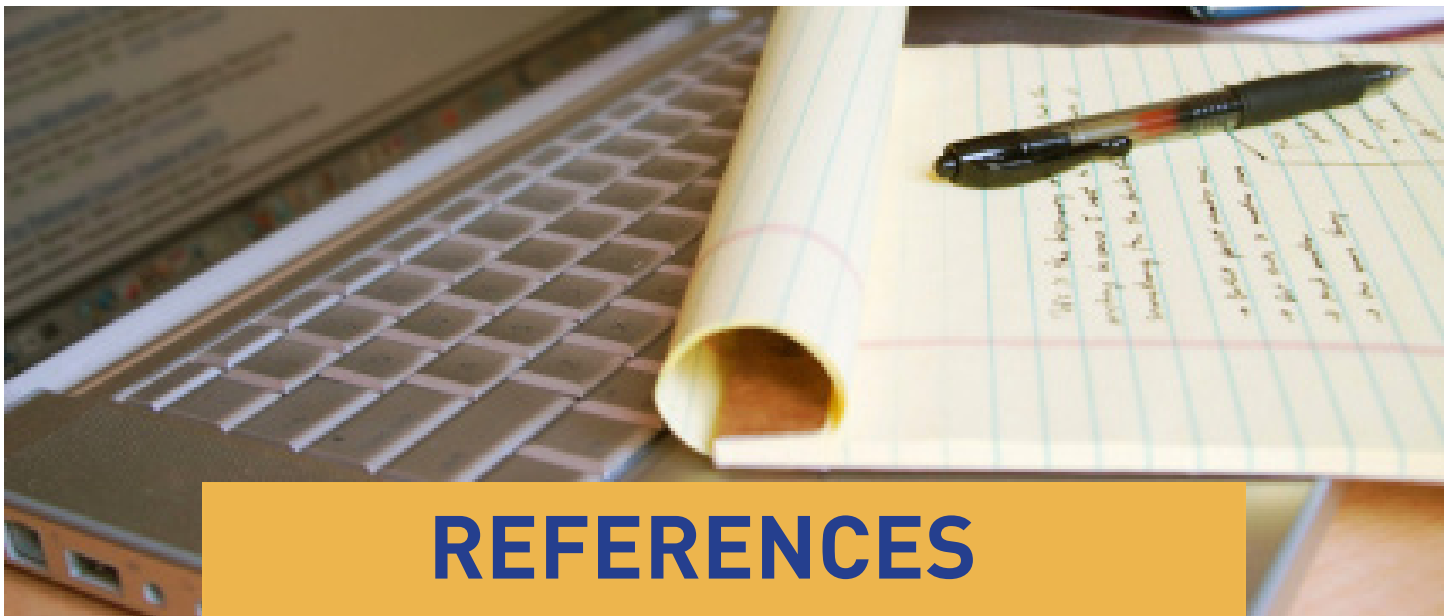
A nationwide clean-up day should be launched prior to the implementation of the scheme. This not only brings increased awareness to the issue, but also encourages the public to participate in the promotion of a clean and healthy environment. In addition, the clean-up will remove some of the plastic bags which already exist in the environment.

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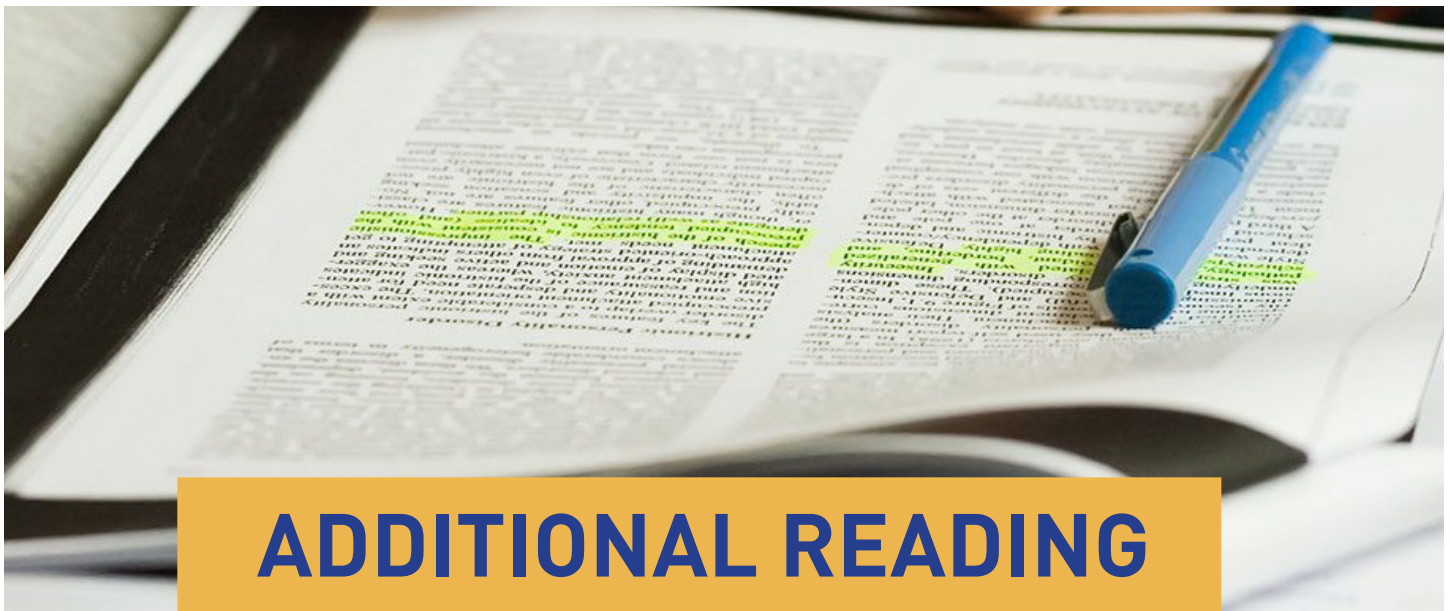
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