UNITED NATIONS EP



**Environment Programme** 

Distr. LIMITED

UNEP(DEPI)/CAR WG.39/INF.8 11 July 2018

Original: ENGLISH

Fourth Meeting of the Scientific, Technical and Advisory Committee (STAC) to the Protocol concerning Pollution from Land based Sources and Activities in the Wider Caribbean.

Panama City, Panama, 18 to 20 July 2018

#### **DRAFT**

# REPORT ON THE STATUS OF STYROFOAM AND PLASTIC BAG BANS IN THE WIDER CARIBBEAN REGION

For reasons of economy and the environment, Delegates are kindly requested to bring their copies of the Working and Information documents to the Meeting, and not to request additional copies.

# **OVERVIEW**

# **Contents**

1	Exe	ecutive Summary	1
2	The	e UN Environment's Clean Seas Campaign	2
3	Nu	mbers and Impacts of Pollution from Styrofoam and Single-use Plastic Bags	4
4	Тур	pes of Policy Implemented	7
5	Sta	tus of Styrofoam and Plastic Bag Bans in the Wider Caribbean Region	9
6	The	e Interactive Map	26
7	Sto	ries and lessons learned in the Caribbean	26
	7.1	Antigua and Barbuda	26
	7.2	Aruba	28
	7.3	Colombia	29
8	SW	OT Analysis and Recommendations	30
9	Bib	liography and links	32
		List of Figures	
		List of Figures	
Fi	gure 1	: Clean Seas Campaign – logo	2
Fi	gure 2	: Erik Solheim - UN Environment Executive Director	2
Fi	gure 3	s: Clean Seas Campaign - Governments on-board (as of May 2018)	3
Fi	gure 4	: A sperm whale found dead with 29 kilos of plastic in its stomach	5
Fi	gure 5	$\hat{s}$ : A huge belt of plastic floating off the coast of the Caribbean island of Roatan, l	Honduras 6
Fi	gure 6	s: The Bans in the Wider Caribbean Region	27

# **1** EXECUTIVE SUMMARY

Plastic pollution is one of the most relevant and important issues of our time. Plastic has gradually become a part of our everyday life, but this is no longer tenable; the traditional linear production, use and disposal model for conventional plastics is ecologically unsustainable and has caused adverse and unacceptable environmental harm. There is increasing consensus among the public and private sectors, environmental NGOs, and civil society that current production and consumption patterns of single-use plastics have severe economic, social and environmental consequences. A growing number of governments are committing to reduce and prevent plastic pollution of the environment. Policies are being introduced to regulate the production, import, and use of plastic bags and Styrofoam products. This report presents the key aspects of these policies and regulatory instruments that have been implemented in the Wider Caribbean Region. It provides lessons for policy-makers who seek to regulate the use and production of disposable plastics. The main impacts of pollution from Styrofoam and disposable plastics, on-going regulation measures and those planned for implementation in the Wider Caribbean Region are analyzed. Best practices and lessons learned from the region and globally are described, and possible alternatives to Styrofoam and plastics are presented. This study concludes by providing an interactive map on the status of bans that can be updated periodically. This will help countries of the region monitor their efforts to comply with the Land-Based Pollution Protocol of the Cartagena Convention and to update and evaluate the effectiveness of policy and regulatory measures being put in place to address the importation, use and disposal of plastics and Styrofoam products.

# 2 THE UN ENVIRONMENT'S CLEAN SEAS CAMPAIGN

UN Environment launched #CleanSeas Campaign (Figure 1) in February 2017, with the aim of engaging governments, the public, civil society, and the private sector in the fight against marine plastic litter. The goal of the campaign is to address, within the next five years, the root-cause of marine litter by targeting the production and consumption of non-recoverable and single-use plastic.

To do this effectively, citizens need to be aware, engaged, and active in the way they engage with the problem in their own lives. Furthermore, UN Environment is giving a platform to hundreds of local organizations who are already doing important work on marine litter, in the hope that this will highlight their efforts.



Figure 1 : Clean Seas Campaign – logo

By connecting individuals, civil society groups, industry, and governments, UN Environment aims to transform habits, practices,

standards, and policies around the globe to dramatically reduce marine litter and the harm it causes.

The campaign contributes to the goals of the Global Partnership on Marine Litter, a voluntary openended partnership for international agencies, governments, businesses, academia, local authorities and non-governmental organizations hosted by UN Environment.

Forty-three (43) governments – accounting for more than half the world's coastline – have signed up to the #CleanSeas Campaign after just over a year since the launch. Several of them have already started making specific commitments to protect oceans, encourage recycling and cut back on single-use plastics.



Figure 2 : Erik Solheim - UN Environment Executive Director

Individuals from across the world have been inspired by #CleanSeas and have re-evaluated their use of plastic, and are now actively engaging with the government and the private sector in order to establish bold pollution-beating policies. Nearly 80,000 people have taken the #CleanSeas pledge to eradicate single-use plastics and microbeads from their lives. From Bali to Panama, people are cleaning beaches, cataloguing what they find, and changing their own behavior in small, but meaningful, ways, such as using cloth bags and carrying steel cups or cutlery with them, refusing plastic straws when at bars

and demanding the removal of plastic cups or single-use bottles from their offices. The number one priority of #CleanSeas was to highlight the scale of the problem, and for people to acknowledge it; it would appear that the message has been heard loud and clear.

"Our aim is to redefine the world's relationship with plastics because that is the only way to save our seas. Only by fundamentally transforming the way we consume can we secure the oceans that sustain human life," said Erik Solheim (Figure 2), UN Environment's Executive Director. "What we need is a revolution."

By the end of May 2018, 44 countries had signed up to the #CleanSeas Campaign. Several of them have made firm commitments on issues ranging from the creation of marine reserves to the adoption of national plans on recycling and waste management (Figure 3). In the Wider Caribbean Region, seven countries have signed up to the campaign: Barbados, Colombia, Costa Rica, Grenada, Panama, Dominican Republic, and Saint Lucia.



Figure 3 : Clean Seas Campaign - Governments on-board (as of May 2018)

# 3 Numbers and Impacts of Pollution from Styrofoam and Single-Use Plastic Bags

This list of reasons that emphasizes the relevance of eliminating Styrofoam and plastic bags from our lives:

- Styrofoam takes **500 years** to break down under optimal conditions, but most of the Styrofoam we use never breaks down at all.
- Styrofoam contains **benzene and styrene.** Two known carcinogens, these chemicals can leach into food or drinks.
- As **Styrofoam breaks down into smaller pieces**, it becomes more and more difficult to clean up. Styrofoam pieces block our drains, and the particles embed themselves into the soil or float out to sea. This is costly for island and coastal economies that depend heavily on tourism and agriculture.
- Styrofoam is made up of **98% air**; this means that when left in our environment, it fills up with rainwater and creates mosquito breeding grounds.
- Styrofoam takes up **valuable space in our landfills**. Eventually, we will run out of landfill space if we continue to use it.
- When Styrofoam enters our streams, rivers and oceans, **marine organisms eat it**, and fall victim to complications from choking, starvation and a buildup of toxic chemicals in their tissues. In addition to killing turtles, fish and seabirds, this toxic chemical buildup ultimately ends up in our food supply over time.
- When marine organisms try to digest Styrofoam, they cannot perform their natural functions, which contribute to healthy ecosystem. As a result, the **marine ecosystem is disturbed**.
- With the stress of **climate change and pollution**, our oceans and coastlines cannot afford the **extra stress that comes from Styrofoam** without compromising the ecosystem services that our bodies of water provide for us daily. These include food, filtration, climate regulation, maintaining healthy coral reefs and storm protection.
- The **adverse health effects of styrene** intensify when we heat or burn Styrofoam (Short-term exposure to styrene can cause eye, mucous membrane, and gastrointestinal irritation; long-term exposure to styrene can cause headaches, depression, fatigue, physical weakness and hearing loss. Long-term exposure to styrene also increases the risk of developing leukemia and lymphoma and harms the liver, kidneys, and stomach).
- Styrene can **increase levels of fatigue** and decrease the ability to concentrate.

- Styrene disrupts normal hormonal function, resulting in thyroid and other hormone-related problems.
- In the Wider Caribbean Region, Styrofoam which is primarily used in the food services industry, makes up about **5% of solid waste**. The indiscriminate dumping of it not only causes unsightly garbage pile ups, but also clogs waterways and leads to severe flooding.
- **Plastic bags** come from the same source as all plastic: **crude oil**. Like everything else manufactured from this non-renewable resource, it has two major drawbacks: manufacturing it emits considerable amounts of pollution, and the product is not biodegradable.
- Plastic bags are difficult to produce, and nearly **impossible to get rid of** once produced.
- 60 to 100 million barrels of oil are required to manufacture a year's worth of plastic bags worldwide, and it takes approximately 400 years, at minimum, for just one bag to biodegrade.
- Every year, around 8 million tons of plastic end up in our oceans - that's the equivalent of one garbage truck filled with litter being dumped into the sea every minute, poisoning our fish, birds and other sea creatures.
- In April of this year, a sperm whale was found dead on the southern coast of Spain (Figure 4) and an autopsy revealed that it



found dead on the southern coast of Spain Figure 4: A sperm whale found dead with 29 kilos of plastic in its stomach

- was killed by the **29 kilos of plastic found in its stomach**. This, unfortunately, is not a unique case.
- Approximately **100,000 sea turtles and other marine animals die every year** because they either mistake the bags for food or get strangled by them.
- A person uses a plastic bag to carry things on average for only **12 minutes**.
- Between **500** billion and **1** trillion plastic bags are being used each year worldwide.
- 2 million plastic bags are used each minute worldwide, while only 5 percent of which are ever recycled.
- Our plastic dependent culture produces plastic waste that ultimately **ends up in the ocean**. 5.25 trillion pieces of plastic weighing 268,940 tons, and counting, pollute the world's oceans today.

The major impacts of plastic pollution:

#### **Environmental Impacts**

- Plastic bags in the environment pose significant hazards to wildlife both on land and in the ocean.
- Plastic bags can choke waterways and exacerbate natural disasters.
- Plastic bags and Styrofoam containers take hundreds of years to decompose, contaminating soil and water.



Figure 5 : A huge belt of plastic floating off the coast of the Caribbean island of Roatan, Honduras.

# **Economic Impacts**

- Stranded single-use plastic creates visual pollution, impacting tourism and recreational activities.
- The minimization of single-use plastic pollution is increasingly becoming a high priority particularly in those countries that rely heavily on tourism as a major source of GDP such as Small Island Development States.
- The future costs of removing all disposable plastics from the environment, may be higher than the costs to prevent littering today.

### **Social Impacts**

- Plastic waste and microplastic waste ingested by fish can enter the food chain, ultimately impacting human health.
- By blocking sewage systems and providing breeding grounds for mosquitoes, plastic bags can raise the risk of transmitting waterborne diseases like malaria.
- Illegal disposal of plastic often takes the form of open burning, generating toxic gas such as furan and dioxin.

# **4** Types of Policy Implemented

The following sections provide a mapping and assessment of the policy measures introduced by governments in the Wider Caribbean Region to date, to restrict the production and consumption of plastic bags and Styrofoam items, with the intention to identify the common trends that have led policies and regulations to succeed and achieve positive long-term impacts.

Policy	Details	Countries	;	#
		National Level	Local Level	
BAN	Ban on single-use plastic: plastic bags, Styrofoam, or both. The ban can be national or local.	Antigua and Barbuda, Aruba, Colombia, France, Guyana, Haiti, Panama, Puerto Rico, Saint Vincent and the Grenadines, Turks and Caicos Islands, US Virgin Islands.	Guatemala, Honduras, Mexico	14
BAN ANNOUNCED	Ban announced by Ministries, governments, with official announcements, or in public events. The ban can be official or considered close to be official.	Bahamas, Barbados, Be Rica, Dominica.	lize, Costa	5
BAN IN DISCUSSION - Government Level	Working groups, governmental meetings, national plans and legislation close to being promulgated.	Cayman Islands, Grenad Salvador, Jamaica, Saint Lucia, USA.		7
BAN IN DISCUSSION - Public/NGOs (including Voluntary Ban)	Petitions, drafting of proposals, work of NGOs or other local entities. Voluntary Ban (public-private agreement, private sector initiative). Also, Governments to apply levy on certain products.	British Virgin Islands, C Dominican Republic, Ni Suriname, Trinidad and	caragua,	6
NO BAN	Difficult to find information	Cuba, Venezuela.		2

# 5 STATUS OF STYROFOAM AND PLASTIC BAG BANS IN THE WIDER CARIBBEAN REGION

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
Antigua and Barbuda	BAN	Januar y 1 <sup>st</sup> , 2016	National	Single-use plastic bags and Styrofoam containers	In January 2016, Antigua and Barbuda prohibited the importation, manufacturing and trading of plastic shopping bags. In July of the same year, the distribution of such bags at points of sale was banned. The success of the first year opened the doors for further phases:  - July 1st to December 31st, 2017  Ban on importation and use of food service containers to include: clamshell and hinge containers, hot dog containers, bowls, plates, and hot and cold beverage cups. Depletion of stock on hand to be followed by monitoring and confiscation January 1st to June 30th, 2018  Ban on importation and use of plastic utensils (spoons, forks and knives), straws, fruit trays, meat trays, vegetable trays and egg cartons. Depletion of stock on hand to be followed by monitoring and confiscation July 1st, 2018 to January 1st, 2019  Ban on importation and use of "naked" Styrofoam coolers. Depletion of stock on hand to be followed by monitoring and confiscation.  The ban will extend to all businesses within the food service industry to include large and small supermarkets, grocery stores and the catering sector in Antigua and Barbuda. Airline Carriers, Private Charters and large Cruise Liners will be exempted from the ban until further notice.	In the first year, the ban contributed to a 15.1% decrease in the amount of plastic discarded in landfills in Antigua and Barbuda. The ban on the commercial use of plastic bags has seen major businesses conforming, but compliance among smaller operators remains problematic. To improve this situation, reusable plastic bags were distributed for free in all the smaller businesses.

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
Aruba	BAN	Jan 1 <sup>st</sup> , 2017	National	Single-use plastic bags	The ban took effect as of January 1, 2017 where all retailers and vendors will no longer be able to distribute nor sell carry-out plastic bags intended for single-use at the point-of-sale.	Coordinated with a huge communication campaign, the ban was observed easily by business on the island, while it was more difficult for tourism-related activities. Adoption rate is currently estimated at approximately 80%-90%.
Bahamas	BAN ANNOUNCED	By 2020	National	Plastic bags	The Hon. Romauld Ferreira, The Bahamas' Minister of Environment and Housing, recently (January 2018) announced a plan to ban plastic bags in The Bahamas. The announcement came after a youth delegation from environmental NGO Bahamas Plastic Movement (BPM) traveled from Eleuthera to Nassau to advocate for a nationwide ban on plastic bags for the country. "Our goal is to see a reduction in plastic bag use and plastic bag litter in the country, however our ultimate goal is to have a complete ban on plastic bags and Styrofoam for the entire Bahamas by the year 2020," said Ambrose.	
Barbados	BAN ANNOUNCED, VOLUNTARY BAN		National	Plastic and Styrofoam	Beginning May 1st 2017, a Bd\$ 0,15 (USD 0,1) charge per bag has been introduced as part of a private sector initiative, led by BICO Limited. It is intended to be a deterrent to the use of plastic bags. Plastic and Styrofoam could soon no longer be a part of the Barbados landscape,	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					as Minister of the Environment and Drainage Dr. Denis Lowe has said a complete ban is coming. (May 2016)	
Belize	BAN ANNOUNCED	Apr 22 <sup>nd</sup> , 2019	National	Plastic single-use shopping bags and food utensils	Belize has just approved (March 2018) a proposal to reduce plastic and Styrofoam pollution and will achieve this through the phasing out of single-use shopping bags and food utensils. A collaborative taskforce working on the proposal said that cleaning up plastic and Styrofoam trash places a large financial burden, and there are already biodegradable cups, plates and bags available in Belize as an alternative. This move has been welcomed by residents, because Belizean shores are at risk from the enormous floating island of plastic in the Caribbean Sea, plus discarded plastic harms marine life and cleaning it up causes a burden.	
British Virgin Islands	BAN IN DISCUSSION – Public/NGOs (including Voluntary Ban)		National	Plastic bag	WorldHouse Caribbean and Green VI have partnered with the major grocery stores in the British Virgin Islands to be the first Overseas Territory to voluntarily ban the plastic bag. A Memorandum of Understanding was signed with the agreement that on the 11th March 2013 a charge of 15 cents per plastic bag would be charged at the till if customers do not bring their own bags. Participating supermarkets include Road Town Wholesale Trading Ltd, OneMart, A Value, Qwomar Trading Ltd, Supa Value, Bobby's, Buck's and Rosy's.	
Cayman Islands	BAN IN DISCUSSION – Government Level		National	Single-use plastic bags and straws	In March 2018 the Government of Cayman Islands had a meeting to discuss plastic pollution and banning single use plastics, in particular bags and straws. The government officials have suggested the recently set up No-Profit organization "Plastic-Free Cayman" can provide them with a proposal for banning single use plastic. Nevertheless, a petition is seeking to ban single plastic use has just over 4,000 signatures (4370 as 24/05/2018)	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					the goal is to reach 5,000 signatures! Cayman's shoppers use some 12 million plastic bags annually.	
Colombia	BAN	Jan 1 <sup>st</sup> , 2017	National	Ban on thin plastic bags and levy on thicker ones.	As of 1 January 2017, the government of Colombia banned single-use plastic bags smaller than 30x30 cm (12×12 inches) and introduced alternatives with a higher load-carrying capacity. The decision was approved on April 28th, 2016 through the 0668 resolution which "rules the rational use of plastic bags and adopts other resolutions".  In July 2017, the government went one step further and introduced a tax on single-use plastic bags. As of 1 July 2017, Colombians are paying in fact 1 US cent (20 Colombian pesos) to purchase single-use plastic bags. As a deterrent to use this type of plastic, the government will annually be increasing the tax by 50 per cent.	The measure has helped reduce plastic bag consumption by 35 per cent and raise a total of 10,460 million Colombian pesos (about \$3.6 million).
Costa Rica	BAN ANNOUNCED	By 2021	National	All single- use plastics	Costa Rica is taking dramatic action against plastic waste with plan to ban all single-use plastics by 2021. This includes straws, bottles, cutlery, cups and bags.	
Cuba	LACK OF INFORMATION					
Curacao	BAN IN DISCUSSION – Public/NGOs (including Voluntary Ban)		National	Non re- usable plastic bags, plastic cups, straws, Styrofoam food containers	The Curaçao Clean Up foundation, Sea Turtle Conservation Curaçao and Green Force, with the support of Plastic Free Curaçao, and after a petition, requested the government of Curaçao, specifically the Minister of Health, Environment, and Nature to ban all the following plastic items, from being sold, handled, used and imported: - Non re-usable plastic bags - Plastic cups - Plastic straws - Styrofoam food containers	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					There is already a voluntary ban on supermarkets and mini markets to not use plastic bags. People should bring their own bags when shopping.	
Dominica	BAN ANNOUNCED		National	Styrofoam products	An announcement by government that it will move to ban the import and use of Styrofoam products has been welcomed by the President of the Layou Enhancement Committee, Lazare Charles (December 2015).	
Dominican Republic	BAN IN DISCUSSION – Public/NGOs (including Voluntary Ban)		National	Plastic packing material, plastic bags	The Dominican Republic is drawing up or adopting national plans and legislation to combat marine litter. Nevertheless, the board behind the organization Change.org has sent a petition to minister Francisco Dominguez Brito of Environment and Natural Resources. In this petition they make a call to ban the use of plastic packing material, and the use of plastic bags. Whatever you purchase in a supermarket in Dominican Republic, it will be packed abundantly in plastic bags.	
El Salvador	BAN IN DISCUSSION – Government Level		National	Single-use plastic products	The Ministry of Environment and Natural Resources (MARN) is working on a bill to ban single-use plastic, such as straws and supermarket bags, to reduce plastic pollution. "We are seeing that we must reduce the amount of plastic used, particularly for a single use: plastic bags, straws, plastic food wrappers that are used and thrown away," said Deputy Minister of the Environment Angel Ibarra (June 2018). The deputy of the GANA party and member of the environmental committee of the Legislative Assembly, Adelmo Rivas, urged the MARN to present the proposal to discuss it. Also, the FMLN deputy, Damián Alegría, said that the proposal must be approved. For his part, ARENA deputy, Mauricio Vargas, said that all parties should be heard and adopt a strict measure of recycling.	For the TOTO company, plastic is not the problem, but the education of people, because they are the ones who make bad use of it. "It's very easy to blame the plastic bag. The weapon does not kill, the user kills. Prohibit plastic bags is not the solution, the solution lies in education, "says

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
						the TOTO executive director, Luis Tona.
France	BAN	July 1st, 2016	National	Plastic bags smaller than 10 liters and with thickness less than 50 microns	Plastic bags are banned in France as of July 1st, 2017. The ones that are subject to the ban are the single use, fairly flimsy, often see-through plastic bags, that some supermarkets and grocery stores hand out at the check-out. These include even the bio-degradable ones and the plastic bags with handles.  To be more specific the law says that the ban covers bags with a capacity "smaller than 10 litres and with thickness less than 50 microns" – otherwise known as the "common plastic bag".	Eurs Tolia.
Guatemala	BAN,  BAN IN DISCUSSION – Government Level	2016	Local	Plastic bags	A few municipalities in Guatemala have banned plastic bags, including San Pedro La Laguna. A comprehensive bill that has already received endorsement from a legislative commission in Congress proposes to ban the use of plastic bags in the country. Dca.gob.gt reports that "If the project is approved, a period of five years would be granted, so that companies dedicated to manufacturing this product would have enough time to make the transition to biodegradable materials." " After this period, both producers and distributors who disrespect the rule could be fined and criminally denounced by the Ministry of Environment and Natural Resources, which would be in charge of the corresponding supervisions."  With this bill, which was submitted to the legislature in November 2017, Guatemala will join the list of countries in the region where similar initiatives have been presented.	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
Guyana	BAN,  BAN IN DISCUSSION – Government Level	Jan. 1 <sup>st</sup> , 2016	National	All Styrofoam products	The Styrofoam ban has put an end to the use, manufacture, importation and distribution of all Styrofoam products, inclusive of cups, plates, egg cartons, meat and vegetable trays, hot and cold beverage cups. As far as the legislation governing the ban is concerned, a Guyanese or a Guyanese entity found to be in contravention (use importation or manufacturing) could face fines of no less than \$50,000. Guilty food establishments found possessing and selling food in the Styrofoam containers will be served warnings, and could face fines from a summary conviction upwards of \$100,000.  The Environmental Protection Agency (EPA) of Guyana will be partnering with supermarkets in Georgetown to minimize the use of plastic bags, as part of Earth Day 2018. The Government of Guyana is to consider a proposal that could lead to a ban on the use of plastic items (April 2018). "We would have introduced to Cabinet a memorandum prepared by the Department of the Environment, which Cabinet will consider seriously. It a very solid piece of document, a very solid memorandum," said State Minister Joseph Harmon. In January 2017, the government successfully tabled an amendment to the Customs Act, which stipulated that importers of plastic containers pay an environmental levy to the Guyana Revenue Authority (GRA). It said the levy was not a revenue collection initiative, but a measure to encourage the recycling and reduction of the use of plastics.	
Grenada	BAN IN DISCUSSION – Government Level		National	Styrofoam and plastic	The Government of Grenada has pledged to table legislation banning the importation of Styrofoam and plastic as part of a proper waste management strategy.  Members of the Grenada Hotel and Tourism Association	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					(GHTA) have also adopted a policy of not using Styrofoam. A Styrofoam Bill which will ban the importation of Styrofoam as a first start, from that we will be moving to plastic," said Health Minister Nicholas Steele, adding that here will also be new legislation regarding fires and the recycling of products. The Government of Grenada also signed on to the Clean Seas.	
Haiti	BAN	Aug 1st, 2013	National	Black plastic bags and foam containers	The Haitian government has banned black plastic bags and foam containers. The ban, which came into force on 1 August 2013, is not the first ban of Michel Martelly's government; a previous attempt was largely ignored, and environmental activists fear the government may not be able to enforce it this time either.	Many people in Haiti rely on disposable containers because they cannot afford reusable ones. Protests initially broke out when the ban was put in place because many citizens thought the government was outlawing the plastic bags they use to transport drinking water. For now, those plastic bags are exempt, or not subject to the ban. Recent reports show that many citizens have not followed the ban

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
						just yet. Leaders and environmentalists believe it will take some time before it is widely obeyed.
Honduras	BAN,  BAN IN  DISCUSSION –  Public/NGOs  (including  Voluntary Ban)	2016	Local	Plastic Bags	Bans on plastic bags instituted at the municipal level in the Bay Islands. The ban was accompanied by a door-to-door awareness raising campaign, providing each household with two reusable bags. (The Summit Foundation, 2017)	100% elimination in Guanaja, 80% decline on Utila and 50% decline in Roatán (Reference: The Summit Foundation, 2017).
Jamaica	BAN IN DISCUSSION – Government Level		National	Styrofoam and single- use plastic bags	There is a working group examining a state motion to ban plastic bags in Jamaica (February 2018). The Andrew Holness administration will be announcing measures shortly to address the use of styrofoam and single-use plastic bags that have posed serious environmental and health concerns locally. Government senator Matthew Samuda, who piloted a resolution in the Senate, last year, calling for a ban of styrofoam and plastic bags, said that appropriate actions would be taken by the administration in keeping with the findings of a working group which was set up to review the issue. The Senate had passed the resolution last year to establish a multistakeholder working group to examine how to reduce and eventually remove styrofoam and single-use plastics bags. "One thing is certain, the paralysis of how we have approached items of our environmental protection throughout our history is at an end." He said the working	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					group, chaired by Dr Parris Lyew Ayee, completed its task in October 2017 and submitted its findings to Cabinet. In Jamaica, as at 2015, each person has been using almost 500 'scandal' bags annually, an estimated 75 per cent increase from 2011, while more developed countries, like those in the European Union, average 200 bags per person annually (170 bags in Australia).	
Mexico	BAN,  BAN IN DISCUSSION - Public/NGOs (including Voluntary Ban)	Aug 1 <sup>st</sup> , 2010	Local	Plastic Bags	Mexico approved legislation to ban plastic bags in August 2010. However, the legislation is not observed. Mexico City banned plastic bags in 2010, but plastic bags remain one of Mexico's biggest pollution problems. The city of Querétaro also banned plastic bags in 2017.	Not Observed
Nicaragua	BAN IN DISCUSSION – Public/NGOs (including Voluntary Ban)		National	Plastic bags	Lucy Valenti, president of the National Chamber of Tourism of Nicaragua (Canatur) recently (February 2018) revealed that they intend to promote an initiative to prohibit plastic bags and promote the recycling of other plastic products. "We are exploring the possibility of promoting an initiative to prohibit plastic bags and promote the recycling of other plastic products," Valenti said. He added that at this moment the creation of the law is an idea. They are currently studying the laws that exist in other countries of the region on the use of plastic bags. They also analyze what products in the country are potential to make biodegradable bags. In 2005, the National Policy on Solid Waste Integral Management was created, which mentions the promotion of nongeneration of solid waste and, similarly, the replacement of plastic bags should be sought.	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
Panama	BAN	Jan. 19 <sup>th</sup> , 2018	National	Plastic bags	As of January 19, supermarkets, pharmacies and retailers will have 18 months to stop using plastic bags, and warehouses and wholesalers will have a period of 24 months.  The sanction of Law 1 of January 19, 2018, was published in the Official Gazette, a law which prohibits the use of polyethylene bags in supermarkets, self-service shops, warehouses or shops in general to transport products or merchandise.  According to article 2 of the Law, the replacement of plastic bags with reusable bags will be progressive within the following periods:  - Eighteen months, counted from the enactment of this Law, for supermarkets, pharmacies and retailers.  - Twenty-four months, counted from the enactment of the Law, for warehouses and wholesalers."  The Law states that "the Consumer Protection and Defense of Competition Authority will be responsible for the application of the Law and for inspection of the replacement referred to in Article 2."	
Puerto Rico	BAN	Dec 1 <sup>st</sup> , 2016	National	Plastic bags	Act 247-2015 was signed into law Dec. 24, 2015, three months after Governor Alejandro Garcia Padilla issued an executive order that would ban businesses from dispensing plastic bags to customers starting in July, defying legislators who had rejected a similar bill. The new law, authored by Popular Democratic Party Reps. Manuel Natal and José Báez, gave businesses a year before the ban on plastic bags goes into effect to allow for an educational campaign on the issue. Commercial establishments can provide paper bags and recover their costs from customers, at their discretion.	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					<ol> <li>The Act also requires reusable bags sold to customers to meet the following requirements:</li> <li>Must be made of material or fabric that does not damage the environment</li> <li>Must be able to be machine washed, or made of a material that can be washed and disinfected</li> <li>Must have a capacity to carry at least 22 pounds for a distance of 75 feet for at least 125 times</li> <li>If made of plastic, must be made out of polypropylene or polyethylene (non-woven) or any other synthetic fiber that is totally recyclable</li> <li>If it is a reusable fabric, it must have a minimum weight of 80 grams per square meter (gsm).</li> </ol>	
St. Kitts and Nevis	BAN IN DISCUSSION – Government Level		National	Plastic bags	With the Federation joining the rest of the world in recognition of April 22 as Earth Day, the topic of placing a ban on the importation and use of plastic bags in the Federation has once again surfaced.	
Saint Lucia	BAN IN DISCUSSION – Government Level		National	Styrofoam and plastic bags	The Government of Saint Lucia (GOSL), in February 2017 made commitments under the #CleanSeas Campaign to eliminate marine litter.  - In March 2018, the GOSL will express further commitment to joining the Clean Seas Campaign, geared towards partnering with the United Nations Environment Programme (UNEP) to take action to protect the oceans and their resources.  - In March 2018, the Cabinet of Ministers will be requested to consider and endorse the following recommendations:	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					<ul> <li>A phase-out of Polystyrene (Styrofoam) food service containers.</li> <li>An imposition of a 0% Import Duty on all biodegradable and compostable food service containers.</li> <li>A total ban on plastic shopping bags, in order to encourage the use of reusable shopping bags, along with total ban on single use plastics and personal care products containing microplastics thereby reducing the impact of plastics on the environment, both marine and terrestrial.</li> <li>Ensuring that the Saint Lucia Solid Waste Management Authority, in collaboration with relevant agencies, implement waste diversion and minimization strategies that encourage recycling, reuse, composting, etc. in order to increase the life of the landfills, provide employment/economic opportunities and provide environmental stewardship.</li> <li>Increase public sensitization on the use of environmentally friendly products such as biodegradable products and the economic/environmental impacts they pose, in contrast to their alternatives.</li> <li>Increase public awareness and education, with a view to making the public more aware of the negative impacts of plastics and to encourage positive behaviours such as community recycling and composting.</li> <li>Indicating to the Council of Trade and Economic Development (COTED), as the Member State with responsibility for sustainable development within the Caribbean Community (CARICOM), the need to</li> </ul>	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					consider further breaking down the classification	
					of plastics so as to allow a proper disaggregation of the various types of plastics.	
St. Vincent	BAN	Jan.	National	Styrofoam	Following up on the ban on the importation and use of	
and the		31st,		products	Styrofoam products, the government will, this year	
Grenadine s		2018			(2018), implement many policies aimed at further protecting the environment. Minister of Finance Camillo	
3					Gonsalves said this government intends to deepen its	
					commitment to environmental stewardship through four	
					additional measures. The government plans to curtail	
					severely the free availability of single-use plastic bags in	
					supermarkets and other retail centres, while promoting the use of reusable or recyclable bags.	
Suriname	BAN IN		National	Plastic bags	The Foundation Support Recycling Suriname (Suresur) is	
	DISCUSSION -				working to go for a ban in 2019. SuReSur would like to	
	Public/NGOs				play a pioneering role in making the Surinamese	
	(including				population aware of the recycling process. The	
	Voluntary Ban)				organization has started an online survey and asks respondents what they think about banning plastic bags.	
Trinidad	BAN IN		National	Plastic bags	From July 4, 2018, Massy Stores Trinidad announced that	
and	DISCUSSION -				customers will be charged 50 cents for each shopping bag	
Tobago	Public/NGOs				they use. The measure was brought about to cut down on	
	(including				the use of plastic bags. The company is encouraging	
	Voluntary Ban)				customers to bring their reusable shopping bags instead. There is also a petition that is seeking to ban single	
					plastic use has just over 15,000 signatures (15,195 as	
					25/05/2018) the goal is to reach 25,000 signatures!	
					Find here the petition:	
					https://www.change.org/p/government-of-trinidad-	
Tl	DAN	I 1 at	Madda	Dlaski Di	and-tobago-ban-plastic-bags-in-trinidad-and-tobago	
Turks and Caicos	BAN	Jan. 1st, 2017	National	Plastic Bags	Government Ministers and the new Governor, HE John Freeman approved a ban on the importation of plastic	
Islands		2017			bags into Turks and Caicos and that ban begins on	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					January 1, 2017. Store owners, from the decision taken at Cabinet will have three months to get rid of the plastic bags they do have because after April 1, 2017 there will also be a ban on the distribution of plastic bags. The policy will mean stores which package goods and more in plastics will have to find and alternative and government is considering a reduction in customs duties for these alternative carrier bags.	
United States of America	BAN IN DISCUSSION – Government Level		Local		There is no national plastic bag fee or ban currently in effect in the United States. However, the state of California, and the territories of American Samoa and Puerto Rico have banned disposable bags. Over 200 counties and municipalities have enacted ordinances either imposing a fee on plastic bags or banning them outright, including all counties in Hawaii. Other attempts at banning plastic shopping bags statewide (for example in Massachusetts) have not succeeded mainly due to plastic industry lobbying. A few jurisdictions have chosen to implement a fee-only approach to bag reduction such as Washington, D.C. and adjacent Montgomery County, Maryland. Some US states, such as Florida and Arizona, have passed laws prohibiting bans on plastic bags statewide in order to prevent local municipalities from passing their own bans.	
US Virgin Islands	BAN	Jan. 1 <sup>st</sup> , 2017	National	Plastic bags and non- recyclable paper bags	All businesses are prohibited from providing plastic checkout bags and non-recyclable paper bags to their customers at the point of sale for transporting groceries or other merchandise. Nothing in this section precludes a business from making available to customers, with or without charge, at the point of sale:	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					<ol> <li>Reusable bags, compostable plastic bags, or recyclable paper bags for the purpose of transporting groceries or other merchandise; or</li> <li>Non-recyclable paper bags to protect or transport prepared foods, beverages, or bakery goods.</li> </ol>	
					Beginning January 1, 2017 All businesses in the Virgin Islands are prohibited from providing plastic checkout bags and non-recyclable paper bags for groceries or other merchandise.	
					<ul> <li>Beginning April 1, 2017</li> <li>Any business violating any provision or any regulation adopted by law will be subject to:</li> <li>An order to discontinue distribution of prohibited bags, and</li> <li>A civil fine of not less than \$500 or more than \$1,000 for each day of violation.</li> </ul>	
					<ul> <li>Exemptions include:</li> <li>Bags used inside a business to package loose items such as fruits, vegetables, nuts, ground coffee, grains, candies and or small hardware items;</li> <li>Bags used to contain or wrap frozen foods, meat, or fish, flowers or potted plants or other items to contain dampness;</li> <li>Bags used to protect or transport prepared foods, beverages, or bakery goods;</li> <li>Bags for prescription medication, newspaper home delivery bags, door-hanger bags, laundry, dry cleaning, or garment bags including bags to provide d to hotel guest to contain wet or dirty clothing;</li> </ul>	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
					<ul> <li>Bags sold in packages containing multiple bags intended for use as garbage, pet waste, or yard waste bags;</li> <li>Bags used to contain live animals, such as fish or insects sold in pet stores; or</li> <li>Bags used to transport chemical pesticides, draincleaning chemicals, or other caustic chemicals sold at the retail level; provided that this exemption is limited to one bag per customer.</li> <li>Checkout Bags Allowed Recyclable Paper Bags <ul> <li>One hundred percent recyclable;</li> <li>Contains a minimum of 40% recycled content; and</li> <li>Display the word "Reusable" and Recyclable" in a highly visible manner on the outside.</li> </ul> </li> <li>Reusable Bags <ul> <li>A bag with handles that is specifically designed and manufactured for multiple reuse and is made of:</li> <li>Cloth or other washable fabric; or</li> <li>Durable material for reuse, including plastic that is at least 2.25 mils thick.</li> </ul> </li> <li>As a petroleum byproduct, plastic is the 2nd most valued commodity in the waste stream and makes up 14% of the US Virgin Islands MSW (2010).</li> </ul>	

Country	Policy	Date	Level	Details	Additional Notes	Feedbacks
Venezuela	BAN,  LACK OF INFORMATION	2011	Local	Plastic Bag	In the Venezuelan Caribbean, in the peninsula of Paraguaná, the city of Punto Fijo, a town of 270,000 inhabitants, is in the process of becoming a free plastic area. The sector has had a turn towards sustainability because they are very aware of the environment, since there is the second largest refining complex in the world, with the capacity to distill 940,000 barrels of oil per day. A municipal ordinance, that took effect at the beginning of 2012, banned the commercialization and use of plastic bags with a capacity of less than 30 kilos. In Venezuela, contamination by plastic bags is a serious problem, research has shown that 500,000 tons of plastic are consumed per year, of which only 20% is recycled.	

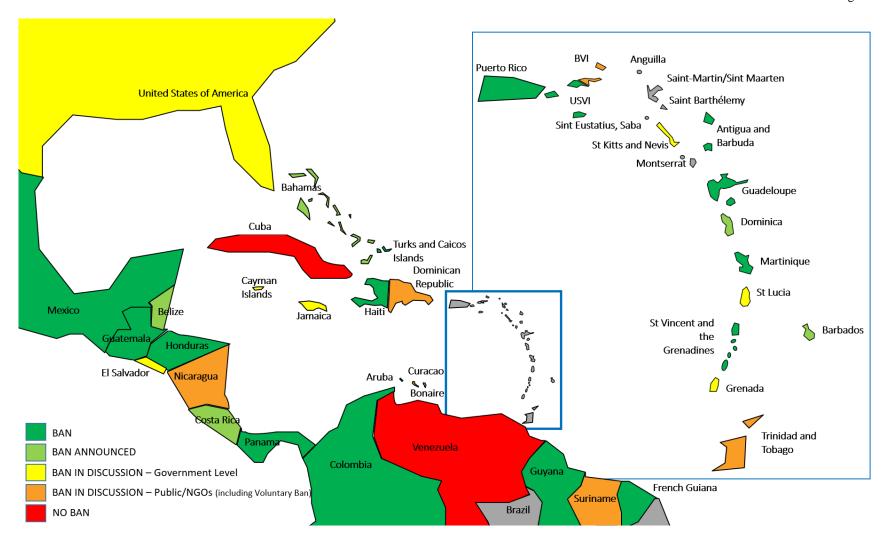


Figure 6: The Bans in the Wider Caribbean Region

# 6 THE INTERACTIVE MAP

The information contained in the table above was then inserted into an interactive map. This will help countries of the region monitor their efforts to comply with the Land-Based Pollution Protocol of the Cartagena Convention and to update and evaluate the effectiveness of policy and regulatory measures being put in place to address the importation, use and disposal of plastics and Styrofoam products.

This is the link of the map:

https://drive.google.com/open?id=1AjpZsUQgmFbYcDNpXl0GMfL6vie-h\_Ni&usp=sharing

# 7 STORIES AND LESSONS LEARNED IN THE CARIBBEAN

#### 7.1 ANTIGUA AND BARBUDA

Plastic bags were a major polluter of terrestrial and marine ecosystems and copious in amounts were taken to landfills. Plastic bags distributed by supermarkets accounted for up to 90% of the plastic litter in the environment. An initiative was launched to eradicate the use of plastic bags from Antigua. The ban had the following main phases:

- Phase 1 (January 1st, 2016): Ban on the importation of plastic shopping bags;
- Phase 2 (July 1st, 2016): Ban on distribution of plastic bags by supermarkets to customers.

The success of the first year opened the doors for further phases:

- Phase 3 (July 1st to December 31st, 2017): Ban on importation and use of food service containers to include: clamshell and hinge containers, hot dog containers, bowls, plates, and hot and cold beverage cups. Depletion of stock on hand to be followed by monitoring and confiscation.
- Phase 4 (January 1st to June 30th, 2018): Ban on importation and use of plastic utensils (spoons, forks and knives), straws, fruit trays, meat trays, vegetable trays and egg cartons. Depletion of stock on hand to be followed by monitoring and confiscation.
- Phase 5 (July 1st, 2018 to January 1st, 2019): Ban on importation and use of "naked" Styrofoam coolers. Depletion of stock on hand to be followed by monitoring and confiscation.

#### Lesson learned

A highly consultative eight-step implementation process was followed, and this largely accounted for the success of the ban.

The steps were as follows:

I. Announcement of the Ban: Phase 1 (Jan 1, 2016) and Phase 2 (July 1, 2016)

II. Consultation with External and Internal Stakeholders: Including major supermarkets, customs, Ministry of Trade, the National Solid Waste Management Authority, and the Department of Environment

III. Further consultations with Supermarkets: helped to resolved challenges identified

IV. Cabinet approval

V. Drafting of Regulations: ban lined to existing legislation (Import Act, 1958) (After approval by the Cabinet, it was decided that the ban would be incorporated in the existing legislation, as this was more expedient than instituting a new law)

VI. Gazetting of Regulations

VII. Notification to all stakeholders: that the regulation had been gazette

VIII. Final Consultations: with external agencies and further awareness raising

The Tag line used for the awareness campaign was "Make a difference one bag at a time" and was conveniently launched on World Environment Day (June 5, 2016). Plastic bags have not been totally eradicated from supermarkets. The success of the ban is also shown by waste characterization results. The composition of plastic at landfill declined from 19.5% in 2006 to 4.4% in 2017. Efforts are now being made to phase out the use of Styrofoam altogether and this is targeted for 2018. Four lessons were learnt from this success story.

- The Phased Implementation of the Ban: Two phases first restricting importation, then issuance of bags, was key to preparing all for the eventual eradication;
- The Clarity of the Message: made it easy for all to understand and enhanced buy-in
- Active and Continued dialogue: with all stakeholders, not just policy makers, but users and all providers, enhanced participation and compliance;
- The Support of Government was critical: provision of alternative bags for shoppers enhanced participation and champion role played by the minister of Health elevated the profile and coverage of the campaign.

"We still can't quite believe how enthusiastically people responded to the ban," said Andrea Jacobs, Attorney for the Department of Environment in Antigua. "It took less than one month to eliminate the bags completely and without a murmur of complaint - or even enforcement. We all immediately saw the value of ridding our island of the scourge of plastic bags."

"Our business alone was responsible for generating about 11 million plastic bags a year, much of which ended up in our one overburdened landfill and littering our island. The bags were costing us around US\$165,000 a year. We could reinvest that money in recyclable cloth bags and in certain product lines which have created more value-for-money for our customers."

#### 7.2 ARUBA

A ban on single-use plastic bags was proposed in Aruba in 2005. The team that worked on the implementation of the ban estimated Aruba's use conservatively at approximately 30 million single-use plastic carry-out bags per year (just over 575,000 per week and 114 per minute). The legislation was not considered by Parliament until 2016, and the ban entered into force on 1 January 2017. Retailers were initially reluctant as switching to alternatives meant higher costs for their businesses. Meetings were held to overcome the resistance: the Aruba Trade & Industry Association, the Aruba Hotel and Tourism Association, and the Aruba Tourism Authority took part in several meetings in order to overcome their resistance. Furthermore, workshops were organized at local schools on the importance of protecting Aruba's environment, as the island economy depends primarily on tourism.

#### Lesson learned

Thanks to the stakeholder consultations and education programme, the new ban gained wide acceptance and endorsement by the community. Nevertheless, being an island also presents the community with added motivation to apply concepts of "Refuse, Reduce, Reuse, and Respect" seeing there is limited or practically non-existent access to "Recycling" facilities. The logo of Aruba's national campaign and educational platform includes an image of one happy turtle with the tagline and call-to-action 'My Bag Is Reusable' in Papiamento. Since the introduction of the ban, citizens have even started to report grocery stores that might be providing the outlawed plastic bags by posting pictures on social media. Currently, both Curacao and St. Martin are looking at Aruba's approach to initiate their own plastic bag bans, respectively.

#### 7.3 COLOMBIA

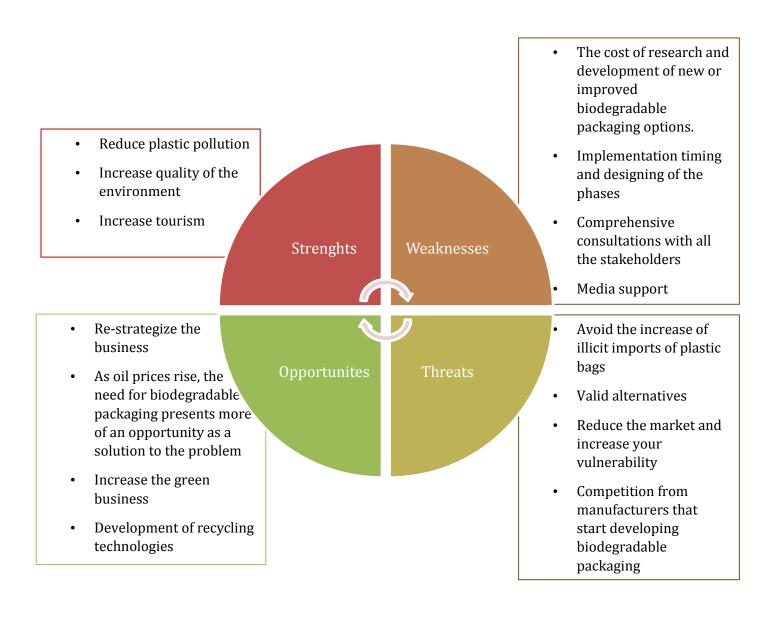
To address the plastic pollution challenge, Colombia has been promoting eco-friendly options as substitutes to single-use plastic. As of 1 January 2017, the government banned single-use plastic bags smaller than 30x30 cm and introduced alternatives with a higher load-carrying capacity. This action alone resulted in a 27 per cent reduction.

In July 2017, the government went one step further and introduced a tax on single-use plastic bags. The objective of this legislation is to encourage consumers to use reusable bags, thus curbing drastically marine litter, which is mostly plastic waste, and one of the biggest threats to oceans. This levy aims to pave the way to replenish the fish stock and boost the economy.

As of 1 July 2017, Colombians are therefore paying one US cent (20 Colombian pesos) to purchase single-use plastic bags. As a deterrent to use this type of plastic, the government will annually be increasing the tax by 50 per cent.

"These efforts aim to bring about the necessary behavioral change, thus dramatically reducing the consumption of single-use plastic," says Luis Gilberto Murillo, Minister of Environment and Sustainable Development of Colombia - "last year alone, we saw a change in consumption patterns that certainly has had a positive impact on reducing environmental damage caused by plastic".

# **8 SWOT ANALYSIS AND RECOMMENDATIONS**



- The first ban is usually implemented on the importation of Styrofoam products and singleuse plastic bags;
- Between the announcement of a ban for the Styrofoam products and single-use plastic bags will be implemented and the effective implementation it is better to let spend at least six months:
- The ban on single-use plastic bags can be on all the bags or only for the bags smaller than a certain dimension (e.g.: 30x30 cm). In this case, it's necessary to introduce alternatives with a higher load-carrying capacity;
- The consultation must be as comprehensive as possible. It must include external and internal stakeholders, major supermarkets, customs, solid waste management, Ministries;
- The identification of the incentives to industries to produce alternatives to plastic bags is fundamental;
- It must also be considered the implementation of National Projects (e.g.: Plastic Minimization Project in Jamaica) in collaboration with NGOs and other relevant stakeholders;
- The identification of valid substitutes for Styrofoam and plastic bags and
- The identification of a tax on single-use plastic bags and Styrofoam products are two other important components of the process;
- There must also be coordinated awareness and information campaigns to encourage the use of reuse or recycling bags;
- Pilot or demonstration activities in selected areas could help;
- The dialogue with all stakeholders must be active and continued, not just with policy makers, but also with users and all providers;
- The selection of a specific significant date (e.g.: World Environment Day, June 5<sup>th</sup>) to launch the ban increase the media power of the announcement.

# 9 BIBLIOGRAPHY AND LINKS

- http://plastic-pollution.org/
- <a href="http://web.unep.org/newscentre/un-declares-war-ocean-plastic">http://web.unep.org/newscentre/un-declares-war-ocean-plastic</a>
- https://wedocs.unep.org/rest/bitstreams/11700/retrieve
- <a href="http://www.cep.unep.org/cep-documents/rapmali\_web.pdf">http://www.cep.unep.org/cep-documents/rapmali\_web.pdf</a>
- http://www.unep.or.jp/letc/Publications/spc/WastePlasticsEST AssessmentGuidelines.pdf
- https://www.zmescience.com/ecology/banning-styrofoam-will-improve-environment/
- http://www.bbc.co.uk/newsbeat/article/42030979/blue-planet-2-how-plastic-is-slowly-killing-our-sea-creatures-fish-and-birds
- http://www.greenhome.com/blog/a-guide-to-compostable-and-biodegradable-plastics
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2873018/
- http://www.bbc.co.uk/newsbeat/article/42030979/blue-planet-2-how-plastic-is-slowly-killing-our-sea-creatures-fish-and-birds
- http://advances.sciencemag.org/content/3/7/e1700782.full
- International Fund for Animal Welfare
- Environmental Protection Agency
- https://www.livestrong.com/article/216666-why-are-plastic-bags-so-bad-for-the-environment/
- An article from National Geographic that explores the environmental impact of plastic bag use:
  - https://news.nationalgeographic.com/news/2003/09/0902 030902 plasticbags 2.html
- An article explaining how disposable bags cause pollution and what is being done to reduce the problem: <a href="https://www.citizenscampaign.org/campaigns/plastic-bags.asp">https://www.citizenscampaign.org/campaigns/plastic-bags.asp</a>
- An overview of the impact of marine debris on the environment from the Environmental Protection Agency: <a href="https://www.epa.gov/environmental-topics/water-topics#our-waters">https://www.epa.gov/environmental-topics/water-topics#our-waters</a>
- A page that provides education on what can be down to reduce plastic bag use and increase recycling: <a href="http://dnr.wi.gov/topic/recycling/bags.html">http://dnr.wi.gov/topic/recycling/bags.html</a>
- An article that provides information on the issue of plastic bags, and how people can reduce use and recycle:
  - https://www.motherearthnews.com/nature-and-environment/environmental-policy/plastic-bag-problem-ze0z1302zwar
- A page that explores the increasingly harmful issue of plastic pollution in the world's oceans: <a href="http://www.whoi.edu/science/B/people/kamaral/plasticsarticle.html">http://www.whoi.edu/science/B/people/kamaral/plasticsarticle.html</a>
- Plastics are polymers, and this article explains how plastic does not break down, causing major environmental issues: <a href="https://orionmagazine.org/article/polymers-are-forever/">https://orionmagazine.org/article/polymers-are-forever/</a>
- Information from a case study that explored how plastic in the ocean is affecting the health of humans: <a href="https://serc.carleton.edu/NAGTWorkshops/health/case studies/plastics.html">https://serc.carleton.edu/NAGTWorkshops/health/case studies/plastics.html</a>
- http://docs.european-bioplastics.org/publications/fs/EuBP FS What are bioplastics.pdf
- <a href="http://www.european-bioplastics.org/news/publications/">http://www.european-bioplastics.org/news/publications/</a>
- Song, J. H., et al. "Biodegradable and compostable alternatives to conventional plastics." Philosophical Transactions of the Royal Society of London B: Biological Sciences 364.1526 (2009): 2127-2139

- http://www.plasticseurope.org/documents/document/20120522112447-plastics industry view on bioplastics v16052012.pdf
- Peter Glavic, Rebeka Lukman, Review of sustainability terms and their definitions, University of Maribor, Department of Chemistry and Chemical Engineering, Smetanova 17, SI-2000 Maribor, Slovenia
- <a href="http://ec.europa.eu/environment/waste/packaging/pdf/options">http://ec.europa.eu/environment/waste/packaging/pdf/options</a> to improve biodegradabi lity in ppwd 2012.pdf
- <a href="http://www.bioplastics.guide/">http://www.bioplastics.guide/</a>
- Peter Glavic, Rebeka Lukman, Review of sustainability terms and their definitions, University of Maribor, Department of Chemistry and Chemical Engineering, Smetanova 17, SI-2000 Maribor, Slovenia
- Parker SP, editor. Dictionary of science and technical terms. 3rd ed. NY: McGraw-Hill Book Company; 1984.
- Martel AE, Davies JA, Olson WW, Abraham MA. Green chemistry and Engineering: drivers, metrics and reduction to practice. Annual Review of Environment and Resources 2003:28:401e28.
- Research Institute for Green Technology. Available from: <a href="http://unit.aist.go.jp/greentech/index\_e.html">http://unit.aist.go.jp/greentech/index\_e.html</a>; 14 February 2005.
- Krass, Dmitry, Timur Nedorezov, and Anton Ovchinnikov. "Environmental taxes and the choice of green technology." Production and operations management 22.5 (2013): 1035-1055.
- https://www.unenvironment.org/news-and-stories/story/colombias-plastic-bag-tax-concrete-step-towards-fighting-marine-litter
- http://www.gov.vc/index.php/news/742-styrofoam-ban-stakeholders-meeting

#### **References per Country**

### Antigua and Barbuda:

- http://www.ieyenews.com/wordpress/caribbean-countries-ban-styrofoam-in-2016/
- https://appliedecology.cals.ncsu.edu/absci/2016/07/antigua-and-barbuda-bans-plastic-bags/
- http://www.antiguanice.com/v2/client.php?id=806&news=10298
- <a href="http://web.unep.org/annualreport/2016/stories/antigua barbuda says good riddance plastic bags.php">http://web.unep.org/annualreport/2016/stories/antigua barbuda says good riddance plastic bags.php</a>
- 1st High Level Forum of Caribbean Ministers Responsible for Waste Management.pdf, pag. 19-20

#### Aruba:

- http://www.oceannavigator.com/November-December-2016/Aruba-bans-plastic-bags/
- https://oceanconference.un.org/commitments/?id=20744
- https://nightspublications.com/aruba/blog-entry/pabien-plastic-bag-ban-aruba
- https://www.caribjournal.com/2016/08/08/aruba-just-banned-plastic-bags/#

#### Bahamas:

- http://www.plasticpollutioncoalition.org/pft/2018/1/22/the-bahamas-to-ban-plastic-bags

#### Barbados:

- https://www.cyancaribbean.com/single-post/2017/05/28/Retailers-on-Caribbean-island-of-Barbados-introduce-a-voluntary-plastic-bag-charge

#### Belize:

- https://mic.com/articles/188565/belize-pledges-to-ban-plastic-forks-bags-and-other-single-use-items-bv-2019
- https://www.lonelyplanet.com/news/2018/03/29/belize-banning-single-use-plastic-items/

# British Virgin Island:

- http://www.greenvi.org/Projects/Waste/Plastic/Ban-the-Bag.aspx

# Cayman Islands:

- https://www.rooster101.ky/news/tanya-streeter-calls-on-cayman-to-ban-single-use-plastics

#### Colombia:

- http://web.unep.org/stories/story/colombia%E2%80%99s-plastic-bag-tax-concrete-step-towards-fighting-marine-litter-caribbean
- <a href="https://www.unenvironment.org/news-and-stories/story/colombias-plastic-bag-tax-concrete-step-towards-fighting-marine-litter">https://www.unenvironment.org/news-and-stories/story/colombias-plastic-bag-tax-concrete-step-towards-fighting-marine-litter</a>

#### Curação:

- http://curacaochronicle.com/local/curacao-must-get-rid-of-plastic/
- https://www.change.org/p/minister-of-health-environment-and-nature-suzy-carmelia-romer-ban-on-non-reusable-plastic-items-for-cura%C3%A7ao

#### Costa Rica

- https://www.weforum.org/agenda/2017/08/costa-rica-plastic-ban-2021/

#### Dominican Republic:

- <a href="http://www.nicepeoplenetworking.com/2017/petition-to-ban-the-use-of-plastic-bags-in-dominican-republic/">http://www.nicepeoplenetworking.com/2017/petition-to-ban-the-use-of-plastic-bags-in-dominican-republic/</a>
- http://www.sosuanews.com/index.php?id=5017&article=1

#### El Salvador:

- http://elmundo.sv/propondran-ley-para-prohibir-el-plastico-de-un-solo-uso/

#### France:

- https://www.thelocal.fr/20160701/what-does-frances-ban-on-plastic-bags-actually-mean
- http://www.france24.com/en/20160701-france-bans-plastic-bags-distributed-stores

#### Grenada:

- http://www.nowgrenada.com/2017/02/grenada-ban-importation-styrofoam/

#### Guatemala:

- https://en.centralamericadata.com/en/search?q1=content\_en\_le%3A%22plastic+bags%22

### Guyana:

- http://thevincentian.com/guyana-bans-styrofoam-p9737-149.htm
- <a href="http://www.jamaicaobserver.com/latestnews/Guyana">http://www.jamaicaobserver.com/latestnews/Guyana</a> govt to discuss ban on plastic?profile=1373
- https://www.caribjournal.com/2015/10/18/this-caribbean-country-is-banning-styrofoam/#

#### Haiti:

- https://www.theguardian.com/world/2013/aug/15/haiti-police-raid-plastics-ban-crackdown

#### Jamaica:

- http://jamaica-gleaner.com/article/news/20170825/last-day-feedback-proposal-ban-plastic-bags
- <a href="http://jamaica-gleaner.com/article/lead-stories/20180209/govt-take-action-styrofoam-and-plastic-bags-senator-samuda">http://jamaica-gleaner.com/article/lead-stories/20180209/govt-take-action-styrofoam-and-plastic-bags-senator-samuda</a>

#### Panama:

- http://www.thepanamadigest.com/2018/01/panama-to-ban-plastic-bags/

#### Saint Kitts and Nevis:

- https://www.sknvibes.com/news/newsdetails.cfm/96033

#### St. Vincent and the Grenadines:

- http://www.caribbeanedition.com/2018/01/15/ban-on-styrofoam-begins-january-31st/
- https://www.iwnsvg.com/2018/02/08/govt-to-clamp-down-on-single-use-plastic-bags/

# UNEP(DEPI)/CAR WG.39/INF.8 Page 36

# USA:

- http://www.sun-sentinel.com/opinion/editorials/fl-editorial-plastic-bags-ban-20170324story.html
- https://www.independent.co.uk/news/world/americas/michigan-the-us-state-that-just-banned-banning-plastic-bags-a7505611.html
- https://en.wikipedia.org/wiki/Phase-out\_of\_lightweight\_plastic\_bags

# **US Virgin Islands:**

- http://www.recyclingtoday.com/article/us-virgin-islands-plastic-bag-ban/

#### Venezuela:

- https://www.nuevamujer.com/bienestar/2011/08/23/venezuela-pueblo-prohibe-las-bolsas-plasticas.html