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A FRAYING PATCHWORK QUILT: INTERNATIONAL LAW AND PLASTIC POLLUTION

DR. GERRY NAGTZAAM*

I. INTRODUCTION

In a post-World War II world, mass production of plastic – both durable and disposable – steadily increased to meet the ever-growing consumption needs of a burgeoning global populace.¹ These plastics were marketed as miracle products: lightweight, cheap, and available in a myriad of forms for countless uses.² By the dawn of the Twenty-First Century, plastics had become ubiquitous globally.

Acceptance of plastic as a product has come with a price that is also being paid outside of nation-state borders. Plastic pollution has become omnipresent in that, as scientists have noted, “‘plastic is literally everywhere,’” from the atmosphere to the Mariana Trench.³ Plastics clog our waterways, foul the land, and are even in micro-form in the air we breathe.

The majority of the regulatory action regarding plastic pollution at the international level to date has focused primarily on the marine environment on the high seas, but the issue of whether plastic should be considered a “hazardous waste” under the Basel

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1. Richard C. Thompson, Shanna H. Swan, Charles J. Moore & Frederick S. vom Saal, *Our Plastic Age*, 364 PHIL. TRANSACTIONS OF ROYAL SOC'Y 1973, 1974 (2009) (discussing term “plastics” and describing historical impetus for development of plastic). Plastics are synthetic polymers that are produced via certain chemical processes – the polymerization of monomers – mainly from fossil fuels with the addition of various chemical components to produce desired qualities of the final material. *Id.* (defining plastics). The first form of plastic material, Bakelite, was created by Belgian chemist Leo Baekeland in 1907. Daniel Crespy, Marianne Bozonnet & Martin Meier, *100 Years of Bakelite, The Material of a 1000 Uses*, 47 ANGEWANDTE CHEMIE INT'L ED., 3322, 3322-28 (2008) (discussing history of plastic).

2. *Plastics Applications*, BRITISH PLASTICS FED'N, <https://www.bpf.co.uk/plasticpedia/applications/Default.aspx> (last visited Feb. 6, 2023) (highlighting ubiquity of plastic). Plastic is part of virtually every aspect of our lives and economies. *See id.* (noting broad range of applications of plastic). Examples of sectors that utilize plastic include: packaging; construction; electric and electronic applications; toys and leisure; energy generation, transport, furniture, and medical applications. *Id.* (stating sectors utilizing plastics).

3. Joanna Khan, *Plastic Pollution: Can the Ocean Really Be Cleaned Up?*, GUARDIAN (Mar. 21, 2019, 1:00 PM), <https://www.theguardian.com/environment/2019/mar/22/plastic-pollution-can-the-ocean-really-be-cleaned-up> (observing pervasiveness of plastics in environment).

Convention on Hazardous Waste (1992)⁴ and its treatment as a persistent organic pollutant (POP) under the Stockholm Convention on Persistent Organic Pollutants (2004)⁵ has recently become one of concern for the global community.

Problematically, the legal and regulatory responses to the issue globally are still in their infancy.⁶ As Giulia Carlini and Konstantin Kleine observe, compared to “other fields of environmental regulations, what is particularly notable is the complete lack of binding targets for plastic pollution reduction and compulsory timelines” at the global level.⁷ Global governance of plastic as currently configured “is fragmented across [national and local] jurisdictions, sectors, and product lines,”⁸ and “[t]here is little policy coordination across states, with international institutions functioning as little more than dialogue forums.”⁹ Thus, the issue of plastic and its concomitant pollution currently exists under a patchwork quilt of different treaties and laws which address parts of the issue but not the whole problem.

Regarding marine plastic pollution, we can observe that there are a variety of mechanisms by which plastic enters high seas marine ecosystems, including terrestrial runoff, atmospheric transport, and rivers that connect aquatic and marine ecosystems.¹⁰ Consequently, plastic is located in all oceans, including coastlines,

4. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Mar. 22, 1989, 1673 U.N.T.S. 57 (striving to protect human health and environment against adverse effects of hazardous waste).

5. Stockholm Convention on Persistent Organic Pollutants, May 22, 2001, 2256 U.N.T.S. 119 (aiming to eliminate or restrict production and use of persistent organic pollutants).

6. See Kristian Syberg, Maria Bille Nielsen, Lauge Peter Westergaard Clausen, Geert van Calster, Annemarie van Wezel, Chelsea Rochman, Albert A Koelsmans, Richard Cronin, Sabine Pahl & Steffen Foss Hansen, *Regulation of Plastic From a Circular Economy Perspective*, 29 SCI. DIRECT 1, 7 (June 2021) (discussing importance of moving towards circular plastic economy). For example, the first national regulatory approach was implemented in Denmark during the 1990s via a plastic bag levy. *Id.* at 1-2, 7 (averring primacy of worldwide plastics policies).

7. Giulia Carlini & Konstantin Kleine, *Advancing the International Regulation of Plastic Pollution Beyond the United Nations Environment Assembly Resolution on Marine Litter and Microplastics*, 27 REV. EUR. COMPAR. & INT'L ENV'T L. 234, 244 (2018) (addressing need for global plastics regulation).

8. Peter Dauvergne, *Why is the Global Governance of Plastic Failing the Oceans?*, 51 GLOB. ENV'T CHANGE 22, 31 (2018) (maintaining lack of global coordination).

9. *Id.* (noting differences between states worldwide).

10. Frederic M. Windsor, Isabelle Durance, Alice A. Horton, Richard C. Thompson & Charles R. Tyler, *A Catchment-Scale Perspective of Plastic Pollution*, 25 GLOB. CHANGE BIOLOGY 1207, 1210 (2019) (declaring mechanism by which plastics enter ecosystems).

sea ice, the sea surface, and the deep-sea floor.¹¹ In 2010, experts estimated between 4.8 and 12.7 million tons of plastic waste found its way into the ocean; experts predict this number could increase by a factor of ten by 2025.¹² In the oceans, macroplastic is currently the most visible manifestation of the problem with photos of “plastic islands” of waste in the Pacific Ocean appearing regularly in the media.¹³

The Sustainable Development Goal 14 of the UN’s 2030 Agenda for Sustainable Development similarly seeks to stimulate state action around conservation and “sustainabl[e] use [of] the oceans, seas[,] and marine resources”¹⁴ By 2025, Target 14.1 of the Sustainable Development Goals seeks to prevent and significantly reduce marine pollution¹⁵ of all kinds, especially from land-based activities, including marine debris and nutrient pollution, and in other ocean-related goals.¹⁶ On December 23, 2015, the United Nations General Assembly adopted Resolution 70/235 on “[o]ceans and the law of the sea,” in which it introduced the First Global Integrated Marine Assessment and approved its summary.¹⁷ The findings of the assessment indicate that the oceans’ carrying capacity is near or at their limits. Accordingly, the report indicated that urgent action on a global scale is needed to protect the world’s oceans from the many pressures they face.¹⁸ In particular, the assessment highlighted the dangers marine plastic debris poses, stressing the importance of further research on the effects of

11. R. Jambeck, R. Geyer, C. Wilcox, T.R. Siegler, M. Perryman, A. Andrady, R. Narayan & K.L. Law, *Plastic Waste Inputs from Land into the Ocean*, 347 *Sci.* 768, 771 (Feb. 13, 2015) (discussing ubiquity of plastics in ecosystem).

12. *Id.* at 770 (stating high volume of plastics in ocean).

13. *The Great Pacific Garbage Patch*, THE OCEAN CLEANUP, <https://www.theoceancleanup.com/great-pacific-garbage-patch/> (last visited Oct. 28, 2022) (depicting prevalence of ocean plastic waste).

14. *See* G.A. Res. 70/1, Transforming Our World: The 2030 Agenda for Sustainable Development (Sept. 25, 2015) 14 (stating goal).

15. Joanna Vince & Britta D. Hardesty, *Governance Solutions to the Tragedy of the Commons That Marine Plastics Have Become*, 5 *SEC. MARINE POLLUTION* 3, 8 (2018) (stating Target 14.1). The UN defines marine litter as “any persistent, manufactured[,] or processed solid material discarded, disposed of[,] or abandoned in the marine coastal environment.” *Id.* (defining marine litter).

16. United Nations Environment Programme, Proceedings of the United Nations Environment Assembly at Nairobi, United Nations Environment Assembly, Second Session, UNEP/EA.2/19 (Nairobi, 23-27 May 2016) 85 (expressing particular marine pollution).

17. *See* G.A. Res. A/70/112 (July 22, 2015) 1 (1, 60) [hereinafter WOA I] (introducing First Global Integrated Marine Assessment).

18. *See id.* ¶ 33 (averring findings of assessment).

microplastics and nanoplastics, which many view as the new emerging threat to the health of marine ecosystems.¹⁹

This paper begins in Part II by critically examining the current global law and responses to the issues of marine and international transboundary plastic pollution, specifically asking whether the current “ramshackle” structure can effectively address the issue. At present, there is no single legally binding international instrument that addresses marine plastic pollution; rather, a combination of other instruments addresses this pollution. These instruments include the following:

- The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the “London Convention”), which targets pollution from vessels only;²⁰
- The International Convention for the Prevention of Pollution from Ships (MARPOL),²¹ which regulates all types of pollution from vessels and applies to fixed and floating drilling rigs when in operation;²² and
- The United Nations Convention on the Law of the Sea (UNCLOS),²³ which acknowledges that plastic pollution could fall under either article 194 or 207, although both provisions are very limited in their application.²⁴

19. *Id.* ¶¶ 135-37 (expounding dangers of marine plastics).

20. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Aug. 30, 1975, 1046 U.N.T.S. 120 [hereinafter London Convention] (controlling sea pollution by dumping).

21. International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 1340 U.N.T.S. 184 [hereinafter MARPOL] (seeking to prevent pollution of marine environment by ships from operational or accidental causes).

22. *Id.* at Annex 1, reg. 21 (highlighting marine pollution from ships).

23. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 3 [hereinafter UNCLOS] (establishing legal framework for all marine and maritime activities).

24. *Id.* at art. 194, 207 (directing states to prevent marine pollution from various sources). Article 194 of the UNCLOS obliges member states to take measures to prevent, reduce, and control pollution of the marine environment. *Id.* at art. 194 (prescribing duties to states). Article 194.1 specifies that: “[s]tates shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce[,] and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavor to harmonize their policies in this connection.” *Id.* (detailing duties of states). Article 194.3 simply clarifies that: “[t]he measures taken pursuant to this Part shall deal with all sources of pollution of the marine environment. These measures shall include, *inter alia*, those designed to minimize to the fullest possible extent:

Part III focuses on international instruments that have, or can have, a bearing on transboundary plastic pollution regulation. These international instruments include the Basel Convention on Hazardous Waste and the Stockholm Convention on Persistent Organic Pollutants. Additionally, Part III reviews the “soft law” campaigns, strategies, and Action Plans that the international community has created that either deal with plastic pollution or have a tangential interest in the issue.²⁵ An examination of all such approaches is beyond the scope of this inquiry, but it focuses on the key ones, including: the Global Program of Action for the Protection of the Marine Environment from Land Based Activities; the Honolulu Strategy; the Clean Seas Campaign; the G20 Osaka Blue Ocean Vision and its Action Plan on Marine Plastic Litter; and the Oceans Plastic Charter. Lastly, Part III queries whether the current patchwork international regulations on the issue of plastic pollution is appropriate or whether a global plastic convention should be crafted.

The limitations of the existing regulatory responses to global plastic pollution necessitate adopting a common binding framework on plastics that has the capacity to coordinate and govern the existing fragmented system and varied standards across international environmental law instruments. The transnational character of global plastic pollution requires a coordinated global response, best realized by a global treaty on plastics that recognizes the joint responsibility of states for the millions of tons of plastic that pollute the planet – particularly the oceans – every year. The creation of such a treaty has the potential to serve as a framework for catalyzing joint action and the pooling of resources, as well as promoting the

(a) the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping;

Id. at art. 194.3 (averring duties states shall refrain from). Article 207 of the UNCLOS requires states to take measures to prevent, reduce, and control pollution from land-based sources. *Id.* at art. 207 (outlining duties of states). The reach of this provision is limited by the reference to vague and broad “internationally agreed rules, standards[,] and recommended practices and procedures.” See Giulia Carlini & Konstantin Kleine, *Advancing the International Regulation of Plastic Pollution Beyond the United Nations Environment Assembly Resolution on Marine Litter and Microplastics*, 27 REV. OF EUR., COMPAR. & INT’L ENV’T L. 234, 236 (2019) (finding provision broad); see also UNCLOS, *supra* note 23, at art. 207 (stating measures states shall take).

25. Kenneth W. Abbott & Duncan Snidal, *Hard and Soft Law in International Governance*, 54 INT’L ORG. 421, 421-22 (2000) (analyzing hard and soft law used by international actors). Soft law here is defined as: “combinations of reduced precision, less stringer obligation, and weaker delegation” of non-binding international legal rules. *Id.* (defining soft law).

more effective realization of national efforts on closing the gap between plastic production levels and waste collection rates.²⁶

II. INTERNATIONAL MARINE PLASTIC POLLUTION REGULATIONS

Current regulatory approaches to marine plastic pollution from sea- and land-based sources are considered inchoate and uncoordinated, with plastic-related measures merely “weakly distributed” across various international instruments without a central regime focusing on the issue.²⁷ There have been international efforts such as the Marine Debris Program, which the United Nations Environment Programme (UNEP) and the United States National Oceanic and Atmospheric Administration (NOAA) jointly run,²⁸ and the Honolulu Strategy,²⁹ which is a “framework for a comprehensive and global effort to reduce the ecological, human health, and economic impacts of marine debris.”³⁰ The regulatory architecture, however, has tended to be a patchwork of existing treaties and protocols.

A. The London Convention and MARPOL

A number of binding international instruments regulate vessel-source pollution. MARPOL (Annex V)³¹ and the London Convention³² and its Protocol³³ seek to limit marine plastic pollution from sea-based sources. The focus of these instruments is primarily on

26. Torbjorn Graff Hugo, *The Case for a Treaty on Marine Plastic Pollution*, NORWEGIAN ACAD. INT'L L. 13-14, 19 (2018) (detailing potential of treaty).

27. UNEP, *Combatting Marine Plastic Litter and Microplastics: An Assessment of the Effectiveness of Relevant International and Regional Governance Strategies and Approaches*, UN Doc UNEP/EA.3/INF/5 (Feb. 15, 2018) (assessing international, regional, and subregional governance strategies and approaches).

28. See *International Collaboration*, NOAA MARINE DEBRIS PROGRAM, <https://marinedebris.noaa.gov/current-efforts/international-marine-debris-collaboration> (last visited Feb. 6, 2022) (summarizing international collaboration); see also Balraj K Sidhu & Bharat H Desai, *Plastics Pollution: A New Common Concern of Humankind?*, 48 ENV'T POL'Y & LAW 252, 255 (2018) (summarizing efforts of Basel Convention, UN Sustainable Development Summit, and UNEP).

29. See *infra* notes 264-73 and accompanying text for a further discussion of The Honolulu Strategy.

30. *The Honolulu Strategy: A Global Framework for Prevention and Management of Marine Debris*, UNEP & NOAA 2 (outlining framework for regulation); see also Sidhu, *supra* note 28 and accompanying text (noting Honolulu Strategy as initial institutional effort).

31. MARPOL, *supra* note 21 (specifying ship standards to prevent pollution).

32. London Convention, *supra* note 20 (controlling all sources of marine pollution).

33. Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, November 17, 1996, 36 ILM 1 [hereinafter London Protocol] (attempting to regulate marine pollution).

preventing pollution from large ships and the intentional dumping of waste at sea.

The 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the “London Convention”) attempted to regulate marine pollution by prohibiting the dumping of any wastes or other matter in whatever form or condition listed in Annex I.³⁴ One of the first global conventions to protect the marine environment from human activities, the London Convention has been in force since 1975. Its objective is to promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter. Currently, eighty-seven countries constitute the “Parties to the London Convention.”³⁵

In 1996, Parties to the London Convention adopted a Protocol to the London Convention, known as the London Protocol, which became effective in 2006. The Protocol should, in time, replace the original London Convention. It utilizes an interesting and fresh approach to the question of how to regulate the use of the sea as a depository for waste materials. Article 4.1 of the Protocol states that Contracting Parties “shall prohibit the dumping of any wastes or other matter with the exception of those listed in Annex I.”³⁶ For items listed in Annex I, dumping is allowed only if the dumper obtains a permit.³⁷

In other words, rather than prohibiting certain materials from dumping, it prohibits *all* dumping, except for possibly acceptable wastes on the so-called “reverse list” contained in Annex I to the Protocol.³⁸ The list of the Annex is short, with only eight categories being present; plastic materials or items of any kind are not expressly included in the Annex’s list.³⁹ A priori, it means that no

34. London Convention, *supra* note 20, at art. 4 (listing wastes or other matter that may be considered for dumping).

35. *See generally* London Convention, *supra* note 20 (stressing need of parties to protect marine environment and to promote sustainable use and conservation of marine resources).

36. London Protocol, *supra* note 33, at art. 4.1 (prohibiting dumping of wastes except for those in Annex I).

37. *Id.* at art. 4.2 (requiring permit for dumping wastes or matter listed in Annex I).

38. *Id.* at Annex I (listing materials considered for dumping).

39. *Id.* (declining to include plastic materials). The permitted substances are: dredged material; sewage sludge; dish waste, or material resulting from industrial fish processing operations; vessels and platforms or other man-made structures at sea; inert, inorganic geological material; organic material of natural origin; bulky items primarily comprising iron, steel, concrete and similar unarmful materials for which the concern is physical impact and limited to those circumstances, where

plastic should be dumped. Items permitted for dumping under category four such as vessels and platforms, however, may have plastic components, which can degrade into smaller fragments and contribute to pollution. The seventh category on the Annex list is ambiguous, reading: “bulky items primarily comprising iron, steel, concrete[,] and similar unarmful materials for which the concern is physical impact and limited to those circumstances, where such wastes are generated at locations, such as small islands with isolated communities, having no practicable access to disposal options other than dumping.” It is unclear whether “unarmful materials” include plastic, but the definition suggests it is possible.⁴⁰

MARPOL and its six annexes regulate all types of pollution from vessels. It established that certain wastes fall within the scope of the treaty and determines the appropriate disposal of such waste on the high seas.⁴¹ After a major revision in 2011, Annex V now covers plastics.⁴² Annex V regulates the prevention of garbage discharge by all vessel types, extending to “all kinds of victual, domestic[,] and operational waste,” including plastic.⁴³ Regulation 3 of Annex V generally prohibits the discharge of all garbage into the sea, except as Regulations 4, 5, and 6 of the Annex provide.⁴⁴ Garbage now includes all plastics, and the regulations define plastics as “solid material which contains as an essential ingredient one or more high molecular mass polymers and which is formed (shaped) during either manufacture of the polymer or the fabrication into a finished product by heat and/or pressure.”⁴⁵ For the purposes of this Annex, “all plastics” means all garbage which consists of or in-

such wastes are generated at locations, such as small islands with isolated communities, having no practicable access to disposal options other than dumping; and CO₂ streams from CO₂ capture processes. *Id.* (stating permitted substances).

40. Ronen Galaiduk, Laurent Lebreton, Erika Techera & Julia Reisser, *Transnational Plastics an Australian Case for Global Action*, 8 FRONTIERS IN ENV'T SCI. 1, 6, 10 (2020) (describing plastic pollution as international issue).

41. See MARPOL, *supra* note 21, at Annexes I-VI (explaining marine pollution from ships).

42. See *id.* (including plastics).

43. *Id.* at reg. 1(1) (defining garbage).

44. *Id.* at reg. 3 (characterizing special area). See also *Simplified Overview of the Discharge Provisions of the Revised MARPOL Annex V Which Entered Into Force on 1 March 2018*, INT'L MAR. ORG., <https://wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/Simplified%20overview%20of%20the%20discharge%20provisions%20of%20the%20revised%20MARPOL%20Annex%20V.pdf> (last visited Feb. 26, 2023) (summarizing MARPOL Annex V).

45. *Amendments to the Annex of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships 1973*, July 15, 2011, Resolution MEPC.201(62), reg. 9, 13 [hereinafter Revised MARPOL Annex V] (defining garbage).

cludes plastic in any form, including synthetic ropes, nets, plastic garbage bags, and incinerator ash from plastic products.⁴⁶ Vessels must now dispose of their waste at land-based waste facilities.⁴⁷ Each party to the Annex should ensure it provides adequate facilities for garbage reception at ports and terminals.⁴⁸

The items Regulations 4, 5, and 6 permit for discharge are related to food waste, some cargo residues, cleaning agents and additives, and animal carcasses.⁴⁹ There are certain conditions that dischargers must satisfy before they can discharge these items. Moreover, the regulations permit discharge of prohibited items if discharge is accidental or necessary for safety.⁵⁰

Another important amendment to MARPOL's Annex V was introduced in 2016 and relates to cargo residues. Cargo residues are defined as "the remnants of any cargo. . . which remain on the deck or in holds following loading and unloading. . . whether in wet or dry conditions or entrained in wash waters."⁵¹ The amendment permits discharging cargo residue under certain conditions, one being that the discharge does not include any substances that are harmful to the marine environment.⁵² The 2016 amendment, which became effective in 2018, provides an Appendix of Criteria for the classification of solid bulk cargoes as harmful to the marine environment. The last category of the criteria includes cargoes containing or consisting of synthetic polymers, rubber, plastics, or plastic feedstock pellets.⁵³ In sum, Annex V no longer permits for discharge cargo residue of such nature.⁵⁴

46. *Id.* at reg. 13 (characterizing plastic).

47. Joanna Vince & Britta D. Hardesty, *Governance Solutions to the Tragedy of the Commons that Marine Plastics Have Become*, 5 FRONTIERS MARINE SCI. 1, 2 (2018) (referencing provisions of Annex V of MARPOL).

48. Revised MARPOL Annex V, *supra* note 45, at reg. 8 (defining food).

49. *Id.* at reg. 4-6 (listing prohibited items).

50. *Id.* at reg. 7 (stating exceptions).

51. *Id.* at reg. 1.2 (defining cargo residues).

52. *See, e.g., id.* at reg. 4.1.3, 6.1.2 (stating conditions permitting discharge of cargo residue).

53. *Amendments to the Annex of the International Convention for the Prevention of Pollution from Ships, 1973, as Modified by the Protocol of 1978 Relating Thereto*, Oct. 28, 2016, Resolution MEPC.277(70), Appendix I, <https://www.amsa.gov.au/marine-environment/marine-pollution/current-marpol-texts> [hereinafter HME Substances and Form of Garbage Record Book] (outlining criteria for the classification of solid bulk cargoes as harmful to marine environment). Plastic feedstock pellets include materials that are shredded, milled, chopped, or macerated or similar materials. *Id.* (classifying harmful solid bulk cargoes).

54. *See id.* (stating cargo residues are harmful to marine environment). In practice, of course, it is not normally practical for shipowners and masters to test their own cargoes; they will frequently have to rely on information from shippers and charterers as to whether the goods loaded contain any substances that are

Moreover, Annex V also mandates ships to provide official records of disposals and incinerations for ships with capacities of at least four hundred gross tonnages as well as for every ship certified to carry fifteen or more people onboard. These official records are known as the Garbage Record Book. The record book, whether as a part of the ship's official log-book or separate, must follow the form MARPOL Annex V specifies.⁵⁵ Annex V also prescribes that, in the event of any discharge and for purposes of safety or accidental loss, ship managers must enter that information in the Garbage Record Book as per Regulation 7; conversely, if the ship is of less than four hundred gross tonnages, ship managers must enter that information in the ship's official log book. This entry should contain all the details of the event, including the date and time of occurrence, port or position of the ship at time of occurrence, the reason for the discharge or loss, details of the items discharged or lost, and reasonable precautions ship managers have taken to prevent or minimize such discharge or accidental loss.

Finally, Annex V applies to all ships. This includes all ships of any type operating in the marine environment, from merchant ships to fixed or floating platforms, as well as to non-commercial ships such as pleasure crafts and yachts.⁵⁶ Even though the Annex is optional,⁵⁷ currently 154 countries are parties to MARPOL's Annex V, covering 98.56% of the world's shipping tonnage.⁵⁸

While MARPOL is considered relatively successful, it has several serious limitations. Vessel-source pollution, which MARPOL's Annex V targets, is representative of only a small part of total plastic pollution. MARPOL, as currently configured, is limited to sea-

harmful to the marine environment (HME). *See id.* (modifying regulations for the prevention of pollution by garbage from ships).

55. MARPOL, *supra* note 21, at Annex V, reg. 10.3.6 (covering discharges of plastics, food wastes, domestic wastes, cooking oil, incinerator ashes, operational wastes, animal carcass(es), fishing gear, and E-waste). This is one of the most recent amendments to Annex V. *See* HME Substances and Form of Garbage Book, *supra* note 53 (amending MARPOL Annex V).

56. *See* MARPOL, *supra* note 21, at Annex V, reg. 2 (applying MARPOL Annex V to all ships); *see also* *Prevention of Pollution by Garbage from Ships: Background of MARPOL Annex V*, INT'L MAR. ORG., <https://www.imo.org/en/OurWork/Environment/Pages/Garbage-Default.aspx> (last visited Apr. 1, 2023) (summarizing background of MARPOL Annex V).

57. *See* MARPOL, *supra* note 21, at art. 14(1) (denoting that parties to MARPOL may declare that it does not accept any one or all of Annexes III, IV, and V).

58. *Status of IMO Treaties*, INT'L MAR. ORG. (Oct. 18, 2022), <https://wwwcdn.imo.org/localresources/en/About/Conventions/StatusOfConventions/Status%20of%20IMO%20Treaties.pdf> (containing comprehensive information on status of multilateral conventions and instruments).

sourced marine plastic pollution, with no scope to consider land-sourced waste.⁵⁹ Approximately eighty percent of the plastics entering the ocean is from land-based sources. While one can say MARPOL is attempting to deal with the issue, it is clear MARPOL has not tackled the root problem.⁶⁰ Land-based plastic pollution continues to enter the marine environment, and oceanic plastic waste quanta continue to rise.⁶¹

In addition, compliance with MARPOL's edicts remains an issue.⁶² Ellen Ninaber correctly acknowledges that Annex V is the major international authority for ship-discharged marine debris but highlights in its current soft law configuration it has limited enforcement applicability. Ocean-based waste conventions aiming to prohibit the disposal of oceanic plastic waste into the ocean, as currently configured, either lack or have inadequate tracking systems to discover and punish offenders. Thus, patrollers often only identify such offenders if they witness the offender dumping waste.⁶³

The current framework also relies on self-reporting of data, allowing ship captains to not accurately report the quantity of waste disposed at incineration and port facility sites.⁶⁴ Although Annex V – which seeks to prevent vessels from distorting data – does not allow captains to review their reported figures in the Garbage Record Book, Annex V does not prevent ships maintaining an external ledger from containing the distorted data.⁶⁵

59. Stephanie Borrelle, Chelsea Rochman, Max Liboiron, Alexander L. Bond, Amy Lushner, Hillary Bradshaw & Jennifer F. Provencher, *Why We Need an International Agreement on Marine Plastic Pollution* 114 PROC. OF THE NAT'L ACAD. OF SCI. OF THE U.S.A 9994, 9995 (2017) (stating reasons for international agreement).

60. Oliver Tickell, *International Law and Marine Plastic Pollution – Holding Offenders Accountable*, ARTISTS PROJECT EARTH 10, 42 (Feb. 2018) (exploring potential of international law to force or persuade countries and commercial entities generating MPP to substantially reduce their waste plastic emissions in marine environment).

61. See Borrelle, *supra* note 59, at 9995 (noting global threat plastic pollution poses).

62. Joanna Vince & Britta D. Hardesty, *Governance Solutions to the Tragedy of the Commons that Marine Plastics Have Become*, 5 FRONTIERS IN MARINE SCI. 1, 10 (2018) (noting compliance and enforcement issues with MARPOL).

63. Mark Gold, Katie Mika, Cara Horowitz, Megan Herzog & Lara Leitner, *Stemming the Tide of Plastic Litter: A Global Action Agenda*, 27 TULANE ENV'T L.J. 165, 185 (2014) (reviewing studies, policies, and international agreements and providing recommendations to achieve meaningful reductions in plastic marine litter by 2025).

64. *Id.* at 176 (noting shortfalls of MARPOL).

65. Arie Trouwborst, *Managing Marine Litter: Exploring the Evolving Role of International and European Law in Confronting a Persistent Environmental Problem*, 27 UTRECHT J. INT'L & EUR. L. 4, 10 (2011), <https://utrechtjournal.org/articles/abstract/14/> (overviewing international legal framework for marine litter).

Further, MARPOL contains exemptions and opt-out provisions that undercut its objectives. Annex V, for example, does not penalize ships that accidentally lose fishing gear.⁶⁶ Experts estimate discarded fishing gear constitutes approximately ten percent of marine litter, which amounts to about 100 million pounds of all ocean plastics.⁶⁷ Conversely, Madeline June Kass argues fishing vessels in Europe have contributed twenty-seven percent of marine litter in European waters.⁶⁸ Annex V also does not define “accidental loss,” nor does it stipulate what precautions ships should take to prevent such losses.⁶⁹

Penalties for Annex V violations are currently insufficient to deter unlawful behavior.⁷⁰ If a ship has breached MARPOL, then that ship’s home state imposes penalties.⁷¹ Such penalties can be mere warnings or fines that have averaged only \$6,200 per case. For example, since 1995 in the United States, only ten percent of such cases involved courts imposing penalties on the offending parties.⁷²

Finally, the effectiveness of ships in complying with the discharge requirements of MARPOL depends largely upon the availability of adequate port reception facilities. Many recognize the inadequacy of port reception facilities as a major hurdle to overcome in achieving full compliance with MARPOL.⁷³ There is also a lack of coordination, and port users and the providers of port re-

66. Gold, et al., *supra* note 63, at 182 (suggesting programs require logs to track lost fishing gear; require traceable tags on nets; and encourage use of more sustainable materials in aquaculture gear).

67. *New Research: Fishing Gear Accounts for an Alarming Amount of Plastic Pollution in Oceans*, THE NATURE CONSERVANCY (Sept. 16, 2021), <https://www.nature.org/en-us/newsroom/ca-ocean-plastic/> (highlighting ubiquity of fisheries’ plastic pollution).

68. Madeline June Kass, *Fishing for Plastic: EU Targets Marine Pollution*, 34 NAT. RES. & ENV’T 58 (2019) (stating estimated amount of fishing gear contributing to EU marine litter).

69. MARPOL, *supra* note 21, at Annex V, reg. 6(c) (addressing marine pollution from ships); *see also* Gold, et al., *supra* note 63, at 188 (stating MARPOL exempts accidental loss).

70. Gold, et al., *supra* note 63, at 184 (finding penalties fail to address marine plastic litter).

71. MARPOL, *supra* note 21, at Annex V, art. 4(4) (stating enforcing body of penalties).

72. Gold, et al., *supra* note 63, at 165, 184, 203 (finding amount too low to serve as adequate deterrent).

73. *Reception Facilities*, INT’L MAR. ORG., <https://www.imo.org/en/OurWork/Environment/Pages/Port-Reception-facilities.aspx> (last visited Feb. 5, 2022) (stating action plan to tackle inadequacy of port reception facilities). To encourage the state to improve their port reception facilities, the IMO has released Consolidated Guidance for Port Reception Facility. *See Consolidated Guidance for Port Reception Facility Providers and Users*, Mar. 1, 2018, MEPC.1/Circ.834/Rev.1, <https://www.imo.org/en/OurWork/Environment/Pages/Port-Reception-facilities.aspx>

ception facilities face difficulties because, as MARPOL sets out, waste classification “is not always equivalent to the categories of waste legislation on land.”⁷⁴ These inadequacies often lead to inadequate waste management. For instance, waste reception and handling plans in several European Union ports focus primarily on the disposal of waste, even for recyclable waste types.⁷⁵ In other words, ships often dispose plastic waste, even where that waste is recyclable, at a landfill or incinerator. There is a need for integrating port reception facilities within the broader context of waste management and circular economy. Unfortunately, regional instruments such as the Convention for the Protection of the Marine Environment and Coastal Areas of the South-East Pacific (the Lima Convention) and The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (the Barcelona Convention) that aim to prohibit both the disposal of plastics from ocean-based and land-based sources have attracted only limited support to date.⁷⁶

Overall, international environmental law instruments such as MARPOL, UNCLOS, and the London Convention have proven limited in that they only address the end-of-life disposal of plastics.⁷⁷ They do not address other phases of the plastic’s life cycle such as the “extraction of raw materials, design and use phases of plastic polymers[,] and additives.”⁷⁸

wwwcdn.imo.org/localresources/en/OurWork/Environment/Documents/MEPC.1-Circ.834-Rev.1.pdf (providing guidance).

74. Gabriela Argüello, *Environmentally Sound Management of Ship Wastes: Challenges and Opportunities for European Ports*, 5 J. SHIPPING & TRADE 21, 21 (2020) (averaging difficulties).

75. *Id.* at 21 (noting waste reception and handling plans decline to follow waste management hierarchy).

76. Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific, May 19, 1986, U.N.T.C. 28325 (seeking to protect marine environment and coastal zones of South-East Pacific); Convention for the Protection of the Mediterranean Sea against Pollution, Feb. 12, 1978, TRE-000543 (seeking to protect Mediterranean marine and coastal environment). This chapter will not analyze Regional Seas Conventions, as the mandate of the Regional Seas is mostly limited to the relevant convention areas, with only five regions including the high seas in the duty to prevent harm. Not all states are parties to a binding Regional Seas convention, leaving geographic gaps in the duty to protect the marine environment, particularly from land-based sources. See United Nations Environment Assembly of the United Nations Environment Programme, Third Session, *Combating Marine Plastic Litter and Microplastics: An Assessment of the Effectiveness of Relevant International, Regional and Subregional Governance Strategies and Approaches* (UNEP/EA.3/INF/5) (Dec. 4-6, 2017) 149 (acknowledging geographic gaps).

77. *Id.* at 167 (identifying gaps).

78. Simon Nils, Doris Knoblauch, Linda Mederake, Katriona McGlade, Maro Luisa Schulte & Supriya Masali, *No More Plastics in the Ocean: Gaps in Global Plastic*

MARPOL's and the London Convention's focus on the end-of-life phase is further limited because they do not address the prevention of land-based sources which constitute the bulk of maritime plastic pollution.⁷⁹ Their effectiveness is also meager because (aside from the Global Program of Action for the Protection of the Marine Environment from Land-Based Activities), these treaties do not address how to improve the "connectivity between terrestrial, freshwater, coastal[,] and marine ecosystems" that could "prevent, reduce, control[,] and/or eliminate marine degradation from land-based sources."⁸⁰

B. The United Nations Law of the Sea Convention (UNCLOS)

In 1956, the International Law Commission submitted to the United Nations General Assembly a set of draft articles on the Law of the Sea.⁸¹ The draft articles were then broken up into four separate draft treaties on the issues of territorial seas and contiguous zones, the continental shelf, the high seas, and fishing. Treaty negotiations took place in 1958 in Geneva; this resulted in the first United Nations Conference on the Law of the Sea (UNCLOS I), eventually delivering four final conventions known as the 1958 Geneva Conventions.⁸² The United Nations Convention on the Law of the Sea was created at the third United Nations Conference on the Law of the Sea, which took place between 1973 and 1982. The treaty lays down a comprehensive regime of law and order in the world's oceans and seas, establishing rules governing all uses of the

Governance and Options for a Legally Binding Agreement to Eliminate Marine Plastic Pollution, ADELPHI (Nov. 2018) 29 (averring lack of coordination at international level).

79. Leila Monroe, *Tailoring Product Stewardship and Extended Producer Responsibility to Prevent Marine Plastic Pollution*, 27 TULANE ENV'T L.J. 219, 220 (2014) (critiquing London Convention and MARPOL).

80. Luisa Goncalves & Michael Faure, *International Law Instruments to Address the Plastic Soup*, 43 WM & MARY ENV'T L. & POL'Y REV. 871, 894 (2019) (criticizing treaties); United Nations Convention on the Law of the Sea, Nov. 16, 1994, 1833 U.N.T.S. 396, art. 207(4) (requiring states to prevent, reduce, and control marine environment pollution from land-based sources).

81. J.P.A. Francois (Special Rapporteur to the International Law Commission), Yearbook of the International Law Commission, Volume II, UN Doc A/CN.4/SER.A/1956/Add.1, 1-103 (Jan. 27, 1956) (drafting rules relating to sea laws).

82. Convention on the Territorial Sea and the Contiguous Zone, 1958, 516 U.N.T.S. 205 (averring states cannot suspend innocent passage of foreign ships through straits that are used for international navigation); Convention on the Continental Shelf, 1958, 499 U.N.T.S. 311 (codifying rules of international law relating to continental shelves); Convention on the High Seas, 1958, 450 U.N.T.S. 11 (stating rules of international law relating to high seas); Convention on Fishing and Conservation of Living Resources of the High Seas, 1958, 559 U.N.T.S. 285 (relating to conservation of living resources on international waters).

oceans and their resources. It enshrines the notion that all problems of ocean space are closely interrelated and need to be addressed. The Convention opened for signature on December 10, 1982, in Montego Bay, Jamaica.⁸³

The text ran to more than three hundred Articles, nine Annexes, two Resolutions and two implementation agreements. Proponents hailed the Convention as an achievement of staggering legal accomplishment designed as a “constitution for the oceans” with an answer to almost every question focused on ocean management.⁸⁴ As one can see, however, UNCLOS has not yet managed to deal with the thorny question of how to prevent and ameliorate ongoing marine plastic pollution.⁸⁵

At its core, the treaty is designed to put in place a governing regime of the world’s oceans.⁸⁶ It sets out the rights and responsibilities of member nations utilizing the world’s oceans while also establishing guidelines and obligations for governments and businesses on how oceanic natural resources and their marine environment should be managed. The UNCLOS treaty is currently the most authoritative attempt at regulating global marine pollution, with a wide mandate covering virtually all ocean and sea activities.⁸⁷ In addition to the general obligation to protect and preserve the marine environment,⁸⁸ it includes the obligation to take all measures necessary to prevent, reduce, and control pollution of the

83. See UNCLOS, *supra* note 23 (laying down comprehensive regime of law and order in world’s oceans and seas establishing rules governing uses of oceans and their resources).

84. See Robin R. Churchill, *The 1982 United Nations Convention on the Law of the Sea*, in Donald R. Rothwell, Alex G. Oude Elferink, Karen N. Scott, and Tim Stephens, *The Oxford Handbook of the Law of the Sea* 24-45, 27 (OUP 2015) (detailing basic principles of UNCLOS).

85. See UNCLOS, *supra* note 23 (attempting to counteract plastic pollution). UNCLOS, however, did put in place several important changes to the then existing oceanic legal framework. As Harris highlights: “[these] main changes or additions are the acceptance of a [twelve]-mile territorial sea; provision for transit passage through international straits; increased rights for archipelagic and landlocked states; stricter control of marine pollution; further provision for fisheries conservation; acceptance of a [two-hundred]-mile exclusive economic zone for coastal states; changes in the continental shelf regime; and provision for the development of deep sea-bed mineral resources.” DAVID JOHN HARRIS, *CASES AND MATERIALS ON INTERNATIONAL LAW*, 322 (Sweet & Maxwell, 7th ed. 2010) (highlighting shortcomings of UNCLOS).

86. Ngyuyen van Truong & Chu Beiping, *Plastic Marine Debris: Sources, Impacts and Management*, 76 INT’L J. OF ENV’T STUD. 953, 962, 973 (2019) (ascertaining deficiencies of UNCLOS).

87. See UNCLOS, *supra* note 23 (establishing legal framework for all marine and maritime activities).

88. *Id.* at art. 192 (averring states are obligated to protect and preserve marine environment).

marine environment from any source, including from land-based sources and vessels, and by dumping.⁸⁹ While UNCLOS does not specifically refer to plastic pollution, its remit does indirectly apply to the issue and is therefore potentially applicable to plastic pollution; this is particularly because it is the only global instrument that also regulates land-sourced pollution.⁹⁰ A closer examination of Part XII of UNCLOS which covers “Protection and Preservation of the Marine Environment” reveals several sections that both do, and potentially could, aid in resolving marine plastic pollution by prohibiting pollution of the marine environment from dumping, vessel source pollution, and land-based sources under Articles 194, 195, 207, and 213.⁹¹

1. Articles 194 and 195

As noted above, Article 194(1) of UNCLOS provides that states should take all necessary measures to “prevent, reduce[,] and control pollution of the marine environment from any source.”⁹² Article 194(2) imposes a duty to not “cause damage by pollution to other States and their environment”⁹³ Article 194(3)(a) outlines sources of pollution to be minimized, including toxic, harmful, or noxious substances.⁹⁴ It includes persistent pollution, importantly from land-based sources, via the atmosphere or by the

89. *Id.* at art. 194, 207, 210, 211 (prescribing rules and regulations).

90. *See generally id.* (directing states to protect marine environment). Many regional seas conventions also regulate land-based pollution. *See, e.g.*, OSPAR’s *Action Plan for Marine Litter*, which is part of the OSPAR Commission’s mandate to “[p]revent inputs of . . . marine litter, . . . in the marine environment” to *inter alia* limit “adverse impacts to the marine and coastal environment.” *OSPAR Launches 2nd Marine Litter Regional Action Plan at the United Nations Ocean Conference in Lisbon (Portugal)*, OSPAR COMM’N (June 28, 2022), <https://www.ospar.org/news/ospar-launches-2nd-marine-litter-regional-action-plan-at-the-united-nations-ocean-conference-in-lisbon-portugal> (summarizing Regional Action Plan to tackle marine litter).

91. UNCLOS, *supra* note 23 (requiring member states to protect marine environment); Karen Raubenheimer & Alistair McIlgorm, *Can the Basel and Stockholm Conventions Provide a Global Framework to Reduce the Impact of Marine Plastic Litter?*, 96 MARINE POL’Y 285, 286 (2018) (examining Basel and Stockholm Conventions as tools to combat plastic pollution); Carlini, *supra* note 7, at 236 (utilizing conventions to address marine plastic litter); Sally Ann Lentz, *Plastics in the Marine Environment: Legal Approaches for International Action*, 18 THE OCEANIC SOC’Y 361, 365 (1987) (suggesting processes to address issue of marine plastic pollution).

92. UNCLOS, *supra* note 23, at art. 194(1) (stating member states to prevent pollution from any source).

93. *Id.* at art. 194(2) (averring member states ensure activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other states and their environment).

94. *Id.* at art. 194(3)(a) (stipulating member states minimize all sources of pollution to marine environment).

act of dumping.⁹⁵ Plainly, this provision applies to plastic waste that ends up in the ocean or seas, particularly single-use plastic. Similarly, Article 195 imposes a duty on the state to not create environmental damage in transferring or transforming waste.⁹⁶ It can cover scenarios when waste is incinerated because it is therefore “transformed” into toxic fumes that pollute the atmosphere.⁹⁷

2. *Articles 207 and 213*

Article 207 was designed to cover the transboundary issue of land-based pollution.⁹⁸ It states:

1. States shall adopt laws and regulations to prevent, reduce[,] and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.⁹⁹

The Article further stipulates that member nations shall take other measures necessary to address land based pollution¹⁰⁰ and shall also endeavor to harmonize their disparate policies at the appropriate regional level.¹⁰¹ Article 207 further obliges nations to establish global and regional rules standards and recommended practices and procedures by “taking into account characteristic regional features, the economic capacity of developing states[,] and their need for economic development.”¹⁰² Such rules and standards should also be designed to minimize the “release of toxic, harmful[,] or noxious substances, especially those that persist in

95. *Id.* at art. 194 (outlining measures to prevent, reduce, and control pollution of marine environment).

96. *Id.* at art. 195 (stating duty to not transfer damage or hazards or transform one type of pollution into another).

97. Peter Dauvergne, *Why is the Global Governance of Plastic Failing the Oceans?*, 51 *GLOBAL ENV'T CHANGE* 22, 25, 31 (2018) (noting pervasiveness of Article 195).

98. Akiko Takano, *Land-Based Pollution of the Sea and Due Diligence Obligations*, 60 *J. OF LAW, POL'Y & GLOBALIZATION* 92, 98 (2017) (analyzing whether states have obligation to control land-based pollution into sea under Articles 207 and 213 of UNCLOS).

99. UNCLOS, *supra* note 23, at art. 207(1) (requiring member states to adopt laws and regulations to prevent, reduce, and control pollution of marine environment from land-based sources).

100. *Id.* at art. 207(2) (prescribing member states to take other measures as may be necessary to prevent, reduce, and control such pollution).

101. *Id.* at art. 207(3) (directing member states to endeavor to harmonize their policies in this connection at appropriate regional level).

102. *Id.* at art. 207(4) (stipulating member states consider various factors).

the environment.”¹⁰³ Problematically, the Article provides little guidance on what such rules and standards should be. Such detail would be filled out by, “internationally agreed rules, standards and recommended practices and procedures.”¹⁰⁴ Further, the provision offers no timeline for the adoption of such measures by states and does not obligate states to give effect to such internationally agreed standards or indicate which standards are considered under the aegis of the provision.¹⁰⁵ Elizabeth Kirk and Naporn Popattanachai note that such limitations risk the “fragmentation of legal standards” and further allows “standard shopping” as states join subsequent agreements or institutions based on their national priorities which rarely include dealing with such a complex, expensive issue.¹⁰⁶

Compounding the problem, Article 207 provisions are generally regarded as the weakest UNCLOS provision.¹⁰⁷ It is criticized as merely imposing a broad and general obligation with little practical effect.¹⁰⁸ Further, it grants states with significant discretion to define the boundaries of their agreed to obligations. Moreover, it relies on the “good faith” of members to create such frameworks, rather than setting out specific pollution measures that would effectively guide the conservation and preservation of the marine environment.¹⁰⁹ Lastly, the lax obligations under Article 12 make meaningful enforcement difficult, instead leaving it up to the individual states to take enforcement action in accordance with their

103. *Id.* at art. 207(5) (pronouncing member states create laws, regulations, measures, rules, standards, and recommended practices and procedures).

104. UNCLOS, *supra* note 23, at art. 207(4) (requiring member states to adopt policies and procedures to combat marine pollution).

105. Elizabeth A. Kirk & Naporn Popattanachai, *Marine Plastics: Fragmentation, Effectiveness and Legitimacy in International Lawmaking*, 27 REV. EUR., COMP. & INT'L ENV'T L. 222, 223 (2018) (criticizing Article 207).

106. *Id.* at 233 (highlighting problems caused by unequal legal standards and instruments).

107. *See, e.g.*, Guy Graney, *Slipping Through the Cracks: How Tiny Plastic Microbeads are Currently Escaping Water Treatment Plants and International Pollution Regulation*, 39(4) FORDHAM INT'L L. J. 1023, 1040 (2016) (characterizing pollution provisions of UNCLOS as weak).

108. Daud Hassan, *International Conventions Relating to Land-Based Sources of Marine Pollution Control: Applications and Shortcomings*, 16 GEO. INT'L ENV'T L. REV. 657, 668 (2004) (explaining limited applicability of Article 207).

109. Alan Boyle, *Marine Pollution Under the Law of the Sea Convention*, 79 AM. J. INT'L L. 347, 353-54 (1985) (nothing Article 207 leaves states with unfettered discretion to regulate pollution).

individual priorities.¹¹⁰ It outlines a bare framework with declared ambitious goals but cannot enforce such goals.¹¹¹

Article 213 reflects the weak terminology of Article 207, requiring that states “shall enforce the laws they create” and “take other measures necessary” to utilize international rules and standards.¹¹² Any specific standards are determined by the state. To date, there has been no real enforcement of Article 213 because there is no meaningful standard to enforce.

3. *The Problematic Nature of UNCLOS*

When it comes to the issue of marine plastic pollution, the current iteration of UNCLOS has proven ineffective in preventing or ameliorating the issue for several actors. Firstly, UNCLOS is overly vague. UNCLOS recognizes the existence of several sources of marine pollution, but does not go into detail about these sources and does not acknowledge plastics as a distinct category of waste.¹¹³ Its rules, standards, and recommendations for states similarly lack specificity, and in particular, UNCLOS provides no timeline for states to adopt the required and recommended measures.¹¹⁴ Secondly, UNCLOS fails to sufficiently address the specific complications related to mitigating plastic pollution in the high seas - outside the 200 nautical mile limit - including the difficult plastic removal process.¹¹⁵ Additionally, it is difficult to identify the at-fault party responsible for plastic pollution once the plastic reaches the high seas, making it difficult to hold states accountable.¹¹⁶ The transboundary nature of marine pollution further complicates the ability of affected states to bring a claim against others for violating standards.¹¹⁷ Thirdly, UNCLOS lacks a compensation scheme to

110. Matthew Schroeder, *Forgotten at Sea - An International Call to Combat Islands of Plastic Waste in the Pacific Ocean*, 16 SW. J. INT'L L. 265, 276 (2010) (noting difficulty enforcing Article 207).

111. Olga Goldberg, *Biodegradable Plastics: A Stopgap Solution for the Intractable Marine Debris Problem*, 42 TEX. ENV'T L.J. 307, 346 (2012) (criticizing unenforceability of Article 207).

112. UNCLOS, *supra* note 23, at art. 213 (tasking states with enforcement).

113. Joanna Vince & Britta D. Hardesty, *Plastic Pollution Challenges in Marine and Coastal Environments: From Local to Global Governance*, 25 RESTORATION ECOLOGY 123, 128 (2017) (noting lack of detailed descriptions of waste categories in UNCLOS).

114. Kirk & Popattanachai, *supra* note 105, at 223, 233 (analyzing UNCLOS).

115. See Vince et al., *supra* note 15 (explaining unique problems addressing plastic pollution on high seas).

116. *Id.* (discussing difficulty holding states accountable for plastic pollution on high seas).

117. Schroeder, *supra* note 110, at 288 (discussing complexity of transboundary claims).

accommodate when states are required to engage in mandatory pollution control.¹¹⁸ Many states are unwilling to invest their financial resource into fixing an issue others have created and this extends to the issue of plastic.

Despite recognizing a distinction between sea-based and land-based pollution, UNCLOS fails to list the kind of pollutants and technical rules for clarity and in response to the different source points of pollution. This requires states to “fill in the gaps” by adopting individual domestic regulations leading to a fragmented regulatory regime. The effectiveness of UNCLOS is further restricted due to “various exemptions and opt-out provisions.” For instance, UNCLOS does not penalize ships for accidentally losing fishing gear and incidentally disposing of plastic waste.¹¹⁹

More broadly, as with many international legal instruments, the concept of state sovereignty permeates the text of UNCLOS,¹²⁰ with excessive reiteration throughout the convention of each state’s right to decide actions and go against their duties, undermining pollution controls.¹²¹ For example, Article 210(1) says that states should adopt domestic laws to regulate and reduce pollution.¹²² Sub-article 210(5), which asserts that states have the power to “permit, regulate and control such dumping” of pollution if they so choose to, undercuts this provision, however.¹²³ A further perennial issue is that the United States, despite being one of the largest contributors to marine plastic pollution, is not a signatory state to UNCLOS, rendering the provisions severely weak.¹²⁴ Given the United States’ outsized role in creating international environmental agreements, powerful economy, large population, and massive plastic production and consumption, the loss is keenly felt.

118. João Pinto da Costa, Catherine Mouneyrac, Mónica Costa, Armando C Duarte & Teresa Rocha-Santos, *The Role of Legislation, Regulatory Initiatives and Guidelines on the Control of Plastic Pollution*, 8 FRONTIERS IN ENV'T SCI. 1, 2 (2020) (criticizing UNCLOS for not providing proper compensation for certain mandatory actions).

119. Gold, et al., *supra* note 63, at 182 (highlighting penalty exceptions in UNCLOS).

120. Danielle Spiegel-Feld & Katrina M Wyman, *Cities as International Environmental Actor: The Case of Marine Plastics*, 62 ARIZ. L. REV. 487, 489 (2020) (noting emphasis on state sovereignty in UNCLOS).

121. *See, e.g.*, UNCLOS, *supra* note 23, at art. 210 (requiring states to regulate pollution by dumping but leaving significant discretion).

122. *Id.* at art. 210(1) (giving states authority to adopt laws addressing pollution by dumping).

123. *Id.* at art. 210(5) (allowing states to permit dumping).

124. da Costa, et al., *supra* note 118, at 2 (noting UNCLOS is weakened by lack of support from United States).

At best, UNCLOS can be understood as only a declarative document regarding protection against marine pollution; it has not yet, and may never, evolve into an effective environmental regime on this issue.¹²⁵ Yvonne Tharpes argued that, in its current configuration, UNCLOS “[lacks] the detailed prescriptions necessary for effective administration of an international pollution-control regime” by which to deal with the burgeoning problem of marine plastic pollution.¹²⁶

III. TRANSBOUNDARY INTERNATIONAL CONVENTIONS AND PLASTIC

Other binding international instruments may also apply to the issue of plastic pollution. One instrument is the Stockholm Convention,¹²⁷ which controls the use of certain chemicals in the production of plastics. Another instrument is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which recently has sought to tackle the issue of transporting plastic waste, deeming it hazardous.¹²⁸

A. Stockholm Convention on Persistent Organic Pollutants

The additives used in the lifecycle of plastics are numerous, and the risks to human health and the environment are not adequately reflected in legal and policy frameworks at the international and regional levels.¹²⁹ The Stockholm Convention on Persistent Organic Pollutants (POPs) provides for some regulation of the production, use, and disposal of additives used in the manufacture of plastics. It aims to restrict, prohibit or eliminate intentional production and use of chemicals listed in Annexes A and B¹³⁰ and to

125. See J. Dehner, *Vessel-Source Pollution and Public Vessels: Sovereign Immunity v. Compliance. Implications for International Environmental Law*, 9 EMORY INT’L L. REV. 507, 510 (1995) (characterizing UNCLOS as merely declaratory).

126. Yvonne Tharpes, *International Environmental Law: Turning the Tide on Marine Pollution*, 20(3) U. MIAMI INTER-AM. L. REV. 579, 612 (1989) (arguing UNCLOS is deficient).

127. Stockholm Convention on Persistent Organic Pollutants (adopted 22 May 2001, entered into force 17 May 2004) 2256 UNTS 119 [hereinafter Stockholm Convention] (governing plastic production).

128. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Mar. 22, 1989, 1673 U.N.T.S 57 (seeking to protect human health and environment from adverse effects of hazardous waste).

129. UNEP, COMBATING MARINE PLASTIC LITTER AND MICROPLASTICS: AN ASSESSMENT OF THE EFFECTIVENESS OF RELEVANT INTERNATIONAL, REGIONAL AND SUBREGIONAL GOVERNANCE STRATEGIES AND APPROACHES 19 (Feb. 15, 2018), <https://documents-dds-ny.un.org/doc/UNDOC/GEN/K18/003/47/PDF/K1800347.pdf> (comparing approaches to combatting marine plastic pollution).

130. Stockholm Convention, *supra* note 127, at art. 3 (outlining measures to reduce or eliminate releases from intentional chemical production and use).

reduce or eliminate releases from unintentional production of chemicals listed in Annex C to the Convention.¹³¹

Relevant plastic additives listed under the Stockholm Convention include:

- Polychlorinated biphenyls (PCBs),¹³² which are often detected in marine plastic litter at a high concentration due to the adhesive property of plastics.¹³³ One of the most important contemporary sources of PCBs is old painted surfaces, such as buildings and bridges;¹³⁴
- Brominated diphenyl ethers, which are often commercial pentaBDE and commercial octaBDE¹³⁵ that are used as flame retardants in plastics, polyurethane foams, and textiles;¹³⁶
- Articles that contain or may contain those chemicals, including in plastics, until 2030; and
- Perfluorooctane sulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA),¹³⁷ which are used as an additive in plastics. Fluorinated polymers containing PFOS and PFOA precursors are used in some textile fibers and in paper and paperboard articles (such as fast-food packaging and paper plates, cups, and more) to provide grease and water resistance can become microplastics/fibers in the aquatic environment, releasing PFOS when degrading or ingested.¹³⁸

According to Article 6 of the Convention, recovery, recycling, reclamation, direct reuse, or alternative uses of POPs are not per-

131. *Id.* at art. 5 (delineating measures to reduce or eliminate releases from unintentional production).

132. See Stockholm Convention, *supra* note 127, at Annex A, Annex C (listing regulated plastic additives).

133. Stockholm Convention, *supra* note 127, at Annex A (listing PCBs as elimination chemical).

134. Morten Jartun & Eiliv Steinnes, *Painted Surfaces – Important Sources of Polychlorinated Biphenyls (PCBs) Contamination to the Urban and Marine Environment*, 157 ENV'T POLLUTION, 295, 295-96 (2008) (describing common PCB sources).

135. See Stockholm Convention, *supra* note 127, at Annex A (detailing regulated plastic additives).

136. Frederic Gallo, Cristina Fossi, Roland Weber, David Santillo, Joao Sousa, Imogen Ingram, Angel Nadal & Dolores Romano, *Marine Litter Plastics and Microplastics and their Toxic Chemicals Components: The Need for Urgent Preventive Measures*, 30 ENV'T SCI. EUR. 1, 5, 6 (2018) (listing sources of polybrominated diphenyl ethers).

137. These are listed in Annex B to the Stockholm Convention with acceptable purposes and specific exemptions.

138. Gallo, et al., *supra* note 136 (describing PFOS and PFOA).

mitted. There are, however, possible exemptions and exceptions. For example, the BDEs are listed in Annex A with specific exemptions, which allow registered Parties to continue recycling articles that contain those chemicals until 2030.¹³⁹

The Convention achieves this goal by restricting the use of certain POPs within the manufacturing process and seeking to increase rates of recycling and reusing.¹⁴⁰ Unlike the Basel Convention on Hazardous Wastes, the Stockholm Convention, as per Article 3, addresses the start of the waste lifecycle by reducing the creation of POPs at the initial stage.¹⁴¹ Furthermore, the Stockholm Convention provides for the exchange of information between states,¹⁴² encourages public information, awareness, and education,¹⁴³ and provides lists of prohibited chemicals.¹⁴⁴ Not only does the Convention restrict POP source production, but it also broadens consumer knowledge of POPs in terms of their environmental risks and allows for the uptake of viable alternatives; but, it currently does not provide a list of alternatives.¹⁴⁵

Further, the Stockholm Convention is limited when dealing with plastic pollution for several issues. Its application is limited to those plastics produced with POPs listed under the Convention. The treaty is limited to products containing or contaminated with listed POPs. For example, food packaging, which is a significant component of plastic waste, is unlikely to contain POPs. Plastic waste food packaging may not contain flame retardants, PFOA, or other POP chemicals controlled under its auspices.¹⁴⁶ The treaty also allows individual states to decide which substances to regulate.¹⁴⁷

139. Stockholm Convention, Annex A, part V (listing BDEs).

140. Raubenheimer & McIlgorm, *supra* note 91, at 287 (explaining how Stockholm Convention restricts POPs).

141. Stockholm Convention, at art. 3(a)(i) (requiring regulated parties to prohibit production of chemicals listed in Annex A).

142. *Id.* at art. 9 (requiring information exchange).

143. *Id.* at art. 10 (recommending promotion of public awareness).

144. *Id.* at art. 9, 8(1) (listing prohibited chemicals).

145. *See* Raubenheimer & McIlgorm, *supra* note 91, at 288 (analyzing regulation of POPs under Stockholm Convention).

146. *Id.* (explaining how restricting POPs will not reduce production of certain common plastic products).

147. Alan E. Boyle, *Protecting the Marine Environment: Some Problems and Developments in the Law of the Sea*, 16 *MARINE POL'Y* 79, 81 (1992) (noting discretion Stockholm Convention gives to states).

As the majority of plastic created does not contain POPs, the treaty's ambit is limited when it comes to plastics.¹⁴⁸ Further, while POPs are used to produce some plastics, the majority of plastics are created with additives that fall outside the scope of the convention as currently written.¹⁴⁹ Many of those additives are of high concern, with known or suspected endocrine disrupting properties. These include: alkylphenols (octylphenol and nonylphenol) used mainly as antioxidants; bisphenol A (BPA); phthalate (DEHP); diisodecyl phthalate (DIDP); diisononyl phthalate (DINP); and butyl benzyl phthalate (BPP). These additives are widely used as plasticizers in proportions up to sixty percent of a plastic's weight to increase properties such as flexibility, transparency, longevity, and organotin compounds based on methyl, butyl, or octyl groups, such as tributyltin, which is used as stabilizing additives in some PVC polymers.¹⁵⁰ Currently, this treaty has only limited impact on a relatively small proportion of plastics.

Though the Stockholm Convention constrains the production and consumption of POPs, its current focus on solely hazardous pollutants limits its application to general plastic pollution. The Convention's further, and more specific, listings of plastic or chemicals utilized in plastic production in its Annexes could potentially regulate the production of contaminated and virgin plastics such as food packaging if member-states were willing to follow the treaty.

B. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal and Plastic

Hazardous waste is a persistent environmental problem that the modern world faces. It can be defined as any material that *may* pose a substantial threat or potential hazard to human health or the environment when managed improperly, including solid wastes, liquids, and gases.¹⁵¹ Hazardous waste has many sources, including

148. Raubenheimer & McGillorm, *supra* note 91, at 288 (quantifying percentage of plastic produced contains POPs). Approximately twenty-six percent of global plastics is produced for packing alone. *Id.* (describing ubiquity of plastics packaging).

149. ENV'T INVESTIGATION AGENCY, CONVENTION ON PLASTIC POLLUTION, TOWARD A NEW GLOBAL AGREEMENT TO ADDRESS PLASTIC POLLUTION 9 (June 2020) (noting most plastic additives are not covered by Stockholm Convention).

150. Gallo, et al., *supra* note 136 (describing high concern but unregulated plastic additives).

151. *Criteria for the Definition of Solid Waste and Solid and Hazardous Waste Exclusions*, EPA, <https://www.epa.gov/hw/criteria-definition-solid-waste-and-solid-and-hazardous-waste-exclusions> (last visited Feb. 21, 2023) (defining hazardous waste).

manufacturing plants, laboratories, farms, and construction sites.¹⁵² Such waste products can remain in the environment for decades if they are not broken down.¹⁵³

Prior to the implementation of the Basel Convention in 1989, the regulation of hazardous waste was considered ad hoc “soft law.”¹⁵⁴ In the 1980s, there was a growing concern about “uncontrolled transboundary movements” of hazardous waste.¹⁵⁵ To deal with it at the international trade level, The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was first adopted in 1989 and came into effect in 1992. The Basel Convention is now considered the most comprehensive global environmental agreement on hazardous waste.¹⁵⁶ A Secretariat manages the Basel Convention, acting to identify illegal waste trafficking while also assisting states in cases of emergency by receiving and conveying information to member states.¹⁵⁷ As of September 2021, 188 countries were parties to the Basel Convention — almost universal membership.¹⁵⁸

From its inception, the Basel Convention has argued whether there should be a complete ban on trading hazardous waste.¹⁵⁹ The context of the debate around the development of a limited transboundary agreement is crucial in this case; African states and other lesser developed states combined with non-government orga-

152. MICHAEL LAGREGA, PHILLIP BUCKINGHAM & JEFFREY EVANS, *HAZARDOUS WASTE MGMT.* 20 (Waveland Press 2010) (listing sources of hazardous waste).

153. Virendra Misra & S.D. Pandey, *Hazardous Waste, Impact on Health and Environment for Development of Better Waste Management Strategies in Future in India*, 31 *ENV'T INT'L*, 417, 428 (2005) (discussing impacts of waste products).

154. Matiangai Sirleaf, *Not Your Dumping Ground: Criminalization of Trafficking in Hazardous Waste in Africa*, 35 *WIS. INT'L L.J.* 326, 340 (2018) (characterizing early regulation of hazardous waste as “soft law”).

155. Jonathan Krueger, *Prior Informed Consent and the Basel Convention: The Hazards of What Isn't Known*, 7 *J. ENV'T & DEV.* 115, 115 (1998) (recounting growth of concern regarding hazardous waste).

156. See, e.g., Olanrewaju Fagbohun, *The Regulation of Transboundary Shipments of Hazardous Waste: A Case Study of the Dumping of Toxic Waste in Abidjan, Cote D'Ivoire*, 37 *HONG KONG L.J.* 831, 837 (2007) (summarizing Basel Convention).

157. ERIKA J. TECHERA, SHAWKAT ALAM, MD JAHID HOSSAIN BHUIYAN & TAREQ M.R. CHOWDHURY, *ROUTLEDGE HANDBOOK OF INTERNATIONAL ENVIRONMENTAL LAW* 301 (Taylor & Francis Group 2012) (outlining Basel Convention organization and function).

158. *Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal*, BASEL CONVENTION, <http://www.basel.int/Countries/StatusofRatifications/PartiesSignatories/tabid/4499/Default.aspx> (last visited Feb. 22, 2023) (listing parties to Basel Convention).

159. See, for example, the infamous Lawrence Summer memo, published in part by The Economist under the title *Let Them Eat Pollution* on February 8, 1992, <http://www.whirledbank.org/ourwords/summers.html> (arguing against complete ban).

nizations (NGOs) in calling for a complete banning of transboundary movement of hazardous waste. They argued that such a ban was the “only means to force industrialized states to dispose of their own wastes” which would protect vulnerable developing nations from becoming the “dumping ground of the wealthy North.”¹⁶⁰ Developed states, supported by some in the developing world, opposed the moratorium, concerned such a move would be financially detrimental because the developed world could no longer export their waste; specifically, the developed world would have to process the waste domestically instead and, therefore, miss out on the revenue streams associated with the trade. The debate discussed how the trade provided economic benefits to LDCs, including recycling industries that developed in their countries, and that limitations would come at a cost.¹⁶¹ In the immediate conclusion of the Basel Convention, the developed states’ arguments won the day, seeing as no direct ban was imposed. The debate continues to underpin the Basel Convention’s discourse to this day. It has led inter alia to the 1994 Second Conference of the Parties adoption of the “Basel ban” on hazardous waste exports from Organisation for Economic Co-operation and Development (OECD) States, European Union (EU) Member States, and Liechtenstein to developing countries or economies in transition. The decision was carried over in 1995 as a proposed amendment to the Basel Convention, and following the prerequisite ratifications, became effective on December 5, 2019. Many countries, including EU Member States, however, already implemented the ban in their national laws.

The overall goal of the Convention is “to protect human health and the environment against the adverse effects that may result from the generation, transboundary movements[,] and management of hazardous and other wastes.”¹⁶² The aim of the treaty is “to help reduce the number of transboundary movements and the quantity of hazardous wastes to a minimum, and to manage and dispose of these wastes in an environmentally sound manner” by

160. Katharina Kummer, *The Basel Convention: Ten Years On*, 7(3) REV. OF EUR., COMPAR. & INT’L ENV’T L., 227, 227 (1998) (summarizing arguments in favor of complete ban).

161. *Id.* (listing arguments against complete ban).

162. National Environmental Agency (Singapore), *Main Provisions of the Basel Convention*, NAT’L ENV’T AGENCY, <https://www.nea.gov.sg/corporate-functions/resources/legislation-international-law/multilateral-environmental-agreements/chemical-safety/basel-convention/main-provisions-of-the-basel-convention> (Oct. 21, 2020) (summarizing Basel Convention).

enforcing an agreed regime of rules and licenses.¹⁶³ The Preamble of the Convention notes the “most effective way of protecting human health and the environment from the dangers posed by hazardous and other wastes” is to reduce the quantity of such waste created “to a minimum in terms of quantity and/or hazard potential.”¹⁶⁴ The preamble also explicitly mentions the “limited capabilities of the developing countries to manage hazardous wastes and other wastes” and “the need to promote the transfer of technology for the sound management of hazardous wastes and other wastes produced locally, particularly to the developing countries.”¹⁶⁵

As per Annex I, hazardous wastes are defined as including certain listed wastes and waste streams.¹⁶⁶ A listed waste is considered hazardous if it displays one of the “hazardous characteristics” set out in Annex III.¹⁶⁷ Designated “[o]ther wastes” are listed in Annex II. These include household waste and incinerator ash.¹⁶⁸ Hazardous waste is also often characterized as “waste requiring special consideration.”¹⁶⁹ Under the Convention, “wastes” are further defined as “substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law.”¹⁷⁰ The reference to national law as the trigger for a substance being regarded as “waste” is an obvious shortcoming of the Basel Convention, which has led to many complications inter alia in the area of shipbreaking: the moment a discontinued ship stops being a vessel and becomes a “waste”.

Article 10 of the Basel Convention asks the parties to “co-operate with each other in order to improve and achieve environmen-

163. *Id.* (restating goals of Basel Convention).

164. Basel Convention, Preamble (outlining motivations for agreement).

165. *Id.* (recognizing limitations of developing countries). *See also* Gary Cox, *The Trafignura Case and the System of Prior Informed Consent under the Basel Convention - A Broken System*, 6 L. ENV'T & DEV. J. 263, 265 (2010) (discussing Basel Convention Preamble).

166. Basel Convention, Annex I (defining hazardous wastes).

167. Annex III (describing when a listed waste is considered hazardous); *see also* ERIKA J. TECHERA, JADE LINDLEY, KAREN N. SCOTT & ANASTASIA TELESITSKY, *ROUTLEDGE HANDBOOK OF INTERNATIONAL ENVIRONMENTAL LAW* 298 (Taylor & Francis Group, 2012) [hereinafter *ROUTLEDGE HANDBOOK*] (explaining Annex III).

168. Basel Convention, Annex II (designating “other wastes”). *See also Overview*, *BASEL CONVENTION*, <http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx> (last visited Feb. 22, 2023) (summarizing Annex II).

169. Saha Ahmad Khan, *Clearly Hazardous, Obscurely Regulated: Lessons from the Basel Convention on Waste Trade*, 114 *AMER. J. OF INT'L L.* 200, 201 (2020) [hereinafter *Lessons from the Basel Convention*] (defining hazardous waste).

170. Basel Convention, Annex II (elaborating on definition of hazardous waste).

tally sound management of hazardous wastes and other wastes.”¹⁷¹ Article 2(d) and 4 also advocate for cooperation between COP members in developing technical capacity, taking into account the needs of developing countries to “promote, inter alia, public awareness, the development of sound management of hazardous wastes and other wastes[,] and the adoption of new low-waste technologies.” Further, each member state has an obligation to ensure that the transboundary movement of hazardous and other wastes is reduced to the minimum consistent with the “environmentally sound” and efficient management of such wastes.¹⁷²

Member states are to lessen the generation of hazardous waste, taking into account social, technological, and economic considerations.¹⁷³ They must ensure the availability of adequate disposal facilities¹⁷⁴ and ensure that necessary steps are taken to minimize impacts on human health and the environment.¹⁷⁵ Additionally, they must undertake any transportation and disposal of hazardous waste in an “environmentally sound manner.”¹⁷⁶ Members are also required to take appropriate legislative and administrative measures to implement and enforce the provisions of the Basel Convention, including measures to prevent and punish conduct in contravention of the Convention.¹⁷⁷ The Basel Convention reinforces a member state’s sovereign right to prohibit the importation of hazardous waste by allowing a transit or importing state to deny permission, request further information, or grant conditional approval subject to conditions.¹⁷⁸ The Convention places the onus on exporting countries to ensure that hazardous wastes are managed in an “environmentally sound manner” in the country of import.¹⁷⁹

Intriguingly, the mechanism of prior informed consent (PIC) was inserted in the text, whereby states cannot export hazardous waste to another nation unless that nation’s designated competent

171. *Id.* at art. 10 (requiring cooperation).

172. *Id.* at art. 2 (8) (obligating member states).

173. *Id.* at art. 4 (2)(a) (requiring reduction in hazardous waste generation).

174. *Id.* at art. 4 (2)(b) (outlining need for adequate facilities).

175. Basel Convention, at art. 4 (2)(c) (emphasizing importance of protecting human health and environment).

176. *Id.* at art. 4 (2) and 4 (8) (setting standards for transportation and disposal of hazardous waste).

177. *Id.* at art. 4 (4) (requiring appropriate enforcement measures).

178. *Id.* at art. 6 (leaving certain authority to states).

179. *International Hazardous Waste Conventions*, AUSTRALIAN GOV’T (Oct. 5, 2022), <https://www.environment.gov.au/protection/hazardous-waste/conventions> (listing obligations on exporting countries).

authority has been properly informed and has consented.¹⁸⁰ The export of hazardous waste is prohibited until the importing and transit member states have provided written authorization.¹⁸¹ Such written consent requires the designated competent authority of the importing member state to further ensure the transaction provides for environmentally sound management of the waste.¹⁸² The notification must also include specific information regarding the nature, volume, generator's details, and the ultimate disposal of the waste.¹⁸³ Parties are only allowed to trade waste if the exporting state does not have the technical capacity and infrastructure necessary to ensure an environmentally sound and efficient disposal.¹⁸⁴ If the parties trade plastic waste, the trade must be reduced to a minimum, in line with the preamble, and it must be disallowed if the receiving party believes the waste will not be managed appropriately or the exporting party believes the management of waste by the receiving party is not environmentally sound.¹⁸⁵

The primary benefit of the prior informed consent (PIC) scheme is that it allows the waste trade to operate at the control and agreement of the receiving member state, but the scheme as currently configured is problematic. Where consent is not obtained correctly or in a timely manner, it can create opportunities for improper disposal or dumping of hazardous waste. Further, there is no mechanism or process for the exporting country to verify and be satisfied that the appropriate hazardous waste management facilities exist or are available in the importing state. Also problematic is that importing states may make representations that they have the

180. See *Controlling Transboundary Movements*, Basel Convention, UNEP, <http://www.basel.int/Implementation/Controllingtransboundarymovements/Overview/tabid/4325/Default.aspx> (last visited Mar. 22, 2023) (defining prior informed consent).

181. Basel Convention, at art. 6 (3) (requiring written consent for exportation).

182. *Basel Convention Plastic Waste Amendments*, BASEL CONVENTION, <http://www.basel.int/Implementation/Plasticwaste/Amendments/Overview/tabid/8426/Default.aspx> (last visited Feb. 21, 2023) (summarizing plastic waste amendments).

183. Basel Convention, at art. 6 (specifying notification requirements).

184. Basel Convention, at art. 4 (9)(a) (limiting transboundary movement of hazardous wastes); see also Karen Raubenheimer & Niko Urho, *Rethinking Global Governance of Plastics – The Role of Industry*, 113 *MARINE POL'Y* 1, 2 (2020) [hereinafter *Rethinking Global Governance of Plastics*] (analyzing Basel Convention policy on transboundary movement of hazardous wastes).

185. Basel Convention at art. 4 (2) (listing requirements for transboundary movement of hazardous wastes). See also Raubenheimer & Urho, *Rethinking Global Governance of Plastics*, *supra* note 184, at 4 (discussing requirements for transboundary movement of hazardous wastes).

requisite facilities, which can be enough for exporting states to rely on without independent verification of the veracity of such claims.¹⁸⁶ A lack of rigor leaves the PIC process susceptible to corruption and economic pressure.¹⁸⁷ The current self-verifying PIC provisions do not appear to put in place appropriate safeguards against the economic drivers affecting a country's decisionmaking and trade competition given that, for some developing countries, the global hazardous waste trade provides significant employment and economic revenue.¹⁸⁸

1. *Basel Ban Amendment*

The so-called "Ban Amendment," which COP states adopted at the 1995 Basel conference, sought to strengthen enforceability of the Convention by prohibiting the export of hazardous waste from a member state of the OECD, the EU, and Liechtenstein to a non-OECD member country.¹⁸⁹ The Ban Amendment did not come into effect until December 5, 2019, when the required seventy-five percent of Convention parties ratified the Amendment when Croatia became the 97th state to ratify the amendment.¹⁹⁰

The Ban, in its simplest form, uses a crude binary approach to distinguish countries within Annex VII. Such a division does not recognize that, within the group of non-OECD countries, there exists a wide range of institutional and economic capacity and waste management approaches.¹⁹¹ For example, Singapore has advanced waste management practices, yet is not precluded from trading its waste with other non-OECD countries which are likely to hold lesser capability.¹⁹² An unintended consequence may therefore be

186. See Alan Andrews, *Beyond the Ban – Can the Basel Convention Adequately Safeguard the Interests of the World's Poor in the International Trade of Hazardous Waste?*, 5 L. ENV'T & DEV. J. 169, 171 (2009) (summarizing exportation process).

187. Fagbohun, *supra* note 156, at 841 (recounting criticisms of Basel Convention).

188. Andrews, *supra* note 186, at 173-74 (criticizing self-verification system).

189. *Id.* at 171 (explaining Ban Amendment).

190. *Amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal*, BASEL CONVENTION, <http://www.basel.int/Countries/StatusofRatifications/BanAmendment/tabid/1344/Default.aspx> (last visited Feb. 22, 2023) (summarizing history of Ban Amendment). Croatia became the ninety-seventh state to ratify the Ban Amendment. *Id.* (noting Croatia's historic signing on to Ban Amendment).

191. See Josh Lepawsky, *Are We Living in a Post-Basel World?*, 47 AREA 7, 12 (2015) (comparing waste management approaches).

192. John Geddie, *In Singapore Where Trash Becomes Ash, Plastics Are Still a Problem*, REUTERS (June 6, 2018), <https://www.reuters.com/article/us-singapore-waste-idUSKCN1J20HX> (reporting waste problems in Singapore).

a low incentive for non-OECD countries to improve their waste disposal processes.

The Ban Amendment appears to be a significant development in minimizing the global hazardous waste trade. If the commitments are upheld, it has the potential to prevent dumpers from using the developing world as a dumping ground for hazardous waste. Given the Ban Amendment's relatively recent ratification, however, it is too soon to quantify comprehensively the Ban Amendment's expected impacts.¹⁹³ World Customs Organization researcher Kenji Omi notes trade volumes have decreased since the introduction of the Ban Amendment but speculates this is more likely to be a result of increased illegal trading of waste to avoid regulatory oversight.¹⁹⁴

2. *Plastic Waste and the 2019 Norwegian Amendment*

Before 2019, "solid plastic waste" was presumed to be "non-hazardous" and excluded from the scope of regulated waste under the treaty.¹⁹⁵ During the fourteenth meeting of the Conference of the Parties, which took place April through May of 2019,¹⁹⁶ Norway first proposed amendments relating to the Convention's objectives of "enhancing the control of transboundary movements of plastic waste and clarifying the scope of the Convention as it applies to such waste."¹⁹⁷ 187 parties adopted these amendments. As a result, plastic wastes – including mixed, unrecyclable, and contaminated plastic waste¹⁹⁸ – were henceforth presumed to be hazardous and were to be subject to the procedure of PIC when exported.¹⁹⁹ Amendments were then made to Annexes II, VIII, and IX. Under

193. BASEL ACTION NETWORK, IPEN, *THE ENTRY INTO FORCE OF THE BASEL BAN AMENDMENT; A GUIDE TO IMPLEMENTATION AND NEXT STEPS* (Jan. 2020), https://ipen.org/sites/default/files/documents/ban-basel-fact-sheet-v2_1-en.pdf (noting difficulty quantifying Basel Amendment impacts).

194. KENJI OMI, *CURRENT SITUATION, ANALYSIS AND OBSERVATIONS ON WASTE CONTROL AT BORDERS BY CUSTOMS 10* (WCO Research Paper No 50, World Customs Organization, Dec. 2020) (analyzing decrease in trade volumes).

195. Khan, *Lessons from the Basel Convention*, *supra* note 169 (recapping pre-Basel Convention legal doctrine).

196. *Basel Convention Plastic Waste Amendments*, BASEL CONVENTION, <http://www.basel.int/Implementation/Plasticwaste/PlasticWasteAmendments/Overview/tabid/8426/Default.aspx> (last visited Feb. 22, 2023) (providing dates of fourteenth meeting).

197. *Id.* (outlining Convention's goals).

198. *Overview*, BASEL CONVENTION, <http://www.basel.int/Implementation/Plasticwaste/Overview/tabid/8347/Default.aspx> (last visited Feb. 22, 2023) (defining plastic wastes).

199. *Basel Convention Plastic Waste Amendments*, BASEL CONVENTION, <http://www.basel.int/Implementation/Plasticwaste/PlasticWasteAmendments/Over>

this procedure, parties are not allowed to export hazardous waste unless the state importing the waste has given its consent to the shipment beforehand in writing, together with a series of other requirements.²⁰⁰

In contrast, entry B3011, which was added to Annex IX of the Convention, denotes the types of plastic wastes that are deemed not hazardous and, therefore, are not required to abide by the PIC procedure.²⁰¹ These non-hazardous plastic wastes include a group of cured resins and non-halogenated and fluorinated polymers, provided the waste is destined for recycling in an environmentally sound manner and almost free from contamination and other types of wastes. Additionally, the hazardous plastic wastes include mixtures of plastic wastes consisting of polyethylene (PE), polypropylene (PP), or polyethylene terephthalate (PET) provided they are destined for separate recycling of each material and in an environmentally sound manner, and provided they are almost free from contamination and other types of wastes.²⁰²

States are thus – theoretically – legally bound to be transparent and have better regulations to protect the safety of human health and the environment.²⁰³ The first goal here is stricter transparency and regulation to promote recycling within the states who are the larger plastic waste producers. The second goal is that these provisions will ensure developing states deny unrecyclable and contaminated plastic entry to their border because those developing states lack the technical capacity and infrastructure to ensure environmentally sound management of plastic waste.²⁰⁴ The amendment came into force on January 1, 2021.²⁰⁵ Again, the U.S. opposed this overwhelming consensus and voted against this amendment.²⁰⁶

view/tabid/8426/Default.aspx (last visited Feb. 22, 2023) (explaining effect of Amendments).

200. Khan, *Lessons from the Basel Convention*, *supra* note 169, at 201 (analyzing impact of Amendments).

201. *Basel Convention Plastic Waste Amendments*, *supra* note 199 (summarizing Amendments).

202. *Id.* (listing non-hazardous plastic wastes).

203. STAVROULA KORDELLA, HRISSI K. KARAPANAGIOTI & GEORGE PAPTHERODOROU, THE NEED FOR A GLOBAL PLASTIC STRATEGY, IN HRISSI K. KARAPANAGIOTI AND IONNIS K. KATAVROUZIOS, MICROPLASTICS IN WATER AND WASTEWATER 197 (IWA Publishing, 1st ed., 2019) (describing states' legal obligations).

204. Basel Convention, at art. 4 (2)(d) (requiring environmental sound waste management); Raubenheimer & McIlgorm, *supra* note 91, at 286 (discussing developing states).

205. *Basel Convention Plastic Waste Amendments*, *supra* note 199 (stating effective date).

206. Dominique Mosbergen, *How America Is Sabotaging The Global War on Plastic Waste*, BREAKFREEFROMPLASTIC (May 22, 2019), <https://www.breakfreefromplastic.com/>

The 2019 COP also initiated an update of the technical guidelines for environmentally sound plastics waste management, which date back to 2002.²⁰⁷

3. *Issues with the Basel Convention and Plastic*

Although the Norwegian plastic amendment is a significant and historic achievement, its success must be tempered with the number of outstanding questions that still need to be answered. The main problem impacting the application of the Basel Convention to plastic waste are the often inconclusive and open-ended language of the provisions relating to plastics.²⁰⁸ Enforcing compliance on states has thus far been difficult, which has led to guidelines being rarely effective.²⁰⁹ For example, China, which until recently imported globally traded plastic waste, was notorious for failing to comply with trade regulations and guidelines under the Convention.²¹⁰

The Basel Convention also fails to provide clear definitions regarding how best to classify wastes as a result, as signaled above, of the deference to national law on the very issue of a substance being “waste.” These lacunae and loopholes “perpetuate problems with implementation.”²¹¹ One of the significant ambiguities occurs in the distinction between “waste” and “non-waste,” and “hazardous” and “non-hazardous.” The definition of “hazardous waste” is critically important as it determines whether the Basel Convention governs a product. Beyond these definitional uncertainties, a member state must consider how much a listed waste constitutes it as a hazardous waste as well as whether the composition makes it a hazard-

plastic.org/2019/05/22/how-america-is-sabotaging-the-global-war-on-plastic-waste/ (criticizing United States opposition).

207. See Technical Guidelines for the Identification and Environmentally Sound Management of Plastic Wastes and for Their Disposal UNEP/CHW.6/21, 23 August 2002, adopted by Decision BC-6/21 (COP6, 2002) (providing updated guidelines).

208. Nils Simon & Maro Luisa Schulte, *Stopping Global Plastic Pollution: The Case for an International Convention*, 43 PUBL’N SERIES ECOLOGY 1, 26 (2017) (describing global plastic pollution) (describing need for international solutions for plastic pollution); Raubenheimer & McIlgorm, *supra* note 91, at 287 (criticizing unclear applicability of Basel Convention to plastics).

209. Raubenheimer & McIlgorm, *supra* note 91, at 287 (lamenting difficulty of enforcement).

210. *Id.* (noting China’s frequent failure to comply).

211. Laura Pratt, *Decreasing Dirty Dumping? A Reevaluation of Toxic Waste Colonialism and the Global Management of Transboundary Hazardous Waste*, 35 WM & MARY ENV’T L. & POL’Y REV. 581, 622 (2011) (proposing new changes to international system for toxic waste).

ous waste.²¹² For example, does a small trace amount of a harmful substance present within a listed waste render the waste hazardous? This ambiguity is likely to lead members states to reach differing conclusions on what constitutes hazardous waste.²¹³

Household plastic waste is classified as “other wastes which requires special consideration” and, therefore, most plastics do not fall under the definition of hazardous wastes.²¹⁴ There also needs to be greater clarity as to what can be considered hazardous or non-hazardous plastic waste. The Norway amendment notes that any shipment of plastic waste needs to be “almost free from contamination” and composed “almost exclusively” of one polymer or resin.²¹⁵ Such ambiguity can result in different interpretations that can undermine the effectiveness of the new amendments.²¹⁶ As of the amendment, ninety-one percent of plastic waste will be classified as uncontaminated recyclable plastics, which will help limit the global plastic waste trade by requiring developed states to build domestic recycling and disposal facilities to deal with their plastic waste streams.²¹⁷

Many of the provisions are still too vague to have any authority in regulating how states deal with their waste.²¹⁸ The Norway amendment failed to put in place overall reduction targets, clear reporting obligations, and effective monitoring processes that can tell whether the trade is decreasing.²¹⁹ Further, the Basel Conven-

212. David P. Hackett, *An Assessment of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*, 5 AM. U. INT’L L.J. 291, 314 (1990) (analyzing Basel Convention).

213. *Id.* at 314 (describing Basel Convention’s impact on international waste disposal).

214. KAREN RAUBENHEIMER, NILÜFER ORAL & ALISTAIR McILGORM, *COMBATING MARINE PLASTIC LITTER AND MICROPLASTICS: SUMMARY FOR POLICYMAKERS* 123 (United Nations Environment Programme, 1st ed., 2017) (summarizing impact of international policies on plastic pollution); Basel Convention, Annex II, (1, 123) (discussing marine plastic litter policies).

215. Khan, *Lessons from the Basel Convention*, *supra* note 169, at 203 (analyzing waste trade issues discussed at Basel Convention).

216. *Id.* at 205 (describing impact of waste trade).

217. Yeeun Uhm, *Plastic Waste Trade in Southeast Asian After China’s Import Ban: Implications of the New Basel Convention Amendment and Recommendations for the Future*, 57 CAL. W.L. REV. 15, 42 (Fall 2020) (explaining repercussions internationally from domestic restrictions on waste).

218. Raubenheimer & McIlgorm, *supra* note 91, at 287-90 (analyzing Basel and Stockholm Convention impact on international pollution).

219. *Id.* at 287 (outlining Convention’s measures for combatting pollution internationally); Khan, *Lessons from the Basel Convention*, *supra* note 169, at 205 (addressing international waste trade issues); Raubenheimer & Urho, *Rethinking Global Governance of Plastics*, *supra* note 184 at 5 (proposing global extended producer responsibility scheme to reduce international plastic waste).

tion only applies to plastics which can be classified as “hazardous waste,” meaning many types of plastics that are still pervasive and problematic in marine ecosystems are excluded from this definition.²²⁰ The parties, therefore, still determine what constitutes “hazardous” and “other” waste within their domestic jurisdictions.²²¹ Additionally, the Basel Convention does not address the vexing issue of “upstream” plastic production as a cause of marine plastic pollution.²²²

Such ambiguities at the global level allow for “inconsistent domestic legal interpretations” of the provisions undermining global plastic waste reductions.²²³ Ambiguity regarding the application of the Basel Convention creates a significant burden on regulators regardless of their substantive resources or capability. Scholar Michael Goodall argues this flaw further:

. . . complicates the process of adhering to the Basel Convention and increases the likelihood that informal or illegal routes will be taken to avoid the matter entirely. This challenge may be more pronounced in less developed countries where physical and technical resources or information may not be adequate to readily implement the Basel Convention.²²⁴

On a practical level, Schneider argues that the broad definition engenders confusion, a challenge that the United Nations Environment Programme (UNEP) has acknowledged as a driver of unintentional breaches of the legal framework.²²⁵ The Convention Secretariat has also recognized these shortcomings publicly and

220. Khan, *Lessons from the Basel Convention*, *supra* note 169, at 205 (detailing implications of waste trade internationally).

221. Olivier Barsalou & Michael Hennessy Picard, *International Environmental Law in an Era of Globalized Waste*, 17 CHINESE J. OF INT'L. L. 887, 889-906 (2018) (arguing for continuity in international environmental law).

222. Khan, *Lessons from the Basel Convention*, *supra* note 169, at 205 (describing implications from international conventions on waste trade and plastic pollution).

223. *Id.* at 203 (summarizing international conventions' impact on pollution).

224. Michael Goodall, *Regulation of Electronic Waste Under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal*, 36 ENV'T & PLAN. L.J. 322, 329 (2019) (examining electronic waste disposal regulations under Basel Convention).

225. William Schneider, *The Basel Convention Ban on Hazardous Waste Exports: Paradigm of Efficacy or Exercise in Futility?*, 20 SUFFOLK TRANSNAT'L L. REV. 247, 268 (1996) (analyzing success of Basel Convention's ban on hazardous waste exports to specific countries); UNEP, WASTE CRIME: LOW RISKS - HIGH PROFITS. GAPS IN MEETING THE GLOBAL WASTE CHALLENGE 15 (2015) (assessing international waste management).

notes the need to ensure a common understanding of substances and objects falling under the Convention's scope. Over the course of various meetings, parties have resolved to convene a working group to review Annexes I, II, IV, and related aspects of Annex IX. These working groups have been meeting since 2016 and met most recently in September 2021.²²⁶

Under the current PIC scheme, there is no guarantee that recipient countries will be fully informed of the risks involved with the hazardous waste transfer. Furthermore, there is often a lack of administrative, technical, and financial resources to monitor the prior informed consent procedures.²²⁷ This results in an inability for lesser developed countries to assess the risks of importing the waste and make informed decisions.

The "loophole" of recycling, however, has also proved fraught when it comes to limiting the plastic waste trade. Specifically, if the plastic waste can be recycled in an environmentally friendly manner, it can avoid the Basel Convention's regulatory ambit.²²⁸ Developed states have been trading forty-five percent of their plastic waste to developing nations by claiming that the plastic waste is a recyclable commodity.²²⁹ Such an exception threatens to undermine the new amendment's scope and efficacy.²³⁰ Notably, the United States has not ratified the Convention.²³¹ Given the United States' status as a major plastic exporter, its non-ratification has proven problematic.

Lastly, the Basel Convention critically "lacks any real enforcement mechanism," instead relying on the parties to enact domestic

226. *Legal Clarity Overview*, BASEL CONVENTION, <http://www.basel.int/Implementation/LegalMatters/LegalClarity/tabid/3621/Default.aspx> (last visited Feb. 5, 2023) (clarifying interpretations of international treaties and terms).

227. ZADA LIPMAN, *TRADE IN HAZARDOUS WASTE IN SHWKAT ALAM*, SUMUDU ATAPATTUM, CARMEN G. GONZALEZ & JONA RAZZAQUE (EDS) *INTERNATIONAL ENVIRONMENTAL LAW AND THE GLOBAL SOUTH* 256 (Cambridge University Press, 2015) (detailing environmental international law).

228. Sabaa Ahmad Khan, *E-products, E-waste and the Basel Convention: Regulatory Challenges and Impossibilities of International Environmental Law*, 25 *REV. OF EUR., COMPAR. & INT'L ENV'T L.* 248, 253 (2016) (assessing e-waste).

229. Barsalou & Picard, *supra* note 221, at 901 (explaining need for international environmental law to combat international waste).

230. Khan, *E-products, E-waste and the Basel Convention*, *supra* note 228, at 253 (describing international e-waste and legal challenges).

231. *Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their disposal*, SECRETARIAT OF THE BASEL CONVENTION, <http://www.basel.int/Countries/StatusofRatifications/PartiesSignatories/tabid/4499/Default.aspx> (last visited Feb. 5, 2023) (listing parties to Basel Convention).

legislation to implement its provisions.²³² The failure to instill proper enforcement mechanisms within the Basel Convention to hold waste traders accountable for environmental damage was described by Ajibo as a fundamental flaw that impacts the attainment of environmental justice in developing countries.²³³ The absence of effective enforcement mechanisms within the Basel Convention is not unique in this respect. As Mark Montgomery argued: “all international law has ‘inadequate’ enforcement mechanisms. Because international law lacks a supranational enforcement authority, it is both imperfect and self-enforcing.”²³⁴ The detection of illegal shipments of hazardous waste is left to the individual states, which requires sophisticated monitoring that developing countries are not always equipped to undertake.²³⁵ The increasingly globalized nature of plastic production and a shifting trade dynamic requires an evolution of the current regulatory framework for the transboundary movement of plastic pollution.

4. *Potential Improvements to the Basel Convention*

Given the issues identified with both the Basel Convention and the 2019 amendment, there are several easily identifiable improvements. The Basel Convention’s technical guidelines currently focus on land-based management of waste, though its scope could be expanded to include the marine-based management of waste.²³⁶ The Basel Convention could acknowledge the plastics “lifecycle” concept and further encourage recycling over landfill as an option by incorporating the option into its text and policies.²³⁷ COP members need to concentrate their collective efforts on a comprehensive and unanimous working definition of hazardous waste. Two amendments to the Basel Convention would help to ameliorate plastic pollution. By deleting the term “solid plastic waste” from Annex IX and adding a new category of plastic waste under Annex

232. Zada Lipman & Matthew Ind, *The e-waste dilemma: Are international measures and product stewardship schemes a solution?*, 31 ENV’T & PLAN. L.J. 223, 227 (2014) (analyzing international e-waste and disposal).

233. Kenneth Ajibo, *Transboundary Hazardous Wastes and Environmental Justice: Implications for Economically Developing Countries*, 18 ENV’T L. REV. 267, 275 (2016) (arguing for strict Basel Convention provisions to curtail international pollution).

234. Mark Montgomery, *Banning Waste Exports: Much Ado About Nothing*, 1 BUFFALO J. OF INT’L L. 197, 199 (1994) (examining ban on hazardous waste exports).

235. Lipman, *supra* note 227, at 262 (detailing international environmental law and policies).

236. Simon & Schulte, *supra* note 208, at 26 (2017) (describing global plastic pollution).

237. Raubenheimer & McIlgorm, *supra* note 91, at 290 (summarizing international policies governing plastic pollution).

II,²³⁸ states could no longer trade “green” waste because they classified it as non-hazardous. States exporting plastic waste would be obliged to receive written consent before importing and transiting to prospective countries.²³⁹

Importing countries are generally developing states, and such a change would render them better informed of the plastic waste they have consented to accept. Hopefully, this change will result in less plastic waste sent to countries that cannot manage unrecyclable or contaminated wastes in an environmentally sound way. Additional funding would need to bolster this change to comply with improved regulations and to build capacity to an appropriate level.²⁴⁰

Further, the Basel Convention delegates should allow states, particularly developing states, to have access to funding such as the Plastics Fund and the Global Environmental Facility (GEF).²⁴¹ The Plastics Fund and the GEF are stand-alone financial mechanisms that aid developing countries to address global environmental problems.²⁴² Lastly, domestic enforcement is, and should continue to be, the central forum for environmental justice under the Basel Convention. The effectiveness of this enforcement mechanism in less developed countries could be further bolstered by the Parties promoting and investing in the administrative structures that are able to implement sound environmental policies and regulations.²⁴³

The Basel Convention, combined with the Stockholm Convention, has potentially the greatest applicability to the management of plastics at the international level. Together, their coordinated operation could ameliorate the impact of the plastic lifecycle by regulating both the POPs generated during the manufacturing process

238. Giulia Carlini, *One Small Edit for a Legal Text, One Giant Leap for Addressing Plastic Pollution: A New Plastic Waste Proposal for the Basel Convention*, CTR. FOR INT’L ENV’T L. (Aug. 30, 2018), <https://www.ciel.org/plastic-waste-proposal-basel-convention/> (detailing legal framework for international plastic pollution).

239. *Id.* (outlining implications of international agreements on plastic pollution).

240. Simon & Schulte, *supra* note 208, at 44 (explaining potential solutions for global plastic pollution); Raubenheimer & McGillorm, *supra* note 91, at 290 (explaining international policy impact on curtailing plastic pollution).

241. Kirk & Popattanachai, *supra* note 105 (addressing Article 207 criticism).

242. Donald M. Goldberg, *The Montreal Protocol Multilateral Fund: A Model for the Framework Convention on Climate Change*, 16 INT’L ENV’T REPORT 233, 233 (1993) (summarizing financial mechanism described in Convention on Climate Change).

243. Sirleaf, *supra* note 154, at 366 (arguing for improved legal framework for hazardous waste).

as well as limiting the international plastic waste trade.²⁴⁴ Both instruments have a high level of international participation, furthering their capacity for global management of the hazards plastic poses if their member states choose to act.²⁴⁵ The Basel Convention provides a clear vision for international governance of hazardous waste. For example, the preamble expresses that “the most effective way of protecting human health and the environment from the dangers posed by [hazardous and other] wastes is the reduction of their generation to a minimum in terms of quantity and/or hazard potential.”²⁴⁶

C. Other Relevant Soft Law Instruments and Approaches

Several binding instruments that have a primary purpose in the protection of biodiversity²⁴⁷ or specific species²⁴⁸ may be applicable to marine plastic debris. There are several non-binding “soft law” instruments, strategies, and action plans regarding plastic that the international community has adopted.²⁴⁹

1. *The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities*

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)²⁵⁰ was crafted in 1995 and encourages states to develop and review “national actions [programs] . . . on the basis of national priorities and strategies.”²⁵¹ Supported by regular Intergovernmental Reviews (IGRs), the GPA has led to the establishment of measures such as

244. Raubenheimer & McIlgorm, *supra* note 91, at 290 (detailing international environmental law policies).

245. The Basel Convention has 186 Parties, and the Stockholm Convention has 181 Parties (both including the EU).

246. Basel Convention, Preamble (discussing hazardous waste disposal).

247. Convention on Biological Diversity *adopted* June 5, 1992, 1760 U.N.T.S. 79 (entered into force Dec. 29, 1993) (establishing framework for biological diversity conservation).

248. U.N. Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, *opened for signature* Dec. 4, 1995, 2167 UNTS 88 (entered into force Dec. 11, 2001) (promoting conservation efforts of fish stocks).

249. Carlini & Kleine, *supra* note 24, at 236 (arguing for international agreement governing plastic pollution).

250. UNEP, *Global Programme of Action for the Protection of the Marine Environment from Land-based Activities*, UN Doc UNEP(OCA)/LBA/IG.27 (Dec. 5, 1995) (GPA) (calling on states to help protect marine environment).

251. *Id.* (summarizing need for international framework to hold states accountable for protecting marine environment).

the Global Initiative on Marine Litter²⁵² and the Manila Declaration,²⁵³ both of which encouraged the improved understanding and monitoring of the issue.²⁵⁴

The GPA adopts an integrated coastal management (ICM) framework and the ecosystem-based approach, as well as the integrated coastal and river basin management approach (ICARM) to the issue of marine litter. It also adopts a multi-layered approach by providing an outline for actions to be taken for land-based sources of marine pollution at three different levels: the national level, the regional level through cooperative action, and the international level.²⁵⁵

Notably, the GPA identifies specific sources of land-based pollution for international cooperation, including wastewater treatment, persistent organic pollutants, sewage, sediments, and litter, providing recommended approaches for each category.²⁵⁶ Plastic is mentioned explicitly in the sewage and litter categories. Problematically, no system in place monitors the progress of these programs nor ensures states develop and implement them.²⁵⁷ Consequently, when the UNEP secretariat surveyed states on the status of their plans, less than one-third of the 108 governments that supported the original Washington Declaration responded, indicating that uptake is minimal.²⁵⁸

2. *The Honolulu Strategy*

The Honolulu Strategy (Strategy)²⁵⁹ was one of the key outcomes of the Fifth International Marine Debris Conference

252. UNEP, *Report on the Second Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities*, UN Doc UNEP/GPA/IGR.3/2 (Nov. 9, 2011) ¶¶ 39-41 (reporting meeting to combat marine environment degradation).

253. UNEP, *Manila Declaration on Furthering the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities*, UNEP/GPA/IGR.3/5, Annex (outlining plan to combat marine environment pollution).

254. Kirk & Popattanachai, *supra* note 105 (critiquing Article 207).

255. UNEP, *Global Programme of Action for the Protection of the Marine Environment from Land-based Activities*, *supra* note 250 (addressing ways to protect marine environment).

256. *Id.* (detailing methods to prevent land-based activities from polluting marine environment).

257. Hugo, *supra* note 26, at 12 (arguing for new treaties governing marine and land pollution).

258. *Id.* at 1, 19 (describing need for international agreements governing marine and land pollution).

259. UNEP & NOAA, *The Honolulu Strategy: A Global Framework for Prevention and Management of Marine Debris*, UNEP, at 2, <https://marinedebris.noaa.gov/>

(5IMDC) held in Honolulu, Hawaii in March of 2011.²⁶⁰ At the meeting, 440 participants representing thirty-eight states, research bodies, scientists, corporations, and trade officials met to craft the strategy.²⁶¹ The United Nations Environment Programme and National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program provided the technical and financial support throughout its development.²⁶²

Monica Medina, NOAA's Principal Deputy Undersecretary for Oceans and Atmosphere, argued:

This conference comes at a critical time for our world. The oceans and coasts are facing a multitude of stressors, including marine debris, that lead to consequences that have both ecosystem and economic impacts. It is vitally important to bring together people committed to these issues to share ideas, develop partnerships[,] and move us all a step closer to the changes that are badly needed for our oceans and coasts.²⁶³

The participants agreed to what became known as The Honolulu Commitment. It set out a cross-sectoral approach to help reduce marine debris and ameliorate environmental and human health damage. Moreover, it encouraged the sharing of technical, legal, and market-based solutions to reduce marine litter, improve local and regional knowledge of the scale and impact of the issue, and advocate waste management improvements globally. It was designed to be the first step in the creation of a comprehensive global platform for the prevention, reduction, and management of marine debris.²⁶⁴ The Strategy was finalized after the conference to provide a strategic framework for coordinated action plans and was designed to prevent and ameliorate sources of marine debris.²⁶⁵

sites/default/files/publications-files/Honolulu_Strategy.pdf (last visited Mar. 22, 2023) (summarizing strategy to prevent marine pollution).

260. *Projects*, MARINE LITTER SOL., <https://www.marinelittersolutions.com/projects/> (last visited Feb. 23, 2023) (listing ongoing projects to curtail marine pollution).

261. *What is Being Done?*, MARINE LITTER SOL., <https://www.marinelittersolutions.com/about-marine-litter/what-is-being-done/> (last visited Feb. 6, 2023). (examining progress toward marine pollution cleanup).

262. UNEP & NOAA, *The Honolulu Strategy*, *supra* note 259, at 2 (outlining strategy for marine pollution clean-up).

263. Fabiano Barretto, *The Honolulu Commitment*, GLOBAL NEWS (Mar. 29, 2011), <http://globalgarbage.org/beach/2011/03/29/new-international-co-operation-to-tackle-marine-debris>.

264. *What is Being Done?*, *supra* note 261 (detailing marine clean-up projects).

265. *Id.* (describing projects for marine pollution clean-up).

That Strategy established a global framework to improve the cooperation of international efforts to prevent marine debris (including plastic) from entering oceans. The Strategy provides a results-oriented framework for global collaboration to address marine debris and its human, economic, and ecological impacts, including specific goals to reduce land and sea-based sources of marine litter and the impact of existing plastics in the environment.²⁶⁶

The framework had three goals²⁶⁷ and associated strategies²⁶⁸ designed to minimize the size and impact of marine debris from land-based and ocean-based sources as well as marine debris accumulations.²⁶⁹ As a framework document, it does not override existing activities at the domestic level, but rather is designed to facilitate improved collaboration and coordination between global stakeholders concerned with marine debris.²⁷⁰

The Strategy was designed to operate as a planning tool for marine debris programs and projects as well as a “common frame of reference for collaboration and sharing best practices and lessons learned.”²⁷¹ The authors, however, deemed “target-setting” inappropriate, leaving it to local, regional, or state levels to set their own targets based on their perceived needs and capabilities.²⁷² While its primary objective is to reduce marine litter, the Strategy has been criticized for lacking tangible targets and timeframes regarding pollution reduction.²⁷³

266. UNEP & NOAA, *The Honolulu Strategy*, *supra* note 259, at 2 (summarizing Honolulu strategy to clean-up and prevent marine debris).

267. The three goals were: “[r]educed amount and impact of land-based sources of marine debris introduced into the sea; reduced amount and impact of sea-based sources of marine debris, including solid waste; lost cargo; abandoned, lost, or otherwise discarded fishing gear (ALDFG); and abandoned vessels, introduced into the sea; and reduced amount and impact of accumulated marine debris on shorelines, in benthic habitats, and in pelagic waters.” *Projects*, *supra* note 260 (detailing clean-up projects).

268. These strategies include: education and outreach; implementing best practice, strengthening domestic legislation; improve the regulatory framework; build capacity to monitor and enforce; create appropriate regional, national, and local mechanisms to facilitate removal of marine debris and conduct regular clean-ups. *Id.* (illustrating current clean-up projects).

269. *Id.* (listing clean-up projects).

270. UNEP & NOAA, *The Honolulu Strategy*, *supra* note 259, at 57 (summarizing clean-up strategy in Honolulu).

271. *Projects*, *supra* note 260 (describing marine litter clean-up projects).

272. UNEP & NOAA, *The Honolulu Strategy*, *supra* note 259, at 57 (analyzing Honolulu marine litter clean-up strategy).

273. Karen Raubenheimer, Alistair McIlgorm & Nilufer Oral, *Towards an Improved International Framework to Govern the Life Cycle of Plastics*, 27 REV. EUR., COMPAR. & INT’L ENV’T L. 210, 214 (2018) (critiquing international legal framework governing global waste).

3. *G20 Action Plan on Marine Litter*

The Group of Twenty (G20) created the “G20 Action Plan on Marine Litter” with the aim of creating diverse “tools to reduce marine litter” which “have to be as diverse as the challenge of marine litter itself.”²⁷⁴ G20 recognized the urgency of the issue and its members decided to work together to promote and implement measures at the local, state, and regional levels to prevent and reduce marine litter. The members realized they needed to focus on land- and sea-based sources of marine litter and pledged to working on the issue in accordance with state circumstances. They further committed to preventing and substantially reducing marine litter by 2025 to realize the 2030 Agenda for Sustainable Development and its Sustainable Development Goals.²⁷⁵

To achieve these laudable aims, the G20 created a voluntary Global Network of the Committed – GNC. This is a platform that aims to address the issue of marine litter and is linked to the UNEP’s Global Partnership on Marine Litter (GPML). It is designed to offer and secure exchange, dissemination, and transfer information, standards, experiences, and knowledge on the issue.²⁷⁶

4. *Ocean Plastic Charter*

In June 2018, in the absence of a global binding instrument on plastic pollution, the European Union and five members of the G7 (Canada, France, Germany, Italy, and the United Kingdom) signed Ocean Plastics Charter in Charlevoix, Canada.²⁷⁷ The United States and Japan were the only G7 states that did not sign the Char-

274. G20, *G20 Action Plan on Marine Litter*, MINISTRY OF FOREIGN AFF. (July 8, 2017), <https://www.mofa.go.jp/mofaj/files/000272290.pdf> (stating international need to curtail global plastic waste).

275. *Id.* (summarizing G20 discussion on global plastic waste).

276. *G20 Action plan on Marine Litter*, G20 INFO. CTR. (July 8, 2017), <http://www.g20.utoronto.ca/2017/2017-g20-marine-litter.html> (detailing issues with international global plastic waste).

277. The Ocean Plastics Charter (signed in Charlevoix, Canada, June 2018) https://www.canada.ca/content/dam/eccc/documents/pdf/pollution-waste/ocean-plastics/Ocean%20Plastics%20Charter_EN.pdf. The following states eventually signed the Charter: Canada, European Union, France, Germany, Italy, United Kingdom, Jamaica, Kenya, Mexico, Norway, Republic of the Marshall Islands, Netherlands, Senegal, Nauru, Palau, Cabo Verde, Myanmar, Samoa, and businesses signing included: Ikea, Nestle, Coca Cola, Volva and Walmart. *G7 Ocean Plastics Charter, G7 Meeting Charlevoix*, PLASTIC ACTION CTR., <https://plasticactioncentre.ca/directory/ocean-plastics-charter/> (last visited Feb. 24, 2023) (outlining international framework to combat plastic pollution).

ter.²⁷⁸ The G7 had focused on the marine pollution issue at previous meetings but this was the first time its members had focused on the specific issue of marine plastic pollution. The Charter is an example of “minilateralism” where a small number of states come together to resolve an issue rather than through United Nations meetings, which are more formal and larger.²⁷⁹

The Charter is a non-binding voluntary agreement that outlines concrete actions to eradicate plastic pollution. It recognizes the need for urgent action to address the devastating impacts of marine litter on the health and sustainability of our oceans, seas, coastal communities, and ecosystems.²⁸⁰ The Charter aims to “bring together leading governments, businesses[,] and civil society organizations to support its objectives and commit to taking action to move toward a more resource efficient and sustainable approach to the management of plastics.”²⁸¹

The Charter requires twenty-three actions across five core areas: “(1) [s]ustainable design, production, and after-use markets; (2) [c]ollection, management, and other systems and infrastructure; (3) sustainable lifestyles and education; (4) research, innovation, and new technologies; and (5) coastal and shoreline action.”²⁸² The United Kingdom, Canada, France, Germany, Italy, and the European Union agreed to increase plastic recycling by fifty-five percent while also seeking to use one-hundred percent reusable, recyclable, or recoverable plastics by 2030.²⁸³ The states further agreed:

... to take a lifecycle approach to plastics stewardship on land and at sea to avoid unnecessary use of plastics and prevent waste, and to ensure that plastics are designed for

278. Carly Cassella, *The US And Japan Are The Only G7 Nations That Refuse to Tackle Plastic Pollution*, SCI. ALERT (June 12, 2018), <https://www.sciencealert.com/us-japan-refused-join-g7-charter-tackle-plastic-pollution-oceans> (describing G7 nations’ strategy for combatting plastic pollution).

279. MARCUS HAWARD, OCEAN PLASTICS CHARTER: ESSENTIAL CONCEPTS OF GLOBAL ENVIRONMENTAL GOVERNANCE 172 (Taylor & Francis, 2nd ed. 2020) (detailing Ocean Plastic Charter’s plan to combat plastic pollution).

280. *Ocean Plastics Charter*, GOV’T OF CANADA, <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/international-commitments/ocean-plastics-charter.html> (last visited Feb. 24, 2023) (outlining Charter governing marine plastic pollution).

281. *Id.* (addressing terms in Ocean Plastics Charter).

282. Haward, *supra* note 279, at 172 (analyzing framework to prevent marine plastic pollution).

283. Cassella, *supra* note 278 (explaining where US stands on global plastic pollution).

recovery, reuse, recycling and end-of-life management to prevent waste through various policy measures.²⁸⁴

Other key commitments included: working with industry and lower levels of government to recycle and reuse at least fifty-five percent of plastic packaging by 2030 and recover one hundred percent of all plastics by 2040; invigorate global action and investments through public-private funding and capacity development to address marine litter; promote research and new technologies to remove plastics and microplastics from wastewater and sewage; create innovative plastic materials and alternatives not harmful to the environment; implement measures such market-based instruments that prevent plastics from entering the oceans; and bolster labelling standards so consumers can make sustainable decisions on plastic product usage.²⁸⁵

The Charter focuses on information sharing, monitoring, and suasion between state and non-state actors. These so-called “sunshine methods” allow states to foster compliance while avoiding the limitations of hard law instruments.²⁸⁶ Since its creation, another sixteen states and sixty-three businesses and organizations have endorsed the Charter.²⁸⁷

5. *The G20 Osaka Blue Ocean Vision*

The G20 Action Plan on Marine Litter was adopted at the G20 Hamburg Summit in 2017, laying the foundation for member states to address the problem of marine litter.²⁸⁸ The Osaka Blue Ocean Vision was established in June 2019 by G20 leaders as part of efforts to implement the G20 Action Plan on Marine Litter.²⁸⁹ It also included goals to reduce additional marine plastic litter to zero by 2050 through enhanced waste management systems and innova-

284. Haward, *supra* note 279, at 172 (addressing how Ocean Plastics Charter may prevent and combat marine debris).

285. *G7 Ocean Plastics Charter*, PLASTIC ACTION CTR., <https://plasticactioncentre.ca/directory/ocean-plastics-charter/> (last visited Feb. 24, 2023) (outlining terms in Ocean Plastics Charter).

286. Haward, *supra* note 279, at 172 (describing international agreements governing plastic pollution).

287. *Id.* (addressing ways which international agreements attempt to prevent plastic pollution).

288. *G20 Implementation Framework for Action on Marine Plastic Litter*, EUR. COMM’N, <https://ec.europa.eu/environment/marine/good-environmental-status/descriptor-10/pdf/G20%20Implementation%20Framework%20for%20Actions%20on%20Marine%20Plastic%20Litter.pdf> (last visited Feb. 23, 2023) (explaining strategy for marine litter clean-up).

289. *About Us*, OSAKA BLUE OCEAN VISION, <https://g20mpl.org/about> (last visited Feb. 9, 2023) (describing Osaka Blue Ocean Vision).

tion.²⁹⁰ While eighty-six countries and regions support this vision, it is voluntary in nature,²⁹¹ and its 2050 timeframe may not provide strong enough signals to effect short-term change.

Japan, with the goal of realizing the Osaka Blue Ocean Vision, supported developing states' efforts to deal with the issue of marine plastic. To this end, Japan created the "MARINE Initiative" to increase its capacity building and infrastructure development in waste management. The initiative focused on the following issues: management of wastes; recovery of marine litter; innovation; and empowerment. These goals were to be supported by encouraging international cooperation and assistance through international organizations to develop capacities and training schemes: international operations by Japanese companies, NGOs, and local governments to advance international cooperation, facilitate the export of waste management facilities and technologies, and assist emerging Asian states; the Dissemination and Sharing of Best Practices gleaned from the experiences of the Japanese public and private sectors concerning waste management; recovery of marine litter and innovation; advance sharing knowledge about measures to combat marine plastic litter with ASEAN member countries; and lastly, create a Regional Knowledge Centre on Marine Plastic Debris.²⁹²

The Osaka Blue Ocean Vision's aim of net-zero marine plastic litter entering the ocean by 2050 is laudable. As Atsushi Sunami notes, the Osaka Blue Ocean Vision is a "welcome step forward, [but] the G20 nations need to do more than just share the common goal under the vision and implement better ways to manage plastic waste."²⁹³ Rather, a global mechanism is required that effectively

290. *Id.* (illustrating Osaka Blue Ocean Vision).

291. Stephen Fletcher, Keiron P. Roberts, Yoni Shiran, John Virdin, van Conesa Alcolea, Andrew Brown, Elena Buzzi, Lesley Henderson, Frithjof Laubinger, Llorenç Milà i Canals, Sayyidah Salam, Siegfried Anton Schmuck, Joana Mira Veiga, Samuel Winton & Kathryn Marie Youngblood, *Policy Options to Eliminate Additional Marine Plastic Litter by 2050 Under the G20 Osaka Blue Ocean Vision*, UNEP (2021), <https://wedocs.unep.org/handle/20.500.11822/36440> (summarizing policies to combat marine plastic pollution).

292. *Japan's "MARINE Initiative" toward Realization of the Osaka Blue Ocean Vision*, MINISTRY OF FOREIGN AFF. OF JAPAN (Aug. 20, 2021), https://www.mofa.go.jp/ic/ge/page25e_000317.html (outlining initiative for clean oceans).

293. Atsushi Sunami, *A Vision for Protecting the World's Oceans*, JAPAN TIMES (July 16, 2019), <https://www.japantimes.co.jp/opinion/2019/07/16/commentary/japan-commentary/vision-protecting-worlds-oceans/> (addressing Japan's initiatives for clean oceans).

monitors states' progress while also quickly creating alternative materials for plastics.²⁹⁴

If these goals are to be realized, the G20 states need to do the following: make marine plastic pollution a priority; effectively coordinate marine plastic litter reduction policies; adopt global policy targets that can be delivered nationally; adopt policies that reduce marine plastic litter, such as designing how waste should be developed, shared, and scaled up immediately; transition quickly to a circular plastics economy; overcome the significant knowledge gap on the effectiveness of marine plastic litter policies; fully regulate the international plastics trade; and pass COVID-19 recovery stimulus packages that bolster the Osaka Blue Ocean Vision.²⁹⁵

IV. CONCLUSION: THE NEED FOR A ROBUST INTERNATIONAL INSTRUMENT TO ADDRESS PLASTIC POLLUTION

Existing regulatory frameworks are insufficient to address the widespread impacts of plastic pollution successfully. As Peter Dauvergne trenchantly observes: “global governance of marine [and terrestrial] plastic pollution remains highly uneven.”²⁹⁶ Current legal developments relating to the regulation of plastics in global commons spaces are either focused simply on building understanding and monitoring the situation or, alternatively, concerned with reducing the introduction of plastic pollution to the environment.²⁹⁷ The application of different standards coupled with divergence in membership across instruments and plans has encouraged uncoordinated global actions that have failed to remedy the problem of plastic pollution in the global environment.²⁹⁸

States have become parties to international environmental law instruments, such as the International Convention for the Prevention of Pollution from Ships, which could play a role in minimizing or restricting the disposal of plastic waste into the sea but so far

294. *Id.* (summarizing G20 summit discussion of ocean pollution and cleanup).

295. 2050 Under the G20 Osaka Blue Ocean Vision, *Policy Options To Eliminate Additional Marine Plastic Litter*, UNEP, https://wedocs.unep.org/bitstream/handle/20.500.11822/36441/MPLFS_EN.pdf (last visited Feb. 23, 2023) (exemplifying marine plastic pollution).

296. Peter Dauvergne, *Why is the Global Governance of Plastic Failing the Oceans?*, 52 *GLOBAL ENV'T CHANGE* 22, 25 (2018) (arguing for improved governance for marine plastic pollution).

297. Kirk & Popattanachai, *supra* note 105, at 227 (criticizing Article 207).

298. *Id.* at 233 (noting that incoordination across instruments failed to stem plastic pollution).

have failed to do so.²⁹⁹ Problematically, these instruments have proven limited to date because they only address the end of life disposal of plastics and do not address other phases of the plastic's life cycle, such as the "extraction of raw materials [and the] design and use phases of plastic polymers and additives."³⁰⁰ Besides the UNCLOS's, MARPOL's, and London Convention's focus on the end of life phase, there are further limitations these instruments do not address regarding the prevention of land-based sources, which constitute eighty percent of maritime plastic pollution.³⁰¹

The Basel Convention's language regarding plastic lacks clear definitions, such as defining hazardous waste, and employs open-ended language in the provisions relating to plastics.³⁰² Its provisions as currently written are too vague to have any authority in regulating how nations handle their plastic waste.³⁰³ Further, it does not offer any solutions to the "upstream" production of plastic as a cause of marine plastic pollution.³⁰⁴ It has struggled to enforce its directives and relies on states to enact and implement national legislation to implement its provisions.³⁰⁵ This flaw in failing to instill proper enforcement mechanisms for the ongoing environmental harm caused by improperly regulated waste traders prevents the Basel Convention from being able to effectively combat the ongo-

299. U.N. Convention on the Law of the Sea, *opened for signature* June 4, 1992, 1833 U.N.T.S. 396 (entered into force Nov. 16 1994) (establishing laws and regulations for ocean resources); Protocol of 1978 relating to the International Convention for the prevention of pollution from ships, 1973, annex V, *opened for signature* Feb. 17, 1973, 1340 U.N.T.S. 61 (entered into force Oct. 2, 1983) (describing preventative methods for ship pollution); International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Dec. 29, 1972, 1046 U.N.T.S. 120 (detailing regulations for marine pollution and dumping).

300. NILS SIMON & MARO LUISA SCHULTE, STRENGTHENING PLASTIC GOVERNANCE: TOWARDS A NEW GLOBAL CONVENTION 29 (2017) (criticizing international efforts to combat plastic pollution).

301. Leila Monroe, *Tailoring Product Stewardship and Extended Producer Responsibility to Prevent Marine Plastic Pollution*, 27 TULANE ENV'T L.J. 219, 220 (2014) (illustrating extent of plastic pollution).

302. SIMON & SCHULTE, STOPPING GLOBAL PLASTIC POLLUTION, *supra* note 208 (describing extent of plastic pollution internationally); Raubenheimer & McIlgorm, *supra* note 91, at 271, 290 (explaining provisions in Stockholm Convention).

303. Raubenheimer & McIlgorm, *supra* note 91, at 271, 290 (detailing restrictions in Stockholm Convention).

304. Khan, *Lessons from the Basel Convention*, *supra* note 169, at 205 (summarizing Basel Convention).

305. Lipman & Ind, *supra* note 232, at 227 (explaining international environmental law).

ing plastic waste trade in its current configuration.³⁰⁶ As previously noted, while the Norwegian plastic amendment is an impressive accomplishment in this space, it does not overcome the issues inherent in its current iteration. The amendment has no overall reduction targets, clear reporting obligations, or effective monitoring processes that can tell whether the plastic waste trade is being limited.³⁰⁷

The Stockholm Convention does not regulate all chemical additives used in plastic products. It only protects a limited number of persistent organic pollutants used in manufacturing plastics. This instrument is not effective in dealing with plastic pollution or keeping up with industry trends due to the rapid innovation of plastics and the length of time to amend the Basel Convention.³⁰⁸ In addition to these binding instruments, many voluntary frameworks seek to address plastic pollution, but none have emerged as a suitable forum to tackle this issue, nor do any have a mandate or means to do so.³⁰⁹ Further, the proliferation of soft law rules in the marine space currently suffer from the usual problem that the cost of violating such non-binding agreements is non-existent for states, leading to extremely limited efficacy.³¹⁰

It is increasingly evident that a new overarching international regulatory framework is necessary to address plastic pollution properly. Harmonizing existing international laws, rules, and norms regarding international plastic pollution would help foster a more robust and effective regime.³¹¹ Conversely, simply utilizing or modifying existing international legal structures is unlikely to offer the comprehensive solution required to address current and future global plastic pollution levels. Despite the global scope of the other international environmental instruments considered here – the

306. Ajibo, *supra* note 233, at 275 (illustrating impact of hazardous waste on developing countries).

307. *Id.* at 267, 283 (addressing impact of hazardous waste internationally); Khan, *Lessons from the Basel Convention*, *supra* note 169, at 205 (outlining impacts of Basel Convention); Raubenheimer & Urho, *Rethinking Global Governance of Plastics*, *supra* note 184, at 5 (addressing international agreements to govern plastic pollution).

308. UNEP, *Combating Marine Plastic Litter and Microplastics: An Assessment of the Effectiveness of Relevant International, Regional and Subregional Governance Strategies and Approaches*, UNEP/EA.3/INF/5, 148 (analyzing international marine plastic pollution impact and preventative strategies).

309. STRENGTHENING PLASTIC GOVERNANCE *supra* note 300, at 3 (arguing for new treaty governing international plastic pollution).

310. Gianluca Ferraro & Pierre Failler, *Governing Plastic Pollution in the Oceans: Institutional Challenges and Areas for Action*, 112 ENV'T SCI. & POL'Y 453, 454 (2020) (examining marine plastic pollution).

311. *Id.* at 455 (detailing marine plastic pollution).

London Convention, MARPOL, UNCLOS, the Stockholm Convention, and the Basel Convention – none were designed to focus on marine or terrestrial plastic pollution beyond state borders.

Presently, no global agreement exists to prevent plastic litter and microplastics from entering the environment in general and, specifically, the marine environment or to provide a lifecycle approach to the management of plastics, which would align with the circular economy framework. Rather, each convention seeks to resolve its own cooperation challenge with plastic pollution, at best, an afterthought.³¹² Calls for a new international instrument focused on marine pollution have become more frequent and are currently being considered at the United Nations level as the global community seeks to create a global plastics treaty encompassing both plastic production and waste by 2025.³¹³

As this paper has demonstrated, the need to better address the issue of plastic requires more than the current “patchwork quilt” approach that has risen piecemeal over time and has proven to be ineffective in managing ongoing global plastic pollution. Given the scope and impact of international plastic pollution, it is clearly time for a more comprehensive and efficacious global response to the issue. That concern will be analyzed more comprehensively in the forthcoming article, *Many Miles to Go Before We Sleep: The Long Road to Creating a Comprehensive Global Plastics Treaty*, to be published in the next issue of the *Villanova Environmental Law Journal*.

312. Hugo, *supra* note 26, at 12 (summarizing need for new global pollution policies).

313. See, e.g., Simon & Schulte, *supra* note 208 (detailing necessity for international plastics treaty); Raubenheimer & McGillorm, *supra* note 91 (analyzing Stockholm Convention).