

Assessing the Role of the Basel Convention in Addressing Plastic Pollution at the International Level- A Critical Review

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ABSTRACT

Plastic pollution from plastic waste emerged as a significant challenge in the present century. Plastic pollution has numerous adverse environmental effects, including health, climate, biodiversity, marine life, and ecological imbalances. These effects may endanger the health and happiness of individuals, aquatic creatures, and the pristine terrestrial and marine environment. The Basel Convention addresses this global issue and sets rules for managing plastic waste and preventing it from polluting the environment. While there is no dedicated treaty addressing plastic pollution, it remains the only legally binding international instrument addressing this issue alongside other rules scattered in different forms. Various other attempts to curb plastic pollution, such as the 2019 amendment to the Basel Convention, often referred to as the “plastic waste amendment”, are being made along with ongoing negotiations for a global plastics treaty. Accordingly, this commentary not only addresses the issues of plastic waste hazard on the environment as well as on human health but also reviews the positive aspects, constraints, and most important effects of the Basel Convention in dealing with the global plastic waste crisis. It also critically evaluates the convention’s provisions to better understand their effectiveness in plastic waste management and offers practical insights and recommendations for sustainable and conscious implementation of laws.

Keywords: plastic pollution, waste management, Basel Convention.

Plastic is a novel substance that is ubiquitous and has altered the conventional mode of life. Plastic, which was discovered in 1907, brought revolutionary changes in human life. It is known as “a substance with a

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thousand applications” due to its cutting-edge nature, versatility, strength, and light weight. This contributes to its rapid adoption and popularity all over the world. Additionally, plastic costs are very low, making it accessible to everyone. Because of these qualities, plastic is commonly known as a revolutionary material because it can be used in various ways¹. Tragically, the production of plastic increased globally from 2 million tons (Mt) per year in the 1950s to more than 426 Mt per year in 2019, showing that its consumption has grown 180 times more in 2019 than in 1950. By 2025, the production is projected to reach 455.25 million metric tons². In the period between 2010 to 2020, the world witnessed a significant increase from 270 million metric tons to almost 370 million metric tons in the production of plastics³. Projections indicate that this trend will continue in the coming decades, with annual output expected to reach around 590 million metric tons by 2050⁴. This figure represents an increase of over 30% compared to production levels anticipated for 2025. Now the million-dollar question is that what happens to plastic waste. The answer is that of the total plastic produced, that is, 9200 metric tons, only about 9% has been recycled and only about 12% has been destroyed completely. The remaining portion, that is, 79% has been disposed in landfills and exposed into the surrounding natural world. The figure below will show us the correct picture.⁵

Approximately 7,000 Mt of the 9,200 Mt of plastics produced between 1950 and 2017 – about 76% – have become waste.

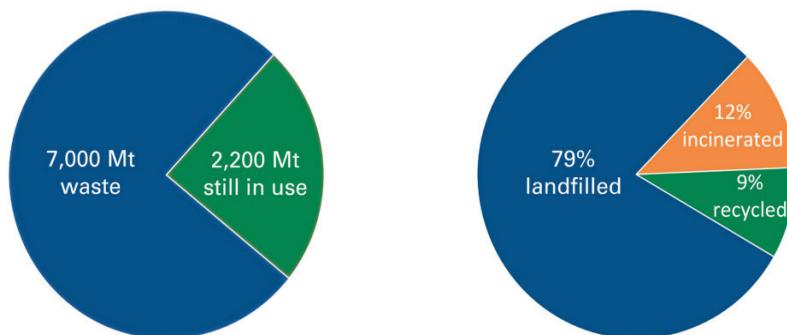


Fig.1: What happens to plastic waste?

There is a significant difference between the generation and

- 1 P.G.C. Nayanathara Thathsarani Pilapitiya, A. S. (2024). the world of plastic waste: a review. Cleaner Material, 1-23
- 2 <https://www.statista.com/statistics/664906/plastics-production-volume-forecast-worldwide/>
- 3 <https://www.statista.com/statistics/664906/plastics-production-volume-forecast-worldwide/>
- 4 <https://www.statista.com/statistics/664906/plastics-production-volume-forecast-worldwide/>
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management of plastic waste. Every year, a day comes when plastic production surpasses its waste amount, and that day is called Plastic Overshoot Day⁶. Unfortunately, the global community observed that day on 5th September 2024⁷. Besides its benefits, Plastic waste pollution poses a significant global environmental challenge. It is estimated that nearly half of the total plastic manufactured worldwide are designed for single use and are disposed of after serving their immediate purpose⁸. Plastic, once made, remains with us in one way or another. According to one study estimated that by the end of the year 2030 the plastic waste may reach 53 metric tons annually⁹. India, China, and Indonesia are the leading plastic waste contributors to ocean pollution, except the U.S., which is the highest plastic waste contributor in the world¹⁰. For the sake of clarity, a chart is being shown below that shows the predicted trend of plastic production globally

Plastic production forecast globally from 2025 to 2050

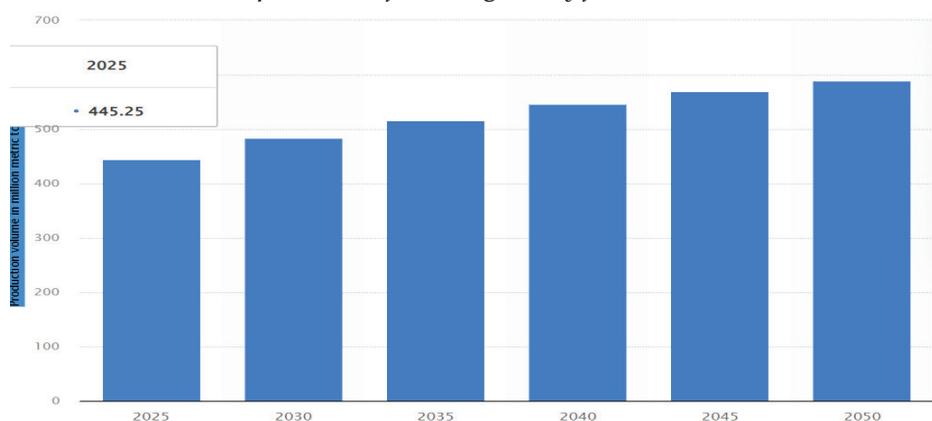


Fig.2 Source: Taken from statista.com

- 6 This is the day when the generation of plastic waste exceeds the capacity of waste management, leading to environmental pollution, available at https://plasticovershoot.earth/wp-content/uploads/2024/04/EA_POD_report_2024_summary.pdf
- 7 https://plasticovershoot.earth/wp-content/uploads/2024/04/EA_POD_report_2024_summary.pdf
- 8 Jeffrey Seay and Marry Ellen Ternes(2022) , A review of current challenges and legal advances in the global management of plastic waste Clean Technologies and Environmental Policy 24:731–738
- 9 Borrelle SB, Ringma J, Law KL, Monnahan CC, Lebretona L, McGivern L, Murphy E, Jambeck J, Leonard GH, Hilleary MA, Eriksen M, Possingham HP, De Frond H, Gerber LR, Polidoro B, Tahir A, Bernard M, Mallos N, Barnes M, Rochman CM (2020) Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution. Science 369(6510):1515–1518. <https://doi.org/10.1126/science.aba3656>
- 10 Hannah Ritche, V. S. (2023). Global Plastics Production

As far as the consumption forecasting is concerned, it is estimated and predicted that by the end of 2025, the world will consume 516 million tons of plastic¹¹. Also, it is estimated and predicted that annual plastic consumption will reach over 12 billion tons by 2060¹². But before we delve more into the debate of plastic waste pollution and the threat it is causing, we should know what plastic is. The answer is that plastics refers to a wide range of artificial substances which use polymers as a main ingredient and can be shaped when soft into many different forms¹³. Plastic can be made of range of organic polymers; however, 97% to 99% plastic is made of non-renewable hydrocarbons usually oil and natural gas. Based on their characteristics, plastic may be divided into many categories, such as low-density plastic, high-density plastic, and others. Many types of plastics are used in making the equipment, but generally, the market is occupied by thermoplastics, i.e., the polymers that can be melted and recast. Plastic is usually used in packaging products, such as food, containers, and bags. Because of its low density, it is used to make lightweight products. In contrast, high-density plastic is used to make products like milk bottles, shampoo bottles, and cream tubs, and other types of plastic are used to make water bottles and other drinks. Together, these items account for almost 36% of all the plastics used worldwide. Most of these items are used once, and others can be used for years. Some products have a life span of 5 years or more and may be up to 20 years, such as containers, electronic equipment, and building material equipment. Among all the uses, almost 50% is used in the packaging sector.

Apart from the uses cited above, plastic is also used in building construction, like plastic pipes, paints, flooring, and sealants. Besides it a significant amount of plastic is used in electric and electronic products, Last but not least, plastic is also used in health and personal care body products, according to one estimate, around 7000 Mt out of the 92000 Mt of plastic produced globally during 1950-2017, around 76% has become waste. Also, out of the total production of plastic globally to date, only 7% could have been recycled, and 12% could have been incinerated¹⁴. The remaining 79% has been disposed of in landfills or released into the environment, creating pollution, which is a matter of concern and the subject of the present study.

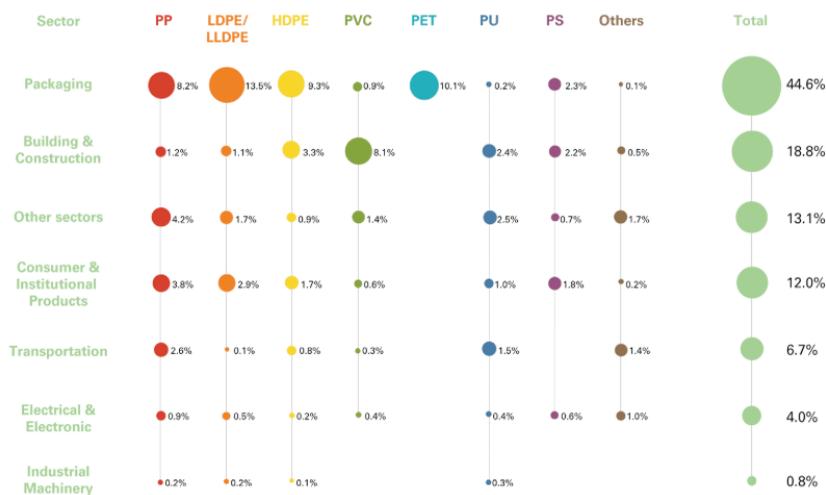
11 <https://www.worldenvironmentday.global/get-involved/key-messages>

12 <https://www.worldenvironmentday.global/get-involved/key-messages>

13 Khan, F. A. (2019). understanding consumers behaviours towards dealing with the plastic waste perspective of a devloping country. resource, conservation, recycle, 49-58.

14 Hannah Ritche, Veronika Samborska & Max Roser, global plastic production (2023)

Have a look at the graph below, which shows the estimated global polymer consumption by type and sector:



Source: Geyer et al. (2017)

PP – Polypropylene; LDPE/LLDPE – Low density polyethylene/ Linear low density polyethylene; HDPE – High density polyethylene; PVC – Polyvinyl chloride; PET – Polyethylene terephthalate; PU – Polyurethane; PS – Polystyrene.

Fig.7

The commonly used plastic is not biodegradable. As a result, if used in environmentally unsound manner, it accumulates in uncontrolled landfills or goes into the environment and, later on, slowly decomposes and forms micro-plastics, which are significantly smaller in size and maybe 5 mm in length. Every year, a large quantity of plastic enters the sea, creating pollution. Plastics used for agricultural purposes such as for mulching, greenhouses, crop cover, packaging or wrapping films, and packing materials are kind of plastic waste which are highly available¹⁵. According to research, around 11%, which comes out to 19-23 Mt, of the total waste generated globally entered the sea, and if not prevented, then it is expected that 53 Mt of the global waste may enter the sea by the end of 2030, which is horrendous¹⁶. The good news is that the problem is solvable, as approximately 80% of land-based waste, results from inefficient collection and management schemes. Many nations have taken significant steps to reduce plastic pollution, including restrictions on single use plastic bags and consequently, leading at no less than 69 countries in the world have banned use of it¹⁷. Companies are also making coordinated efforts to decrease their plastic footprint. Citizens, who are aware of the

15 Hannah Ritche, V. S. (2023). Global Plastics Production

16 Hannah Ritche, V. S. (2023). Global Plastics Production

17 Hannah Ritche, V. S. (2023). Global Plastics Production

consequences, are taking action, such as saying avoiding use of plastic straws, using water bottles which are reusable, and using reusable grocery bags. At government level multimillion-dollar initiatives are being taken to clean up rivers filled with plastic and seas and oceans filled with micro and macro plastics. However, in addition to cleaning up initiatives, there is a critical requirement to bolster capacities of countries to curb, mitigate, and adequately manage the crisis of plastic pollution. The only answer to this problem is the circular economy, i.e., reduce, reuse, and recycle. Recently, scientists have created plastic that degrades 15 times faster than paper in the sea; it will prove a breakthrough in the plastic waste management¹⁸.

II. HEALTH AND ENVIRONMENTAL IMPLICATIONS OF PLASTIC WASTE

As we all know, plastic pollution has numerous adverse impacts on the environment. Plastic pollution has been an alarming issue in the past few years¹⁹. In day-to-day life, it is believed that humans absorb micro plastics either through ingestion or inhalation. A study focused on food consumption shows that every year 39,000 to 52,000 micro plastic absorbed by an individual²⁰. These micro plastics are absorbed by the gastrointestinal tract and destroy gut microbes, and finally damage the digestive system of humans, causing inflammation in the organs²¹. Ingested microplastics often carry toxic chemicals along with it, including additives and pollutants, which can leach into the human and animal body, causing toxicity, inflammation, and long-term adverse health effects. Moreover, drinking water contaminated with microplastics poses very serious risks, specifically for communities which are directly dependent on untreated sources. Prolonged exposure to these hazards may lead to gastrointestinal disorders, destruction of immune system, and heightened cancer risks²². Their small size also enables bioaccumulation or biomagnification, as particles can build up in tissues over time, resulting into worsening health impacts. Moreover, illegal dumping and direct waste discharge into environment accelerate plastic accumulation on land. Likewise, micro plastics enter the sea and destroy the marine environment. There are various channels through

18 Khan, F. A. (2019). understanding consumers behaviours towards dealing with the plastic waste perspective of a devloping country. resource, conservation, recycle, 49-58.

19 (The Basel Convention , 1989)

20 K.D. Cox, G.A. Covernton, H.L. Davies, J.F. Dower, F. Juanes, S.E. Dudas, Human consumption of microplastics, Environ. Sci. Technol. 53 (2019) 7068–7074

10.1021/acs.est.9b01517

21 S.Y. Salim, G.G. Kaplan, K.L. Madsen, Air pollution effects on the gut microbiota: a link between exposure and inflammatory disease, GutMicrobes 5 (2014) 215–219, <https://doi.org/10.4161/gmic.27251>

22 Z. Yuan, R. Nag, E. Cummins, Human health concerns regarding micro plastics in the aquatic environment - from marine to food systems, Sci. Total Environ. 823 (2022)

which plastics reach the sea; among them, rivers carrying plastic waste are major source of plastics in the marine environment²³. One study found that approximately 8 to 10 million tons of plastics leaks into ocean every year. It includes both macro-plastics and micro-plastics and account for 80 % of whole marine pollution²⁴. The United Nations stated that plastic is a substantial environmental threat, as plastic waste often contains potentially hazardous substances or toxicity²⁵. Marine animals are also in danger because of plastic waste in the ocean, as they may be entangled in plastic waste or ingest it. Ingestion can block their digestive tracts and may cause exposure to hazardous additives contained in the plastic waste. Micro plastics causes sever harm to animals by bioaccumulation which may lead to the disruption of food chains and biodiversity loss.²⁶ According to one estimate, more than one million marine species are killed annually, which is threatening²⁷. Furthermore, plastic waste can disrupt the movement of organisms, such as turtle hatchlings. Due to their size, micro-plastics are ingested by various marine animals living beneath the water and on sea shore. This includes the organism's humans consume, e.g., fish and shellfish, and organisms that play critical ecological roles. Besides the environment, it also impacts human health in many ways; micro- and nano-plastics have already made their way to the food chain and our plates; they may be added to our seafood, salt, and water, and enter our lungs through the air we breathe²⁸. There is ample evidence that micro plastics in the form of fibers reach our lungs, and from there, due to the hydrophobic nature, these fibers can easily migrate through the bloodstream to lymph nodes, other tissues, and organs. Incineration of plastic in the open results in enhanced air pollution. Most of the time, municipal solid wastes containing 12% plastic are burned in the open without adopting the procedure, which severely pollute the atmosphere by releasing gases like dioxins, furans, mercury, and polychlorinated biphenyls which are toxic in nature. Consequently, serious health related problems such as inflammation in eyes and throat, shortness of breath, coughing, chest pain, sputum, frequent snorting,

23 Hurley, R. H. (2020). Plastic Waste in the Terrestrial Environment. *Plastic Waste Recycle*, 163-193.

24 C' ozar, A. E.-G.-L.-d.-L.-d.-P. (2014). Plastic debris in the open ocean. *Proceeding of the National Academy of Sciences of U.S.A.*, 10239-10244.

25 Hurley, R. H. (2020). Plastic Waste in the Terrestrial Environment. *Plastic Waste Recycle*, 163-193.

26 Mukesh Kumar, Veena Chaudhary, Ravi Kumar, Vidisha Chaudhary, Arun Lal Srivastav, Microplastics, their effects on ecosystems, and general strategies for mitigation of microplastics: A review of recent developments, challenges, and future prospects, *Environmental Pollution and Management*, Volume 2, 2025, Pages 87-105, <https://doi.org/10.1016/j.epm.2025.03.001>. (<https://www.sciencedirect.com/science/article/pii/S2950305125000063>)

27 C' ozar, A. E.-G.-L.-d.-L.-d.-P. (2014). Plastic debris in the open ocean. *Proceeding of the National Academy of Sciences of U.S.A.*, 10239-10244.

28 Enyoh, C. V. (2019). Airborne microplastics: A review study on method for analysis, occurrence, movement and risks. *Environment Monitoring and Assessment*, 668.

asthma, persistent bronchitis, pneumothorax, and cancers of the lungs²⁹. Our body also absorbs it through our skin; thus, it enters our body and accumulates in our organs and have even been detected in the bloodstream, placenta, and breast milk, raising serious concerns for human health. There is also evidence that floating plastics transport pharmaceuticals, other bioactive chemicals, endocrine-disrupting waste, and pathogenic bacteria to coastal areas, with known impacts on ecosystems and human health.

III. LITERATURE REVIEW

The author has considered the scholarly work of prominent scholars like Raubenheimer and McIlgorm, who wrote treatises in 2020 where they analyzed the role of post-China's 2018 National Sword policy³⁰, which puts a ban on the import of certain kinds of waste into the country. They found that Basel's 2019 amendments enabled these countries to reject contaminated shipments, reducing environmental burdens and pressuring exporters to enhance domestic recycling. Again, the work of Geyer et al. 2017 and Khan et al. 2022 critiqued the trade-centric focus, arguing that the amendment fails to address plastic production or consumption, which is identified as the root cause of 79% of waste from single-use plastics. As a major waste generator, the U.S.'s non-ratification further undermines global efficacy³¹. Bishop estimated that 1.5 million tons of U.S. plastic waste entered trade networks in 2022 via intermediaries, exposing loopholes that warrant further investigation. Hahladakis et al. (2018) explored the variability in plastic composition, e.g., PVC's chlorine content vs. polyethylene's recyclability, noting that inconsistent hazard criteria across jurisdictions complicate implementation. This calls for standardized testing protocols, a gap yet to be filled. Policy analyses, such as those by Dauvergne (2018), critique Basel's downstream approach, advocating for integration with upstream frameworks like the UN Plastics Treaty, which is under negotiation as of 2025. The interplay between Basel and such emerging instruments remains a nascent research area. Socioeconomic dimensions also merit attention. Informal waste economies in countries like India and Nigeria, which process significant plastic waste volumes, face disruption under Basel's regulations. Li and Wang (2023) found that while formalization improves environmental outcomes, it threatens livelihoods

29 P.G.C. Nayanathara Thathsarani Pilapitiya, A. S. (2024). the world of plastic waste: a review. *Cleaner Material*, 1-23

30 Chinho Lin, Parinyakorn Paengsri, Yiwen Yang, Impact of China's National Sword Policy on waste import:A difference-in-differences approach, *Economic Analysis and Policy*, Volume 78, 2023, Pages 887-903, <https://doi.org/10.1016/j.eap.2023.04.033>. (<https://www.sciencedirect.com/science/article/pii/S0313592623000826>)

31 <https://www.state.gov/key-topics-office-of-environmental-quality-and-transboundary-issues/basel-convention-on-hazardous-wastes/#:~:text=The%20U.S.%20Senate%20provided%20its,implement%20all%20of%20its%20provisions.>

a trade-off underexplored in the literature. The literature underscores the Basel Convention's dual role in plastic waste management as a reactive and proactive tool. It has curbed exploitative trade practices and fostered accountability, as evidenced by export reductions and improved waste rejection capacity in developing nations. However, its focus on movement rather than prevention, enforcement gaps, and dependence on national capacity limit its scope. Key research gaps include developing scientific standards for plastic classifications, modeling illegal trade dynamics, assessing socioeconomic impacts in informal sectors, and exploring interactions with broader plastic governance frameworks. Addressing these will require interdisciplinary approaches spanning chemistry, environmental modeling, and policy analysis.

IV. THE INTERNATIONAL REGIME ADDRESSING PLASTIC POLLUTION

A jumble of enforceable treaties, informal legislation tools, and regional frameworks make up the global legal structure for tackling plastic pollution. It has developed to meet the rising issue of plastic waste, especially in maritime ecosystems. Below is a discussion of a few of them.

A. London Convention 1972 and Protocol 1996³²

This convention regulates the dumping of waste into the sea, including plastic waste, and thus prohibits deliberate disposals from ships; however, it only prevents dumping from ships only and does not have any role in preventing land-based sources waste and thus is not very effective as study suggests that 80 percent of waste that is dumped into the marine ecosystem have land based origin. However, the protocol attached to this convention is stricter in the sense that it has adopted a precautionary approach and attempted to modernize it, and eventually replaced it. The good thing is that it prohibits strictly all kinds of dumping into the sea, apart from the tolerable waste on the “reverse list”³³

A. The International Convention for the Prevention of Pollution from Ships (MARPOL, 1973)

Pollution cause into the sea and ocean also occurs through routine ship operations as well as accidental discharges is majorly covered by the International Convention for the Prevention of Pollution from Ships

32 <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx>

33 <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx>

(hereinafter MARPOL).³⁴ It was adopted on 2 Nov, 1973 at IMO. It bans the disposal of waste into the sea, including plastic waste and is a step towards banning plastic waste litter into the sea. However, like the London convention, it is also not very effective as it only prevents ship-based waste or waste generated over the ship and does not ban land-based waste or plastic entering the sea. A protocol was adopted in 1978, and this has absorbed the parent conventions. The convention could not have been adopted so far³⁵. This convention was further amended in 1997 and so on, and the good thing is that it has included annexures which specifically prohibit the discharge of harmful substances into the sea.

B. United Nations Convention on the Law of the Sea (UNCLOS, 1982)

In 1982, UNCLOS was adopted, but it became effective only in 1994, and unfortunately, it does not directly deal with plastic pollution, but indirectly it puts restrictions on the states and obligates the states to safeguard the marine ecosystem and prevent pollution from sources which are land based, which includes plastic pollution as well³⁶. Actually, the UNCLOS was adopted to avoid conflicts and clashes between and among nations regarding sovereignty over the sea. Its basic role is to divide the sea into different maritime powers or coastal states, but indirectly, there are various provisions in it which can be interpreted to deal with the prevention of waste into the sea, specifically plastic waste dumping into the sea through the ships. This can better be understood by taking into consideration and analyzing those provisions. One of the provisions of the UNCLOS imposes general obligations upon all the signatory states to safeguard and preserve the marine ecosystem.³⁷ Now this has been interpreted by jurists and courts as establishing a broad duty for States to safeguard marine ecosystems from all forms of degradation, including plastic pollution. Because Plastic waste constitutes 85% of marine litter and contributes 8-12 MT annually to oceans, it is recognized as a significant risk to marine ecosystem and biodiversity, falling under this obligation.³⁸ Likewise, another provision states that “States have the sovereign right to utilize their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment”³⁹. It has been interpreted that although every nation has

34 <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx>

35 <https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx>

36 Article 192 to 194 UNCLOS, 1982

37 *Id.*

38 *id*

39 *Id* Article 193,

right to exploit natural resources, however, it should be kept in mind that while doing so their activities do not result in the disposal of plastic waste into the sea, and thus, they should control their plastic pollution and waste management.⁴⁰ Likewise, provisions like Art. 194,197, and 235 say the same thing.⁴¹ In May 2024, the International Tribunal for the Law of the Sea (ITLOS), at the request of the Commission of Small Island States, an advisory opinion was issued confirming that human-induced greenhouse gas emissions fall within the definition of marine pollution under UNCLOS, reinforcing the Convention's broad interpretation. This precedent supports applying UNCLOS to plastic pollution, as plastics similarly harm marine ecosystems.⁴²

V. THE BASEL CONVENTION AND ITS ROLE IN THE ELIMINATION OF PLASTIC POLLUTION

In the late 1980s, increasingly strict environmental regulatory regimes and waste disposal costs skyrocketed, leading industrialized nations to find ways to discharge toxic waste. "Toxic Traders" in industrialized countries are searching for ways to reduce costs. Finally, waste traders started exporting hazardous waste to developing nations particularly in African, Eastern part of Europe, and other regions at very low cost. It was only in 1980, when an accident happened while offloading the "toxic ships" Katrin B and Pelicano, the issue of cross border dumping of hazardous waste come into picture. This triggered the negotiation to bring an international law to deal with the problem of toxic waste⁴³. These incidents highlight the practice of dumping hazardous waste by developed countries in developing countries who has no capacity to dispose-off the waste without causing environmental harm.⁴⁴ The 'throwaway lifestyle' of plastic waste has far-reaching adverse effects, primarily causing physical and toxicological damage to the environment. Following that, legal action was launched to tackle the national and international problems. The initial policies were ineffective and intended to manage and reduce hazardous waste. Finally, on 22 March 1989, the negotiations by the Conference of Plenipotentiaries led to adopting the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal in Basel, Switzerland, and in 1992 it came into force. It is one the most panoptic instrument which deals with hazardous waste having 188 parties as of 2020 worldwide. However, in the beginning

40 Id.

41 UNCLOS, 1982

42 Available at https://www.itlos.org/fileadmin/itlos/documents/cases/31/Advisory_Opinion/C31_Adv_Op_21.05.2024_orig.pdf

43 Wynne, B. (1989).The Toxic Waste Trade: International Regulatory Issues and Options, . Third World Quarterly, 120-146.

44 Wynne, B. (1989). The Toxic Waste Trade: International Regulatory Issues and Options, . Third World Quarterly, 120-146

its main aim was to tackle the “toxic trade,” and plastic waste management was not on the priority list. Subsequently, its core objectives become “to protect, by strict control, human health and the environment against the negative effects which may result from the generation and management of hazardous wastes and other toxic wastes”⁴⁵. Additionally, it limits the transboundary transportation of hazardous wastes unless it aligns with sustainable management norms. However, from the beginning, parties to the convention developed some methods and techniques to implement it by formulating guidelines, rulebooks, and manuals with practical experiences of experts to prevent and minimize waste, as well as developing strategies for properly disposing of and recycling⁴⁶. Encouraged by these steps by member states, the Secretariat of the Basel Convention created 22 centers worldwide to assist parties with technical support and capacity building in handling waste management, such as waste streams in the form of end-of-life mobile phones, electronics waste, and plastic waste⁴⁷.

As said earlier, plastic was not covered directly under the Basel Convention, but it has prompted lawmakers worldwide to include it because of its toxicity. At its third session in December 2017, UNEA received a joint proposal for a legally binding global treaty on plastic pollution.

In response to emerging global worry and increasing public awareness about hazard of plastic debris, the Basel Convention was finally amended based on Norway’s proposal in June 2018 to address emerging plastic waste disaster. Moreover, in order to take expert opinion, the An Ad-Hoc open-ended expert group (AHOEEG) was established. Furthermore, with an objective of forming a legally binding treaty by 2024, an Intergovernmental Negotiating Committee (INC) was formed to tackle plastic hazard. Following are the key important features:

- all parties are required to deal with hazardous wastes in environmentally responsible way, e.g., to take all possible measures ensuring that wastes are handled in a way that prevents the adverse effects of such waste from occurring⁴⁸.
- As a result of the Basel Convention, more detail and guidance are now available regarding hazardous waste and other waste management, as well as a series of scientific guidelines on how to manage waste

45 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention), U.N.T.S. vol. 1673, p. 57, Preambular para. 24

46 For further information see the Basel convention available at <http://www.basel.int/Implementation/Plasticwaste/PlasticWastePartnership/tabid/8096/Default.aspx> on

47 For further information see the Basel convention available at <http://www.basel.int/Implementation/Plasticwaste/PlasticWastePartnership/tabid/8096/Default.aspx> on

48 The Basel Convention, 1989 available at <http://www.basel.int/Implementation/Plasticwaste/PlasticWastePartnership/tabid/8096/Default.aspx> on

streams, including plastic waste, that have been adopted by the Conference of the Parties⁴⁹.

- Though not legally binding, the technical guidelines provide countries with a logical basis for operating at environmental standards no less stringent than those provided by the Basel Convention.
- Further, these wastes must be listed in Annex I and have minimum one of the characteristics mentioned in Annex III. Whether or not a waste is covered in this category is clarified via Annex VIII and Annex IX⁵⁰.
- Further, such wastes that are defined as hazardous wastes by the municipal law of any member country will be covered under the convention such as plastic garbage collected from houses. These categories of waste are listed in annexure II⁵¹.
- Last but not the least the convention mandates each party to take the essential actions in order to make sure that the plastic waste generation reduced to a minimum while keeping in mind the social, economic, and technological aspects⁵².

Apart from these, the convention has taken forward many initiatives which are significant in plastic waste hazard management. Some of key initiatives or outcomes of the conventions are following:

A. The Conference of the Parties (COP)

The COP was created in the Basel Convention to work as a governing body⁵³. It consists of the representatives of parties and organizations who have accepted the obligations of the conventions. COP decisions and guidance ultimately aimed at the Convention's implementation. It regularly reviews and examines the implementation, while attempting to achieve harmonized policies, strategies, and measures to minimize the harms from hazardous wastes. Moreover, COP also contemplate and adopts amendments to the Convention, its Annexes, and protocols whenever required. Additionally, whenever it deems necessary, it forms subsidiary bodies, adopts programs of work and budgets, and take on additional actions in order to achieve the goals of the convention.

In 2019, the COP and the UNEA, at 14th meet, expressed momentous concern over rising marine plastic pollution at its fourth session, focusing on macro-plastics and microplastics both, which irreversibly harm

49 Governing Body of the Basel Convention, 1989

50 The Basel Convention, 1989

51 The Basel Convention, 1989

52 the Basel convention, 1989

53 Art. 15, The Basel Convention, 1989

biodiversity, ecosystems, concerned societies, livelihoods based on fisheries, transport, tourism, recreation, and economies. The COP highlighted the Basel Convention's key role in tackling marine plastic litter by averting plastic waste from reaching the oceans through any channel.

In a notable step, the COP adopted amendments to Annexes II, VIII, and IX—known as the Plastic Waste Amendments—establishing the Basel Convention as the sole legally binding treaty on plastic waste directly aimed at the global concern of plastic waste. Additionally, COP adopted two significant decisions to increase scale of prevention and minimization, that is, the 2011 Cartagena Declaration on preventing, reducing, and recovering hazardous waste. Through this declaration the parties made commitments for promoting efficient waste prevention and minimization strategies, decoupling economic growth from adverse environmental consequences, and encouraging regional as well as global efforts to improve access to environmentally friendly production methods via capacity building and technology transfer among the parties. Apart from these remarkable steps, subsidiary bodies such as the OEWG were created to assist the COP.

B. The Open-ended Working Group (OEWG)

The OEWG was established by the COP as a subsidiary body of the Basel Convention during its sixth meeting.⁵⁴ Its role is to assist the COP in formulating and regularly reviewing the work plan of the Convention, policies which are in operation, and adopted decisions⁵⁵. Further it advises the COP on policy, legal, technical, institutional, scientific, financial, administrative, and budgetary matters which are related to implementation, and also prepares its work plan for the approval ^{from COP}⁵⁶. The OEWG reports its works directly to the COP.

In 2002, a compliance committee was established to oversee the implementation of the Basel Convention. Its prominent purpose is to help Parties meet their mandates, while ensuring effective implementation and compliance by the Parties. The Committee undertakes a dual mandate: first is to review submissions under its terms of reference, identify relevant facts and their root causes, and assist in resolving the issues; and second, is to examine broader compliance and implementation matters under the Convention obligations.

In addition, several environmental governance initiatives at global and national level have been introduced to tackle plastic waste management,

54 Decision BC-6/36, the COP

55 [https://www.basel.int/TheConvention/OpenendedWorkingGroup\(OEWG\)/OverviewandMandate/tabid/2295/Default.aspx](https://www.basel.int/TheConvention/OpenendedWorkingGroup(OEWG)/OverviewandMandate/tabid/2295/Default.aspx)

56 [https://www.basel.int/TheConvention/OpenendedWorkingGroup\(OEWG\)/OverviewandMandate/tabid/2295/Default.aspx](https://www.basel.int/TheConvention/OpenendedWorkingGroup(OEWG)/OverviewandMandate/tabid/2295/Default.aspx)

specifically tackling marine plastic litter and microplastics, while offering expertise and guidance to Parties and organizations. The subsequent section highlights some of these key initiatives⁵⁷.

C. Plastic waste amendment

The 2019 Plastic Waste Amendments⁵⁸ marked a pivotal shift, bringing most plastic waste under Basel's regulatory scope. This expansion was driven by scientific evidence of plastic's ecological harm, microplastic proliferation, toxic leachates, and marine pollution, necessitating international action. The amendments' inclusion of non-hazardous plastics in Annex II and hazardous plastics in Annex VIII reflected a growing recognition of plastic's complex risk profile. Several studies have quantified global plastic waste mismanagement at 8 million tons annually entering oceans. The amendments aim to distinguish between plastic waste that can be safely recycled and poses environmental or health risks, ensuring better tracking and management. Further, it is stipulated by the Basel Convention that cross-border transfers of plastic waste are subject to the Prior Informed Consent (PIC) procedure.

D. Ban Amendment 1995,

The Ban Amendment, adopted in 1995 under the Basel Convention, while not specific focused on plastic waste, bars the export of hazardous wastes, including some plastic waste under Annex VIII, from OECD countries to non-OECD countries. This indirectly affects plastic waste management by limiting where contaminated or hazardous plastic waste can be sent. It was introduced to address the issues related to environmental justice, particularly the practice of wealthier nations exporting hazardous wastes to less developed countries with weaker environmental regulations and waste management capacities. It prohibits the export from countries listed in Annex VII and other developed nations to developing nations. By preventing hazardous plastic waste exports, the amendment reduces environmental leakage in developing countries, where mismanaged waste often enters rivers and oceans, contributing to the estimated 19-23 million tons of plastic waste in aquatic ecosystems annually. It supports the Plastic Waste Partnership (PWP)'s goals of environmentally sound management and aligns with BAN's advocacy to curb illegal waste dumping. The 1995 Basel Ban Amendment, effective since December 5, 2019, is a pivotal component of the international legal regime for plastic waste management,

57 [https://www.basel.int/TheConvention/OpenedWorkingGroup\(OEWG\)/OverviewandMandate/tabid/2295/Default.aspx](https://www.basel.int/TheConvention/OpenedWorkingGroup(OEWG)/OverviewandMandate/tabid/2295/Default.aspx)

58 See the Basel convention website available at <http://www.basel.int/Implementation/Plasticwaste/PlasticWasteAmendments/Overview/tabid/8426/Default.aspx>

prohibiting hazardous waste exports (including certain plastic wastes) from OECD, EU, and Liechtenstein to non-OECD countries. It addresses environmental justice by preventing toxic dumping, supports the Plastic Waste Partnership's ESM goals, and informs the Global Plastics Treaty negotiations. However, its impact is limited by non-ratification by key countries, exclusion of non-hazardous plastics, and enforcement challenges. The Basel Action Network's advocacy and the amendment's integration with UNEP initiatives like the PWP and GPML underscore its role in reducing plastic pollution, particularly in vulnerable regions. As the INC process nears its 2025 deadline, the amendment's principles could shape a more comprehensive global framework

E. The Plastic Waste Partnership,

In 2019, the Basel Convention launched the Plastic Waste Partnership (PWP) in order to mobilize governments, businesses, and civil society to minimize the generation of plastic waste, improve collection, recycling, and disposal practices, and prevent illegal trafficking of plastic waste. The countries which are exporting must notify the country which are importing and transit countries in advance. Also, the importing and transit countries must provide written consent before the shipment can proceed. This mechanism ensures that countries receiving plastic waste are aware of and agree to dispose in a manner which is environmentally sound. The convention mandates that all plastic waste, whether hazardous or non-hazardous, must be disposed in a manner which is ecologically sound. This includes preventing pollution during disposal or recycling, ensuring facilities handling plastic waste meet technical guidelines. Moreover, the technical guidelines have been formulated and updated to increase the implementation by the countries.

The PWP supports pilot projects and capacity-building efforts, particularly in developing countries. It serves as a platform which brings together governments, industries, international bodies, and NGOs, with the aim of stopping plastic waste outpouring into the environment. The Partnership gather together its diverse stakeholders and prepare them to address plastic pollution by promoting strategies to strengthen their domestic laws and policies. It attempts to provide assistance in developing better systems for collection of waste which may include plastic, separation, and management, and facilitates innovations that improve the recyclability of plastics, durability, reparability, and reusability.

It also provides a common and collaborative space for sharing experiences, best practices, and environmentally friendly technologies. Its distinctiveness lies in its large participation of parties, its lining up with the Basel Convention's objectives, and its access to decision-makers who

are representatives of all 188 Parties. One of significant outcomes of the partnership are expected to aware COP deliberations and influence future work plans on plastic waste under the Basel Convention.

The first round of applications in 2020 saw 23 projects from 22 countries being selected for implementation. These pilot projects will operationalize the work of the Partnership on the ground and are expected to be replicated in other countries and regions. The Partnership is organized into a working group and four project groups addressing different thematic issues. Two groups work along the waste management hierarchy that is preventing, reducing, recycling, and recovering plastic waste. Another group assists the implementation of the Plastic Waste Amendments, while a fourth focuses on education, outreach, and awareness, developing strategies to guide the Partnership's communication.

F. Global Partnership on Marine Litter (GPML)

The GPML is an initiative of multi-stakeholder uniting actors engaged in preventing plastic and marine pollution caused by plastic. It emerged at the Rio+20 Conference on Sustainable Development in June 2012, as a response to the “Manila Declaration on Furthering the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities” (now referred to as the Source-to-Sea Pollution Free Unit). A Steering Committee oversees the collaboration, and the UNEP serves as the secretariat⁵⁹. It thus provides a platform for all the stakeholders to join hands in the fight against preventing plastic pollution of the ocean and river, and waste dissemination to make the world free from plastic⁶⁰. The platform provides an opportunity for all to coordinate and share ideas, knowledge, and experiences to devise a strategy to tackle the problem of marine pollution⁶¹. It stimulates the stakeholders to maintain momentum by spreading awareness against plastic pollution and marine litter. It also helps the stakeholders identify the emerging issues, gaps, finding out expertise, resources, and technologies in this field. GPML broader objective is to implement the 3R principle, that is, reduction, reuse, and recycling. Further it aims to encourage circular production, maximise resource cost-effectiveness, minimise the generation of plastic waste, prevent and reduce plastic losses, and disposal and accidental leakage into the oceans⁶². In this way, the commitment undertaken by the world community in the form of sustainable development goals, SDG 14.1, which aims at eliminating the marine pollution would be fulfilled. GPML helps international efforts to prevent and decrease marine litter and plastic pollution, particularly micro

59 Available at <https://globalplasticshub.org/page/who-we-are>

60 Available at <https://globalplasticshub.org/page/who-we-are>

61 Available at <https://globalplasticshub.org/page/who-we-are>

62 Available at <https://globalplasticshub.org/page/who-we-are>

plastics. It also supports enforcing the necessary institutional, legal, and regulatory arrangements. The GPML has developed an action plan in the form of five action tracks by identifying priority areas of work, connecting all stakeholders, and facilitating them to achieve better coordination and collaboration among them. These key priorities are science and policy linkages and an action plan to prevent marine pollution caused by plastic and marine litter.

I. An Emerging Global Plastic Treaty

In 2022, the UN General Assembly, through Resolution 5/14⁶³, launched negotiations for a legally binding treaty to address plastic pollution. The resolution established an Intergovernmental Negotiating Committee (INC) to draft the instrument. The primary objective of this treaty was to cover the entire life cycle of plastics, that is, from production and design to disposal, while specifically addressing marine plastic pollution.⁶⁴ The INC started its work immediately and it convened its first meeting along with all the stakeholders with the aim to finish it by 2024. Unfortunately, despite prompt action taken by INC and the many sessions that have been convened, the treaty in the form of global acceptance could not have been realized to date⁶⁵. INC is still finding the possibilities of giving this treaty a reality and has convened the fifth session recently in Busan, Republic of Korea, from 25th November to 1st December 2024⁶⁶. The fifth session's second part is scheduled to take place in August this year, that is, 2025⁶⁷. Once passed, it would be the first legally binding treaty, and the beauty of this treaty would be that it takes into account the plastic's lifecycle, i.e., from its design, production, use, to its disposal. The treaty also covers micro-plastics.

II. Limitations and Challenges

- Despite its strengths, the Basel Convention faces significant limitations in effectively managing plastic waste. Firstly, its scope is restricted to transboundary movements and does not address the whole plastic's lifecycle. This gap limits its potential to address the root causes of plastic pollution, such as overproduction and inadequate waste management systems within countries. Critics argue that while the Convention regulates trade, it does not mandate reductions in plastic production, a critical factor given the exponential growth of plastic waste.

63 Available at <https://www.unep.org/inc-plastic-pollution>

64 Available at <https://www.unep.org/inc-plastic-pollution>

65 Available at <https://www.unep.org/inc-plastic-pollution>

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67 Available at <https://www.unep.org/inc-plastic-pollution>

- Secondly, enforcement remains a persistent challenge. The Convention relies heavily on national implementation, yet disparities in regulatory capacity, standards, and resources among parties undermine its efficacy. For instance, customs authorities in many countries lack the personnel and technology to monitor and intercept illegal shipments, as evidenced by cases of mislabelled or mixed waste bypassing controls. The United States, a prominent plastic waste exporter producing over 42 million metric tons annually, has not ratified the Convention, creating a significant loophole. Although exports from non-parties like the U.S. to Convention parties are prohibited unless under specific agreements, enforcement against such shipments remains inconsistent.
- Thirdly, the technical guidelines for ESM of plastic waste, while under revision as of 2023, lack clarity on acceptable contamination thresholds and recycling standards. This ambiguity complicates compliance and allows for varying interpretations among parties, reducing the effectiveness of the amendments. The reliance on individual states to define and enforce ESM further exacerbates inconsistencies, particularly in regions with underdeveloped waste management infrastructure

III. Conclusion and Recommendations

Despite several measure both at national and international levels, plastic waste remains a severe environmental challenge. Sustainable solutions must address the uncertainties in industries, the disproportionate burden on marginalized communities who are being directly affected, and the limited and least recognition of the informal recycling sector. In order to build a truly circular plastics economy the coordinated actions across governance, industry, and society is required. The following recommendations are proposed which attempts to outline the pathways for advancing a circular plastics economy:

- There is a need to strengthen the compliance mechanism wholeheartedly by the state parties
- Strong Institutional framework should be established to monitor adherence regarding manufacturing and using banned or restricted plastic items.
- Changes in design are required to reduce the amount of plastic used for fresh goods, either by using different, environmentally friendly substances or by decreasing the overall dimensions of the products.
- Development of recyclable and cost-effective plastics is indispensable to replace non-recyclable alternatives and expand their acceptance in the market.

- Market-oriented tools such as incentives, subsidies, or grants/loans can help businesses prevent, reduce, and recycle plastic waste.
- To achieve a circular plastics economy, fundamental shifts must begin with product design, followed by a change in thinking from single-use consumption toward reuse, supported by stronger recycling systems.
- Governments, NGOs, the private sector, businesses, local authorities, and schools must work together to promote a circular economy and achieve zero plastic waste by 2030
- Achieving zero plastic waste by 2030 requires a strong coordinated action from governments, NGOs, the private sector, local authorities, businesses, educational institutions and individuals to promote a circular economy and establish a sustainable plastic waste management system.

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