Sustainable Initiatives for Marine Pollution Control-Evidences from the Caribbean Region **[1]**

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**Abstract**

(Under topic: Prevention and response to marine pollution, including oil pollution)

The ocean waters, across the regions of the globe, are becoming warmer (and more acidic). Similar trend is reflected in the countries in the Caribbean region due to variety of reasons, including fishery activities, plastic abuse, and other environmental threats. As the ocean or marine waters warm, they have relatively less ability to absorb greenhouse gases. *Most importantly*, as they warm, they expand. The Caribbean region has witnessed sea level rise (including *“marine pollution”* and *“damage to land environment”*) due this contributory factor. Several initiatives are underway to bring the situation under control. According to the data published by the World Bank in 2019, there are currently 14 Caribbean countries (from Aruba to Haiti) that have banned plastic bags as part of their efforts to tackle marine pollution. This reflective research paper aims to outline some of the sustainable efforts that the stakeholders have made in the Caribbean nations for the purpose of marine pollution control. Data used in this work are largely *‘qualitative’* and *‘secondary’* in nature. Method of data analysis is *‘descriptive’*, involving *“desk-based research”* & *“case study”*.

**Key Words**: Sustainability, Marine Pollution Control, Plastic, Litter, Response, Initiatives, Caribbean Region, Caribbean Environment Programme

**1. Introduction:**

Harmful plastic waste has caused severe damage to the Caribbean ocean, with resulting marine pollution. Nearly 70 to 80 % of marine litter in the Caribbean sea comes from land, and most of it consists of plastics. Marine litter and debris are one of the most pervasive pollution problems afflicting the most valuable natural resources of the Caribbean region:

1. its beaches,
2. coral reefs,
3. fisheries, and
4. wildlife.

According to an estimate, if present trend continues, by the year 2050, the Caribbean oceans will have more plastic than fish. This scenario calls for interventions and strategic measures aimed at encouraging people to *“reject single use plastic”* and to *“refuse what can't be reused”*. These initiatives will pave the way for a cleaner and greener Caribbean. Domestic wastewater is another pollutant for the wider Caribbean region **[1]**. It has been found that in addition to plastic abuse, fishing activities can also contribute to marine litter. Fishermen dump garbage into the sea: *‘intentionally’* or *‘accidentally’*. Types of debris associated with fishery activities include: (a) nets; (b) fishing lines and ropes; (c) fish hooks; (d) forgotten (or discarded) fish; (e) food and beverage containers; (f) cleaning chemicals containers; and (g) clothing and pieces of boats (if they crash). These can all pose a serious threat to wildlife, including survival threats to humans themselves through injury and to the marine and coastal ecosystems **[4]**. These environmental scenarios and concerns briefly present the context in which the present paper has been authored.

**2. Objectives and Methodology:**

This work aims to outline some of the sustainable efforts that national governments and other stakeholders have made in the Caribbean nations for the purpose of marine pollution control. Also, it (a) discusses **Clean Seas** initiative in greater details, and (b) outlines contributions made by other stakeholders and inter-governmental developmental agencies, such as the UN (United Nations) Environment’s Caribbean Environment Programme. In addition, Trash Free Waters Initiative (in the context of Caribbean countries) has been researched into. In terms of methodology employed in this work, secondary data has been used (sources are quoted in the reference section). Secondary date used are *‘qualitative’* in nature. Method of data analysis is descriptive, involving *“desk-based research”*. Since marine pollution control measures in the context of Caribbean region have been looked into this paper, it becomes “case study in nature”. However, some of the inferences derived are applicable to other nations or regions of the globe.

**3. Quick Look at Environmental and Marine Pollution Control Concerns:**

As outlined in introductory part of this paper, plastic abuse and other factors are adding to marine pollution in the Caribbean. In addition to this, there are other reflections of over-use of single-use plastics. One can find environmental, social and economic impacts of plastics in the environment. Due to too much use of plastics (which are often not discarded scientifically), waterways in cities and towns get choked. Other undesirable reflections are: (a) waterways flood more often, and (b) sewage systems become clogged. These environmentally degrading situations provide breeding grounds for mosquitoes, and increase the risk of transmission of waterborne diseases (like dengue). In addition, plastics enter the food chain through contaminated soil and water. In terms of loss to the economy, visual pollution negatively impacts tourism and recreational activities **[1]**.

**4. Marine Debris in the Context of Wider Caribbean Region (WCR):**

The Wider Caribbean Region (WCR) is made up of small islands and low-lying coastal states within a tropical climate (with occasional natural disasters). The region’s climate is conducive to year-round beach and water-related activities. Therefore, more waste production and potential marine litter are witnessed in the region. It was in the context of these marine environmental threats (and considerations) that wider cooperation between the States of the WCR to combat this issue and mitigate the problem was felt. One of the dominant debris materials in the WCR, reported from a 1990-1991 study by Ocean Conservancy, was plastic. Most of the 70 beaches surveyed in this study were those that were not usually used by beach-goers. Notably, the data published by the Coastal Cleanup Day (ICC) are indicative of the fact that (a) most of the litter collected comes from land-based sources, and (b) there is also a lack of monitoring of the volume of waste generated and its composition in most Caribbean countries. This environmental degradation situation has resulted in (a) improper design and siting of non-sanitary landfills, (b) poor planning capacity-building, and (c) ineffective policy frameworks **[4].**

**5. Marine Pollution Control Measures Underway-Selected Initiatives:**

Countries in the Caribbean region have undertaken series of initiatives to control marine pollution. In additional, international agencies, such as the United Nations Environment Programme (UNEP) have also played key roles. Following section presents brief description of some of the efforts made in this direction:

**5.1 Efforts to Ban Single-Use Plastics:**

Governments in the Caribbean region have taken note of the marine pollution situation. Many countries, throughout the region, have banned, or are considering bans on single-use plastics (including plastic bags and Styrofoam). Antigua and Barbuda are two countries that have taken lead role in this direction. In the year 2016, they devised and adopted five-phased approach in order to ban use of plastics. The relevant ministries and officials of these two countries (Antigua and Barbuda) had extensive consultation with all concerned stakeholders on areas of concern pertaining to pollution in the Caribbean sea. Thereafter, they decided to incorporate the plastic ban into existing legislation (instead of formulating and enacting new laws). As a part of this initiative, they (a) launched the campaign named *“Make a Difference: One Bag at a Time”*, and (b) listed government-approved alternatives such as bagasse. In terms of outcome of the Make a Difference: One Bag at a Time project, the proportion of plastic dumped at landfills declined from 19.5 % in 2006 to 4.4 % in 2017 **[1]**.

It is important to note that till date, the plastic ban continues. It has been reported that today more than 18 territories have banned single-use plastics. On the other hand, three countries have introduced bans at local levels. *Furthe*r, two have announced bans to begin in 2020 and 2021. Again,, 14 countries in the Caribbean region are discussing marine control measures within relevant government ministries and officials. It has also been found that 4 nations have begun public consultations on environmental concerns. As awareness of ill effects of plastic abuse increases, however, the convenience of plastic seems less attractive. Several awareness campaigns, using print, social and digital media, have sprung up in the past few years, calling governments and citizens to address marine pollution concerns and to act accordingly **[1]**.

**5.2 Clean Seas Initiative:**

The United Nations Environment Programme (UNEP), in February 2017, launched the Clean Seas campaign to address marine pollution concerns. It partnered with national governments, the public, civil society and the private sector in the initiatives aimed at curbing marine plastic litter. Prime objective of the Clean Seas project is to addresses the root cause of marine litter. The intervention sought was: *“targeting the production and consumption of non-recoverable and single-use plastics”*.

It has been reported that by April 2019, 60 governments (including nine in the Caribbean), accounting for more than 60 % of the world’s coastline, had signed, expressing their willingness to join Clean Seas campaign. Some countries in the Caribbean have committed to: (a) protecting oceans, (b) encouraging recycling, and (c) cutting back on single-use plastics. Others, on the other hand, have created marine reserves and adopted national plans (on recycling and waste management) in order to prevent marine pollution **[2]**.

**5.3 Land-Based Sources of Marine Pollution Protocol and the Caribbean Regional Action Plan for Marine Litter (RAPMaLI):**

**The Cartagena Convention Secretariat presents a framework for action and tracking progress towards marine pollution control.** As the Secretariat to the Cartagena Convention (which is the only legally binding environmental agreement in the Caribbean region), Caribbean Environment Programme [of the United Nations Environment Programme (UNEP)] provides support to the implementation of the Land-Based Sources of Marine Pollution Protocol and the Caribbean Regional Action Plan for Marine Litter (RAPMaLI) **[4]**. This developmental initiative (UNEP-supported RAPMaLI project) envisages: (a) support for national and regional marine litter projects, and (b) further promoting national policy and legal reforms. It is pertinent to note that the RAPMaLI project has undertaken a wide variety of communication activities for raising awareness about significance of marine pollution control. In addition to this, the Caribbean Environment Programme launched, in the year 2018, an interactive map to track the progress made **[1]**.

**5.4 Initiatives of the UN Environment’s Caribbean Environment Programme in Community Involvement (With Special Reference to Trash Free Waters Initiative**)**:**

The UN Environment’s Caribbean Environment Programme has, indeed, made efforts in **getting down to communities in order to ensure “trash-free waters” in the Caribbean ocean. This has been possible due to international partnership that the UN has established over the years. It is pertinent to note that the** UN Environment’s Caribbean Environment Programmeentered, in the year 2017, into a partnership with (a) the U.S. Environmental Protection Agency, (b) Peace Corps, and (c) the UN Environment’s Regional Office for Latin America. These partnership and networking mechanisms enabled to launch the Trash Free Waters Initiative (TFWI). This partnership (which was first piloted in two Caribbean countries, namely, Panama and Jamaica) aims to reduce and prevent land-based trash from entering (a) watersheds, (b) coastal waters, and (c) the Caribbean sea. The TFWI, in Jamaica, focuses on (a) recycling, (b) community awareness, and (c) education. Activities of the TFWI (aimed at marine pollution control), in Panama, another Caribbean nation, envisage (a) solid waste management, (b) pollution prevention, and (c) waste separation **[1]**.

In terms of lessons learnt from this project, namely the TFWI (supported by the UN Environment’s Caribbean Environment Programme), experiences gained and the initiative outcomes have been incorporated into national and regional efforts, coordinated by the **Cartagena Convention Secretariat**. Also, the report of the project and lessons learned (including networking knowledge inputs derived from the private sector partnership) have been disseminated among participating stakeholders, government officials and personnel of the non-governmental organizations (NGOs) in the Caribbean region. *Most importantly*, the linkages made with other government programmes (that address solid waste management and the promotion of partnerships between civil society and the private sector in both countries: Panama and Jamaica) are the most significant aspects of the TFWI. It is high time to replicate the lessons learnt in the rest of the wider Caribbean region **[1]**.

**5.5 Supporting Efforts on Marine Pollution:**

It is pertinent to note that pollution on the land also affects ocean waters and marine life in the Caribbean region. Litter (such as plastic and chemicals) are washed into storm water drains and rivers which flow into the sea. The extent impact (or damage to marine environment) depend on two contributing factors: (a) *“the type and scale of pollution”*, and (b) *“where the pollution occurs”*. It has been reported that some marine environments and marine life are more sensitive than others to pollution. As the Caribbean is moving toward a blue economy (with the aim of “*increasing growth”*, while *“ensuring that ocean and marine resources are sustainably managed and used”*) marine pollution needs to be addressed on priority basis. Marine pollution poses a direct and immediate threat to the revenue that the Caribbean economy generates annually through coastal tourism. The World Bank report (titled “Marine Pollution in the Caribbean: Not a Minute to Waste”) identifies the key sources of marine pollution in the region. Also, the report highlights the major socio-economic, health, and ecological impacts of these pollutants **[3]**. It is in this context that there is need for developing networking and partnership mechanism (at regional, national and international levels) to prevent (and control) marine and ocean pollution in the Caribbean region. One example of such an initiative is: the Global Partnership on Marine Litter (GPML). The GPML is a multi-stakeholder partnership that was launched at the United Nations Conference on Sustainable Development Rio+20, held in June, 2012. It aims to (a) bring together stakeholders working on marine litter to share knowledge and experiences, and (b) advance viable solutions to the issue of marine pollution. The focus, in the Caribbean, has been on reducing the quantity and impact of marine litter in coastal zones **[1]**.

**6. Conclusions:**

The presence of marine debris persists in the coastal environment of the Caribbean. Today, the fact remains is that marine litter is an environmental problem in the Caribbean nations that can be solved with commitment and joint efforts. Analysis of data on marine pollution are indicative of the fact that action is now needed at all levels. Countries in the Caribbean region have undertaken marine pollution control initiatives **[3]**. For instance, 14 Caribbean countries have banned single-use plastic bags. This is part of their efforts to tackle issues pertaining to marine pollution and to ensure sustainable ocean development in the long-term. The paper concludes that there is need for adopting a combination of policy and infrastructure measures to address marine pollution issues in an integrated manner. Conducting consistent educational programmes can enable this issue to be solved.

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