



LEGAL RESPONSIBILITIES AND INTERNATIONAL COOPERATION TOWARDS PLASTIC POLLUTION AND OCEAN GOVERNANCE

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ABSTRACT

Recent global aquatic pollution concerns include plastic debris that does more harm to marine life, human health, and countries that depend on coastal resources for their economic value. In response, countries, as well as global actors, are working on policies of ocean management that seek to curb the use of plastic products and identify and punish offenders who have been dumping the product into the seas. This article aims to explore the existing legal and policy frameworks for managing plastic pollution based on the latest trends, such as the UNEA negotiation of a plastic treaty. The treaty seeks to establish legally enforceable rules with regard to the production and exportation of plastic, recycling, and control of plastic wastes, adoption of the extended producer responsibility draconian measures, as well as environmental pollution across borders. Then, regional measures and collaborative commitments such as the EU's Single-Use Plastics Directive or the Ocean Plastics Charter are presented as the other schemes that operate in parallel with UNEA's action. Insights regarding enforcement, the financial impact on developing countries, and a complicated way of regulating flows of plastics across national borders are given in the article. Such efforts for enhancing international cooperation, sound legal-environmental systems, and technological development are a drastic step towards reducing pollution caused by plastics and protecting the oceans for future generations.

Keywords: Plastic Pollution, Recycling, Marine Pollution, Ocean Governance, Plastics Treaty.

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1. INTRODUCTION

1. Overview of the Plastic Pollution Crisis

Marine pollution caused by plastics has become intense, posing a danger to the lives of aquatic creatures, human beings, and the economy. About 8 million tons of plastics are dumped in seas every year, and most of this plastic comes from soil sources such as street drainages, inadequate waste disposal practices, and disposable plastics. This pollution applies pressure to marine life at every trophic level of the ecosystem as microplastic food gets ingested at the base of the food chain with other organisms, and then bioaccumulates throughout the food chain and ends up affecting other larger animals, including human beings who consume fish.

Coastal tourism, fisheries, and shipping suffer high costs attributable to pollution by plastics, costs that are said to run into billions. Through reduced income from the affected resources, communities considerably lose their income-generating resources while using large sums of money to contain pollution. Efforts aimed at controlling the problem of plastic contamination in the seas imply collective action at all levels and in all countries to preserve the state of the marine environment wildlife and minimize negative economic effects.

2. Purpose of the Article

The present article is intended to analyze the existing legislation and activities of states and international organizations in tackling marine plastic pollution. It particularly deals with the prospect of effective employment in managing the crisis of binding and non-binding treaties. Focusing on the current discussions, including the Plastics Treaty under the United Nations Environment Assembly (UNEA), the article discusses how the new frameworks described here intend to reduce plastic manufacturing, promote recycling, and tackle waste disposal. In pursuit of understanding how the legal obligations and cooperative actions together can mitigate the problem of plastic pollution and how the economic gains and the environmental concerns can be met and ensured at the global and regional levels, the article aims to discuss the current international agreements and cooperation mechanisms.

2. BACKGROUND AND CONTEXT

1. Sources and Impacts of Marine Plastic Pollution

Seaborne litter has multiple origins with the option of single-use plastics, industrial waste, and lost or discarded fishing gear being the biggest culprits. Common forms of plastic litter and known sources include procurable plastic products such as bags, bottles, and packaging; they include single-use plastics that are frequently used and have short life durations, making disposal difficult and improper.¹ Industrial processes also produce plastic waste through process loss plastics as well as macro plastic waste, which find their way into the oceans through poor waste disposal infrastructure.² Fishing gear that has been abandoned or lost at sea becomes a horrible menace to marine life in the form of “Ghost Gear,” which may snag wildlife and have a destructive impact on coral reefs.³

The environmental impacts are profound: tertiary plastics, which often find their way into the ocean, have adverse effects; they are consumed by marine wildlife, causing illnesses and death, and a secondary fate is the transport of micro plastics through the food chain to humans.⁵ According to Beaumont & others (2019), socio-economically, plastic pollution has impacts on tourism and fishery industries, as well as on communities of the coasts sides in terms of economic loss and expenses for cleanup services, which are in billions.⁴

2. Historical Overview of Ocean Governance Efforts

International stewardship of the ocean reveals a progression of increased global involvement in attempting to regulate ocean-associated toxins and protect marine habitats. The first attempts were made in 1954 by signing the International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL). This was advanced in the 1972 London Convention under which ocean dumping was put

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1. Jenna R. Jambeck, Roland Geyer, *et. al.*, “Plastic Waste Inputs from Land into the Ocean” 347(6223) *Science* 768-771 (2015).
 2. Kara L. Law, Nancy Starr, *et. al.*, “The United States’ Contribution of Plastic Waste to Land and Ocean” 6(44) *Science Advances* eabd0288 (2020).
 3. Amy L. Lusher, Emily D. Tyler, *et. al.*, “Microplastics in Fisheries and Aquaculture: Status of Knowledge on Their Occurrence and Implications for Aquatic Organisms and Food Safety” *FAO Technical Paper* (2018).
 4. Nicola J. Beaumont, Farzad Akbari, *et. al.*, “Global Ecological, Social and Economic Impacts of Marine Plastic” 142 *Marine Pollution Bulletin* 189-195 (2019).

under regulation, and it was stated that the sea should not be a dumping site for waste, particularly hazardous.⁵ The Law of the Sea framework was created in the 1982 United Nations Convention on the Law of the Sea, addressing areas of the seas and oceans, the rights and duties of states in regard to pollution, and stewardship of the seas.⁶ The two conventions, such as the 1973/78 MARPOL Convention, added to the international obligation by regulating pollution by ships, including oil, chemicals, and garbage.⁷ More recent ones, such as the 2019 amendments to the Basel Convention, are efforts targeting the minimization of the export of plastic wastes to countries that do not have adequate means of disposal, a step towards combating marine plastics pollution.⁸ These treaties mark gradual shifts to intense international obligations in ocean stewardship as other holistic efforts to further distill ocean management form part of other comprehensive measures, such as the 2023 High Seas Treaty pursuing objectives of biodiversity and better marine stewardship.⁹

3. LITERATURE REVIEW

1. Existing Studies on Plastic Pollution and Its Impacts

The impacts of plastic pollution range from affecting marine life and public health to the social welfare of coastal residents. It is evident that marine life, including zooplankton, fish, and mammals, to name but a few, catch diseases from plastics or are trapped in it, leading to decrease rates of mortality and, therefore, reduced bio density.¹⁰ Another example of pollution of the world's ocean is Microplastics – a new emergent player in the food chain that was detected to influence marine as well as human life.¹¹ Seafood containing microplastics is a danger to humans as

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5. Joanna Vince & Britta D. Hardesty, "Marine Pollution: Tackling Plastic Waste" 5 *Frontiers in Marine Science* (2018) doi:10.3389/fmars.2018.00214
 6. Donald R. Rothwell & Tim Stephens, *The International Law of the Sea* 215 (Bloomsbury Publishing, 2016).
 7. Rebecca Kim, "MARPOL at 50: A Review of the International Maritime Pollution Regime" 120 *Marine Policy* 104021 (2020).
 8. Karen Raubenheimer and Niko Urho, "Rethinking Global Marine Plastic Governance" 183 *Ocean & Coastal Management* 105013 (2020).
 9. United Nations, *High Seas Treaty: Towards a New Era in Marine Conservation* (2023).
 10. Tamara S. Galloway, "Micro- and Nano-Plastics and Human Health," in Melanie Bergmann et al. (eds.), *Marine Anthropogenic Litter* 343-366 (Springer, 2015).
 11. Roland Geyer, Jenna R. Jambeck et. al., "Production, Use, and Fate of All Plastics Ever Made" 3(7) *Science Advances* (2017).

analytical investigations on fish biomass have shown that microplastics ingested by marine animals accumulate in the gastro intestinal tract of human food chain animals, posing toxic exposition and health risk eventualities.¹²

Shorelines are the most affected populations due to the impact of dumped plastics in the seas, thus having dire consequences to coastal tourism, fishing businesses, and the economy.¹³ Also, the use of plastics is dangerous to public health since the plastic materials are contaminated and contain pathogen debris.¹⁴ Pollution control programs have shown that positive and effective waste management policies can greatly reduce these effects.¹⁵ Further studies suggest that more interventions to control this plastic menace must be initiated internationally in addition to enhancing the governance framework across countries to cushion the environment and humanity from the multiple hazards of plastic products.¹⁶

2. Legal Frameworks for Ocean Pollution Control

MARPOL Convention, Basel Convention, and London Protocol are the major international legal instruments regulating the pollution of the ocean. The MARPOL Convention was entered into force in 1973, consolidated, and amended in 1978 with the main objective of eliminating pollution of the sea by oil and other hazardous substances through proper disposal of garbage, oil, or other materials from ships.¹⁷ The Basel Convention, that has been in force since 1992, aims at controlling the exportation of hazardous waste, and its intrusive incorporation of plastic waste into its management regimes has enhanced global cooperation on the management of plastic.¹⁸ London Convention 1972 law was later amended by the London Protocol

12. Madeleine Smith, David C. Love, *et al.*, “Microplastics in Seafood and the Implications for Human Health” 5(3) *Current Environmental Health Reports* 375–386 (2018).

13. Jenna R. Jambeck, Roland Geyer, *et. al.*, “Plastic Waste Inputs from Land into the Ocean” 347(6223) *Science* 768–771 (2015).

14 Peter J. Kershaw, Alexander Turra, *et. al.*, *Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean* (UNEP 2019).

15 Chelsea M. Rochman, Mark A. Browne, *et. al.*, “The ecological impacts of marine debris: Unraveling the demonstrated evidence from what is perceived” 97(2) *Ecology* 302–312 (2016).

16. Laurent Lebreton & Anthony Andrady, “Future Scenarios of Global Plastic Waste Generation and Disposal” 96 *Marine Policy* 180 (2019).

17. International Maritime Organization (IMO), *International Convention for the Prevention of Pollution from Ships (MARPOL)* (2023).

18. Basel Convention Secretariat, *The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal* (UNEP 2022).

that proscribes ocean dumping of wastes and encourages the use of other environmental sound waste disposal methods.¹⁹

It will be important to note that these frameworks have been identified as succeeding and failing in recent scholarship, especially in terms of jurisdiction and enforceability, where gaps are noted for accountability.²⁰ Scholars have said that although these conventions entail certain legal requirements, they face the problems of enforcement due to different commitments and compliance of the member-states, and most of these issues come into light clearly in the developing world where there are scarce resources for the formulation of strong regulations. Altogether, these frameworks promote a more complex approach to the management of the oceans, while the effectiveness of these tools largely relies on the commitment of all societies and appropriate measures to implement them.

3. Studies on the Effectiveness of Existing Treaties and Initiatives

In this context, some research has been analyzing the performance of present treaties, for instance, the International Convention for the Prevention of Pollution from Ships (MARPOL), in the area of the prevention of the appearance of plastic in the seas. Discussing the MARPOL effectiveness, Raubenheimer and McIlgorm (2018) mentioned that while it successfully addresses the issue of ship-generated sources of pollution, there are no provisions for protecting against the sources that originate on land but a major cause of plastics to enter the oceans.²¹ Similarly, Dauvergne (2018) argues that MARPOL has been diagnosed with a poor policing capacity that fails to address the substantive problems in areas with inadequate legislation to support its enforcement.²²

Lebreton and Andrady (2019) use the information on the flow of plastic wastes to and from different countries and continue that the controls set by MARPOL are not enough to solve the issue of the transboundary transport of plastic wastes, especially to the developing nations with weak waste management frameworks.²³

19. David R. Boyd & Charles Brooks, “Legal Responses to Marine Pollution” 49 *Environmental Law Journal* 23 (2023).

20. Linda Carr, Mohammad Rahimi, *et. al.*, “Frameworks for Ocean Governance: An Analysis of MARPOL, Basel, and the London Protocol” 78 *Marine Policy Review* 12 (2021).

21. Karen Raubenheimer & Alistair McIlgorm, “Can the Basel and Stockholm Conventions Provide a Global Framework to Reduce the Impact of Marine Plastic Litter?” 96 *Marine Policy* 285 (2018).

22. Peter Dauvergne, “Why Is the Global Governance of Plastic Failing the Oceans?” 51 *Global Environmental Change* 22 (2018).

23. Laurent Lebreton & Anthony Andrady, “Future Scenarios of Global Plastic Waste Generation and Disposal” 96 *Marine Policy* 180 (2019).

This is supported by the United Nations Environment Programme (UNEP) in a 2020 report proposing even steeper measures across the global scope than those set by MARPOL to control not only the uses but also disposal, recycling, and manufacturing of plastic products.²⁴ Even more recently, Simon et al. (2021) have raised the need for a new plastic treaty, noting that MARPOL provisions are insufficient for addressing substantiation challenges of contemporary flows of plastic waste.²⁵

4. The Role of Non-Binding Agreements and Voluntary Initiatives

Soft law and soft measures have become important and effective mechanisms for global actions to address pollution by plastics, especially in the parts of the world where hard legal norms of international law cannot easily be applied. Ocean plastic commitment is another Voluntary Plastics Target agreed upon during the G7 summit in 2018 since it is aimed at phasing out unnecessary plastic use, enhancing waste management, and boosting the recycling rate of plastics.

Experts noted that despite the soft legal nature of such agreements, they guide action and promote cooperation at the International, National, Corporate, and other levels.²⁶ Other research also reveals that non-binding initiatives are effective because countries opt to align with the goals that are relevant in their domestic context, as it helpful for less developed countries that may have different capability of waste management.²⁷

4. GAPS IN LITERATURE

1. Limited Binding Agreements on Plastic-Specific Pollution

The problem of plastic pollution of the seas and oceans has gained attention from people in different parts of the world, but there are still loopholes in the formation of tough international legal rules to regulate this menace. Other conventions like the MARPOL Convention and the Basel Convention consider

24. United Nations Environment Programme, *Plastics and Shifting Tides: A Report on Marine Litter and Plastic Pollution Policies and Measures* (2020).

25. Nils Simon, Max L. Schulte, *et. al.*, “A Binding Global Agreement to Address the Life Cycle of Plastics” 373 *Science* 43 (2021).

26. Alfredo Da Costa, “The Ocean Plastics Charter and Voluntary Action in Marine Plastic Governance” 123 *Marine Policy* Article No. 104306 (2021).

27. Marcus Haward, “Plastic Pollution of the World’s Seas and Oceans as a Contemporary Challenge in Ocean Governance” 9 *Nature Communications* 667 (2018).

other waste management policies, but there are no special binding parts exclusively dedicated to ocean plastic pollution.²⁸ A more recent development in international negotiations under the United Nations Environment Assembly (UNEA) toward a Plastics Treaty is crucial as they seek to establish legally binding instruments for plastics production, waste minimization, and management.²⁹

2. Lack of Consensus on Extended Producer Responsibility (EPR) in Plastics

Another issue is there is no convergence of opinion regarding the use of Extended Producer Responsibility (EPR) on plastics. EPR, through which manufacturers are responsible for their products' entire life cycle, has proven to decrease plastic waste, though the effectiveness of this technique is lacking adequate foreign research study.³⁰ The general implementation of EPR policies is even more problematic due to differences in legal systems and economic development, especially in countries with weak waste management systems.³³

3. Need for Comprehensive, Cross-Jurisdictional Studies

The study revealed that cross-jurisdictional collaboration is poorly understood, especially when countries with different legal and regulatory frameworks try to synchronize their strategies concerning plastic pollution. As noted by Chen and Liu (2022), there is an issue with trying to achieve fragmentation because the

28. Karen Raubenheimer & Alistair McIlgorm, Can the Basel and Stockholm Conventions Provide a Global Framework to Reduce the Impact of Marine Plastic Litter?, 96 *Marine Policy* 285–290 (2018), available at : <https://doi.org/10.1016/j.marpol.2018.01.013> (Last visited on January 11, 2025).

29. UNEP, “Global Treaty to End Plastic Pollution: UNEA Resolution Highlights Urgent Action for Sustainability” *United Nations Environment Programme* (2022).

30. Katarina Löfgren & Johan Sahlin, Implementing EPR for Plastic Waste Management in Developing Countries: Legal and Economic Challenges, 118 *Waste Management* 157–165 (2021), available at : <https://doi.org/10.1016/j.wasman.2020.08.020>. (Last visited on January 2, 2025).

31. Shiqing Chen & Wei Liu, “Global Governance of Plastic Pollution: Cross-Jurisdictional Challenges and Policy Responses” 134 *Marine Policy* Article No. 104783 (2022).

32. Lisa Marquart & Anna Lesniak, “Compliance and Enforcement in Ocean Governance: A Critical Review” 23 *International Environmental Agreements: Politics, Law and Economics* 45–62 (2023).

33. Mark Dawson, “Enforcement in International Environmental Law: Addressing Challenges in Marine Plastic Pollution Governance” 34 *Journal of Environmental Law* 367–389 (2022).

process that is intended to facilitate a creative and strategic process ultimately renders the existing governance structure incapable of moving in any coordinated manner because too many countries have differing capacities and legal priorities.³¹

4. Enforcement and Compliance Mechanisms

Another gap relates to compliance with existing international conventions on marine pollution. When it comes to the MARPOL or the terms of the Basel Convention and the like, the matter boils down to enforcing these rules – especially in the developing world. As Marquart and Lesniak further note (2023), many nations have resource limitations which make it very difficult to ensure that compliance is strictly followed.³² Furthermore, tangible enforcement measures toward plastic pollution are weakened by a crippled judiciary system that hampers end-user countries from penalizing violators.³³

5. Inadequate Analysis of Developing Countries' Needs in Plastic Pollution Management

Many developing countries fail to meet the set international standards because of inadequate finance, poor infrastructure, and lack of appropriate technology. A literature review by Rajan and Kumar (2023), among others, shows that most of these countries are struggling with how to deal with plastic waste despite the fact that current frameworks do not sufficiently offer the required solutions.³⁴ A better understanding of the local socio-economic realities that define capacity is necessary to offer appropriate interventions: capacity-building, funding for the development of waste management solutions, and policy support.³⁵

5. LEGAL RESPONSIBILITIES IN ADDRESSING PLASTIC POLLUTION

1. National-Level Legal Responsibilities

Different legislations have now been implemented by countries in addressing the issue of marine plastic pollution, especially the European Union. The EU single-use plastics directive adopted in 2019 forms part of legal requirements as a standard.

34. Krishnan Rajan & Pradeep Kumar, "Plastic Pollution Management in Developing Countries: A Socio-Economic Perspective" 45 *Environmental Development* Article No. 101091 (2023).

35. Vimal Raghavan, "Challenges and Opportunities for Plastic Pollution Management in Low-Income Countries" 40 *Waste Management & Research* 5–17 (2022).

The directive prohibits certain specific households' single-use plastic products, including straws, cutlery, and plates, and allows Member States to reduce usage and improve waste management.³⁶ The directive has commissioned studies that have revealed that single-use plastics have reduced within the EU; this has made it reduced in other parts of the world as well. Other countries have put into practice similar measures; for example, Kenya recently introduced one of the toughest plastic bags restrictions in the world, and the impact of restrictions has been evident since their enactment in 2017.³⁸

National Courts are involved in the implementation, which ensures that legal redressing mechanisms on the laws are put in place against violators, including organizations and industries. For instance, in the Philippines is, the Writ of Kalikasan offered by the Supreme Court as an example of a constitutional instrument of judicial activism to correct environmental degradation where the aggrieved citizens can procession a direct right of action to court for the protection of the environment.

2. Extended Producer Responsibility (EPR)

Extended Producer Responsibility (EPR) is an environmental policy tool that requires producers to take responsibility beyond the point of sale for their products' end-of-life. EPR involves making companies accept the cost of products' end-of-life disposal, which makes them devise more sustainable packaging.³⁹ Germany again stands as an example by passing the Packaging Act, which requires organization to enroll in a national packaging registry and make payments into packaging waste collecting systems. This has made companies adapt to the use of environmentally friendly packaging and cutting on the use of plastics, emphasizing the positive impacts of EPR policies on pollution.⁴⁰

Some countries have implemented EPR Policies that show positive effects. For instance, Japan's Container and Packaging Recycling Law has provided high recycling

36. European Union, "Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment" 4 *Official Journal of the European Union* 77 (2019).

37. Sinem Gundogdu, Tomasz Kowalski, *et. al.*, "Single-use plastics and the EU directive: Impacts and implications" 145 *Environmental Science and Policy*, 32-41 (2022).

38. Jane Njeru, "The Effects of Kenya's Plastic Bag Ban on Urban Waste" 85 *Waste Management* 20-27 (2021). 42 Maria Hilario, "Writ of Kalikasan: Legal Pathways to Environmental Justice in the Philippines" 54 *Environmental Law Journal* 179-196 (2022).

39. Nathan Kunz, Lisa Graham, *et. al.* "Extended producer responsibility: Theory and Evidence" 67 *Journal of Environmental Policy and Planning*, 452-468 (2022).

40. Franziska Schneider, Max Weber, *et. al.* "Impacts of Germany's Packaging Act on plastic reduction: An EPR Approach" 57 *Waste Reduction & Recycling Journal*, 61-74 (2023).

rates, which presents the results of EPR to decrease the generation of plastic waste. In Canada, the EPR programs of plastic implemented in British Columbia have contributed to improved rates of recycling and better efficiency in waste management systems.⁴² In these countries, successful EPR policies give a signal to the other countries desiring to minimize plastic pollution.

3. Corporate Responsibility and Accountability

Global concern has been raised over corporate responsibility for plastic pollution as corporate industries, especially those that fall under consumer goods and fossil industries, bear the greatest blame for plastic pollution. For instance, Azoulay *et. al.* (2019) note that the fossil fuel industry supplies the materials needed for plastic production and encourages the ongoing use of plastics, injuring the plastic pollution crisis.

Furthermore, because organizations are increasingly under pressure from the public, some companies apply non-mandatory commitments, such as the reduction of plastic consumption. However, Nguyen *et. al.* (2021) observe that voluntary initiatives are less effective, given that they do not include enforceable requirements to support them and frequently serve as ‘window dressing.’⁴³

4. Challenges in National Enforcement

The most luxurious in the implementation of strict regulatory measures on plastic pollution is found to be challenging for national governments, especially in low- and middle-income countries. One of these areas is the absence of a regulatory framework. As Lebreton and Andrady observed, most countries suffer from a deficiency of their regulation mechanisms that would enable them to control and implement no-pollution laws.⁴⁴

However, due to these restricted budgets, the governments themselves are unable to put adequate capital towards waste management techniques that go hand-in-

41. Hiroshi Nishikawa, Akiko Yamamoto, *et. al.*, “Japan’s container and packaging recycling law: Lessons for effective plastic waste management” 102 *Journal of Cleaner Production*, 11239 (2023).

42. Canada, “Extended Producer Responsibility Programs in British Columbia” 5 Government of Canada 81 (2023). 47 David Azoulay, Patricia Villa, *et. al.*, “Plastic & Health: The Hidden Costs of a Plastic Planet”, *Center for International Environmental Law (CIEL)* (2019).

43. Le Nguyen, Ann Brenkert, *et. al.*, “Examining the Effectiveness of Voluntary Corporate Plastic Pollution Initiatives”, 119 *Environmental Science & Policy*, 29-38 (2021).

44. Laurent Lebreton & Anthony Andrady, “Future Scenarios of Global Plastic Waste Generation and Disposal” 5 *Palgrave Communications*, 1–11 (2019).

hand with the basket of solutions needed to address plastic pollution in the ocean. Kaza et al. (2018) observe that where funding is insufficient, countries are unable to build functional recycling systems or even implement systems for disposing of waste that is not plastic and end up with high mismanagement of plastics.⁴⁵ Additionally, Ocean Conservancy (2020) opines on inadequate capacity and technology in the case of monitoring the plastic pollution problem, let alone the affected countries.⁴⁶

6. INTERNATIONAL COOPERATION AND TREATIES

1. Overview of International Ocean Governance Frameworks

The Marine Pollution Convention or MARPOL Convention came into force in 1973, and the 1978 amendments are conventions designed to deal with pollution of the ocean through ships primarily, it deals with the disposal of oil, chemicals, Sewage, and garbage. MARPOL, of course, has specific provisions regarding the disposal of waste, mostly in its Annex V, which prohibits the throwing of plastics and other waste into the sea.⁴⁷

Another international instrument controlling hazardous waste movement is the Basel Convention on the Control of Trans boundary Movement of Hazardous Wastes and Their Disposal, which was signed in Basel, Switzerland, in March 1989. The Basel Convention has, in recent years, been updated with measures to regulate the exporter and importer of plastic waste among countries.⁴⁸ Finally, we have the London Protocol, which is an additional amplification to the London Convention of 1972 on the prohibition of pollution by substances other than persistent hazardous substances when dumped at sea. It has precaution and environmental considerations feature whereby any waste material to be evacuated

45. Silpa Kaza, Lisa C. Yao, et. al, *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050*, World Bank Publications, Washington, D.C., (2018).

46. Ocean Conservancy, *Stemming the Tide: Land-Based Strategies for a Plastic-Free Ocean* (2020).

47. International Maritime Organization, International Convention for the Prevention of Pollution from Ships (MARPOL) (2020), *available at*: [https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx). (last visited on November 11, 2024).

48. Secretariat of the Basel Convention, Plastic Waste Amendments to the Basel Convention (2019), *available at*: <http://www.basel.int/Implementation/Plasticwaste/Overview/tabid/6068/Default.aspx>. (last visited on November 11, 2024).

in the seas must first be categorized depending on the level of harm posed.⁴⁹

2. The United Nations Environment Assembly (UNEA) and the Plastics Treaty

Faced with the increasing challenges of plastic pollution, the United Nations Environment Assembly (UNEA) initiated the process towards the establishing of a Plastics Treaty in March 2022. These goals include reducing plastic production, recycling, enhancing the waste management and infrastructures for accumulating plastic waste, and Encouraging companies that produce plastic waste to take responsibility by coming up with an EPR program.

Plastics Treaty also speaks to the transnational character of plastic pollution because it acknowledges the importance of global tackling in view of the fact that plastic waste moves across borders. In order to prevent and reduce the number of plastics, the treaty worked to support sustainable production processes and promote a circular economy in the world market of plastics.⁵⁰

3. Regional and Multilateral Agreements

Popular level agreements are extremely effective in dealing with marine plastic pollution as they permit structured frameworks unique to meet regions and requirements. The EU has not been idle to act on the issue of plastic waste through the use of policy, some of which are elaborated below. Forthcoming 2019, this directive aims to affect the ten most frequently washed-up single-use plastics in Europe; this is through the imposition of bans and limitations on its effects on the environment.⁵¹ It is a smaller component of a larger EU circular economy initiative, which sets goals to decrease the creation of plastic waste and enhance waste disposal among EU members.

49. International Maritime Organization, London Convention and Protocol (2021), *available at*: <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx>. (last visited on November 11, 2024).

50. United Nations Environment Programme, UN Environment Assembly Sets Stage for Global Treaty to End Plastic Pollution (2022), *available at*: <https://www.unep.org/news-and-stories/story/un-environment-assemblysets-stage-global-treaty-end-plastic-pollution>. (last visited on November 11, 2024).

51. European Commission, Single-Use Plastics: New Rules to Reduce Marine Litter (2021), *available at*: https://ec.europa.eu/environment/topics/plastics/single-use-plastics_en. (last visited on November 11, 2024).

On the African continent, the African Union (AU) has started numerous policies to fight plastic pollution, as the continent is most affected by the negative consequences of marine litter. At the recent African Ministerial Conference on the Environment convened by the AU, the organization called on the member states to implement national ASIP laws and to develop sound waste management systems. For instance, Kenya and Rwanda have set very rigorous bans on the use of plastic, and this has set the pace for the rest of the African countries through the AU.⁵²

The main concern for Southeast Asian countries concerning the issue of plastic leakage into the oceans has been addressed by the Association of Southeast Asian Nations (ASEAN) through the formulation of the Regional Action Plan for Combating Marine Debris.⁵³ This action plan describes the actions to be taken to reduce waste and improve the management of waste, as well as communication activities.

4. Non-Binding Agreements and Global Partnerships

The Ocean Plastics Charter, signed by the G7 in 2018, is also voluntary, and it has very high-level commitments to the management of waste, recycling, and shift from plastics.⁵⁴ Despite being advisory, this charter has been a strong encouragement to member countries to incorporate national policies that work in the realization of this charter's goal into their countries' policies with anthology towards sustainable use of this product in industries.

The United Nations Environment Programme, otherwise known as the UNEP, started another non-binding agreement known as the Global Partnership on Marine Litter (GPML). As a network, GPML engages government, non-governmental organizations, and any private players who want transparent and proper ways of dealing with marine litter, as expressed by sharing experiences, research, and technological interventions. The main comparative advantage of GPML is the approach that is directed at the development of local capacities, sharing of information

52. Ifesinachi Okafor-Yarwood, Ifeoluwa Adewumi *et. al.*, Africa and the Plastic Waste Trade: Examining the Impact of Plastic Pollution on Marine Ecosystems, 121 *Marine Policy* Article No. 104189 (2020).

53. ASEAN, ASEAN Regional Action Plan for Combating Marine Debris in the ASEAN Member States (2021– 2025) (2021), *available at*: <https://asean.org>. (last visited on November 12, 2024).

54. G7, Ocean Plastics Charter (2018), *available at*: <https://www.canada.ca/en/services/environment/conservation/forests/oceans/plastics-charter.html>. (last visited on November 12, 2024).

is essential for effective combating of the phenomenon in question for countries that can have limited resources.⁵⁵

5. Role of International Organizations and NGOs

It is the international organizations in collaboration with non-governmental organizations (NGOs) in the promotion and support of sustainable ocean governance. UNEP spearheads global efforts through campaigns such as the Clean Seas Campaign, which was kicked off in 2017 to call for personal, business, or government action to lower use and disposal of plastic. The World Bank helps countries build sustainable waste management programs and provides expertise and funding to tackle the problem of plastic waste at the national and municipal levels.⁵⁶

Non-governmental organizations like Ocean Conservancy are thus, at times, involved in producing documentaries for marine protection. International Coastal Cleanup by Ocean Conservancy organizes volunteers to pick and record HTs throughout the global coastline to offer critical information to policymakers and create awareness.⁵⁷ These actors function in parallel with the regional and multilateral organizations and show how an integrated approach is necessary to solve the complex issue of marine plastic pollution.

7. ANALYSIS OF LEGAL AND PRACTICAL CHALLENGES

1. Challenges of Treaty Enforcement and Compliance

It seems rather difficult to punish and monitor compliance with the international treaties on plastic pollution, especially for developing countries. To support treaty enforcement, there are the following necessary conditions: effective legal measures and applicable regulations, adequate monitoring and tracking, and a strong response to violators. Nevertheless, low-income nations are subjected to constraints emanating from a paucity of funds, primitive infrastructure, and raw regulation. Again, where

55. United Nations Environment Programme, Global Partnership on Marine Litter (2022), *available at*: <https://www.unep.org/explore-topics/oceans-seas/what-we-do/addressing-land-based-pollution/globalpartnership>. (last visited on November 12, 2024).

56. World Bank, Plastic waste reduction and climate impact in developing countries (2020), *available at*: <https://www.worldbank.org/en/topic/environment/publication/plastic-waste-management> (last visited on November 12, 2024).

57. Ocean Conservancy, International Coastal Cleanup (2021), *available at*: <https://oceanconservancy.org>. (last visited on November 12, 2024).

tracking mechanisms are not in place, it becomes very hard to determine whether countries are actually abiding by treaties that they have signed, hence no accountability.

Further, enforcement efforts are bound to be frustrated by conflicting national interests. Many countries cannot afford environmental standards since their economies are still growing and depend on sectors that impact plastic pollution.

2. Financial and Technical Barriers for Developing Nations

Strengthening and enforcement of plastic waste laws and policies that align with best global practice demand significant financial and technical capital, the two of which are scarce in the low-income countries. Opening new recycling plants, putting up new waste management structures, and training of personnel who will be assigned the duty of enforcement or monitoring of structures are well-understood capital-intensive measures.

Technological hurdles also pose major obstacles to proper implementation. The restrained progress in the technological innovation and implementation of waste disposal systems and accountable record-keeping processes necessary for claiming compliance with treaty guidelines gives developing nations a particularly hard time. For instance, most countries today have poor recycling technology, thus releasing a significant proportion of plastics into the environment.

3. Conflict of Interest with Economic and Industrial Growth

The challenge again concerns the balance of economic growth on the one hand and environmental conservation on the other as a major cause of plastic pollution. Most countries, including the emerging ones, have considered plastic production as an important input for industrialization, employment generation, and development. Organic production and distribution also affect such industries as manufacturing, packaging, and farming, and moving towards no plastic can require restructuring of the economy. Such countries also hesitate to sign international treaties that limit plastics' usage because such restrictions negatively affect their industrial segments and competitiveness. In this regard, the economy comes first: nations have no interest in expenditures or actions that harm industries and workplaces.

8. PROPOSED SOLUTIONS AND FUTURE DIRECTIONS

1. Strengthening International Treaties and Binding Agreements

Due to the increased levels of plastic pollution, there is a need for better and more effective laws which can be implemented and enforced all over the world. Another is the call for entering into new legally binding instruments that are fully devoted to governing plastic production, management, and recycling. These treaties should call for specific national measures on how nations that signed them will reduce plastic waste generation and strengthen measures preventing plastic manufacture, especially those that are singled out for misuse.

2. Enhanced Financial and Technical Support for Developing Nations

Low & Middle-Income Countries (LMICs) are unable to effectively and efficiently collect, recycle, or dispose of plastics due to poor funding, unavailability of proper infrastructure, and limited technological advancement. To fill this gap, international financial help, technologies, and innovative capacities must be provided. Donors from developed countries should channel funds through Global environmental budgeting mechanisms such as the Green Climate Fund as investment in sustainable waste management infrastructure in LMICs.

3. Improving Transparency and Accountability through Monitoring Mechanisms

Some of the measures include the institution of an international surveillance system of the observation and reporting of the standards on reduction of plastic waste. The calculation of the plastic pollution index could be better done by applying a standardized structure of data collection that would reveal the current situation with pollution, waste disposal and utilization, and the efficiency of the intergovernmental comparisons. This system should be transparent, and the data should be published so that governments, researchers, and the public can evaluate progress and find where solutions are required. It may also be phased for third-party people for vouching the truthfulness, accuracy, and authenticity of the mentioned system.

4. Role of Innovation and Technology in Plastic Waste Reduction

Innovation has played a central role in the generation of technological solutions to deal with the problem of plastic pollution. More effective processes of recycling that are on the development stage now can contribute to the reduction of plastic waste. For instance, new techniques of chemical recycling can possibly increase the efficiency of recycling to be able to break down a plastic product so as to be utilized

in the creation of a new product, unlike the mechanical recycling technique. Secondly, biodegradable polymers and substitutes for regular plastics, being bio plastics, are potential solutions. The alternative being biopolymers derived from renewable feedstock, which have the possibilities to relieve the dependency on fossil fuel-based plastics.

5. Integrating Extended Producer Responsibility Globally

Extended Producer Responsibility (EPR) is an essential policy instrument for reducing plastic waste by involving producers in the management of the products they produce right from their production up to their disposal. Another regular EPR could be fixed on the global level so that manufacturers accept the responsibility for recycling and disposal of the plastics they put into the market. They are quite similar to the ones described in this article as they would force companies to think of recyclability when creating their products and cut down on useless packaging. The standardization of EPR would eliminate cases where producers dump their products' waste to other countries with less or no EPR standards. EPR policies should be complemented with a sound system for monitoring compliance with the type and way of implementing the practices to enhance constant improvements.

9. CONCLUSION

At the current moment, the problem of plastic pollution is a global scale problem that has dire consequences for the environment, wildlife, and humans. As such, the solution to this problem requires a legal strategy incorporating national duties and, at the same time, international commitments. National governments are adopting measures to reduce plastic waste, including restrictions on the use of one-use plastics, the EPR programs, and recycling. Nevertheless, the solution calls for the enforcement of the law, which is a big problem, especially in developing countries where there is inadequate infrastructure and little capital to fund the physical construction of the proposed structures. The UNEA Plastics Treaty seeks to introduce certain legal obligations to decrease the production of plastics, step up the recycling rates, and enhance sustainable production methods for plastic, as well as answer the question of who is responsible for addressing cross-border plastic pollution. Moreover, such multilateral agreements as the Ocean Plastics Charter and other voluntary actions give an additional framework of the problem at the regional level.

Extension of such collaboration is imperative if the world bearing the brunt of these plastics is to be addressed comprehensively. In the case of plastic waste, there can never be an isolated solution provided by a particular nation. Covert action

through international treaties like the UNEA Plastics Treaty offers a forum through which countries are able to come to a consensus on common policies, share experience and information as well as put pressure on one another.

The UNEA Plastics Treaty has the capacity to transform global governance on the use of plastic in the coming future. It has the potential to substantially transform the amount of plastic entering the Current Ocean, improve production and consumption, as well as help the recycling economy become more stable. Nonetheless, the effectiveness of this treaty shall be determined by strong mechanisms of compliance, monitoring, and enforcement of strict follow-ups around the world. Future steps need to be directed at extending innovation in the sector of plastic substitutes, collaboration between governments and businesses, and making sure that the treaty goals can be reached by countries, starting with the least developed ones.